

SUSTAINABLE KNOWLEDGE SYSTEMS AND RESOURCE
STEWARDSHIP: IN SEARCH OF ETHNO-FORESTRY PARADIGMS
FOR THE INDIGENOUS PEOPLES OF EASTERN KHAM

By
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Dedicated to

אל עליון

my wife Sally , and the peoples of High Asia who all
taught me to hear different drummers

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ABSTRACT

Policy-makers, project planners and development organisations are becoming convinced that the failure of the new socio-ecologically sensitive strategies co-opted by 'professional' forestry could be better addressed by indigenous forestry. They believe that indigenous forestry might assist with the development of successful forestry projects that are ecologically sustainable and socio-politically equitable. In order, however, to learn **from** indigenous forestry systems, the acculturation of foresters in the vernacular culture of the forest users appears to be an essential process for understanding and intervening in a local forest management complex. Acculturation entails not only more attention to the immaterial cultural realm, but an understanding of multiple resource stewardship, local ways of knowing and perceiving, local forest values and 'practices of care'.

While acknowledging the significance of the politics of knowledge and political ecology this study examines resource stewardship from an alternative neglected angle that of knowledge sustainability and synergistic bridging. It will examine in general modes of knowing and bridging between 'formal' and indigenous forestry knowledge, and in particular the identification of forest value paradigms that are evidently exemplars of bio-cultural sustainability.

The main outcomes of this study include the cognitive mapping of forest values among 'Tibetan minority nationalities' in Eastern Kham, their spatial distribution and the coincidence of changes in forest values with cultural or biophysical phenomena.

Conceptually this study relies heavily on knowledge-system, hypertext, and paradigm theory and a critique of the narratives of John Locke. The former provide a platform to compare and contrast alternative knowledge systems and a means of synergistic bridging between them and the latter encapsulates a trajectory of western knowledge often known as modernity.

The quantitative methods employed in this study included text analysis for forest value identification, multidimensional scaling for the cognitive mapping of forest values,

spatial analysis and kriging for forest value distribution, and boundary or wombling analysis for changes in forest values and their coincidence with cultural or biophysical phenomena. The latter four methods are groundbreaking in that they have never been used to study forest values before.

The study concludes that there is compelling evidence suggesting homogeneity in forest values with up to 5 geospatial paradigms and up to 12 cognitive paradigms. The findings, especially close correlation between forest values and ethnolinguistics, provide a potential template for foresters to develop multiple models of natural resource or biodiversity stewardship based on local forest values.

In terms of the wider application, indigenous knowledge cannot seemingly be sustained if it is integrated with or into western knowledge systems due to the lack of conceptual frameworks for cross-cultural epistemological or psychological integration. Coalescing under the rubric of post-modernism, however, we do find a number of complimentary trajectories, which seemingly provide space for knowledge equity, sustainability and bridging. These trajectories include hypertext theory, paradigm theory, abductive logic, adaptive management, ecospiritual paradigms, and post-modern forestry paradigms. These trajectories and findings offer planners globally a means for synergistic bridging between local and non-local knowledge systems on the road to sustainable forestry and biodiversity stewardship.

Keywords - Paradigm, ethno-forestry, synergistic bridging, Eastern Kham, forest values, China, Tibet, knowledge systems, adaptive management, sacred landscape, territorial divinities, MDS, kriging, wombling, geostatistics.

ABSTRACT (Tibetan)

གནད་བསྡུས།

༡༡། སྤྱི་ལུས་གཏན་ལ་འབབས་མཁན་དང་། ལས་དོན་ལུས་གཞི་འགོད་མཁན། བྱོར་
 ཚོ་གོང་འཕེལ་གཏོང་མཁན་རྩ་འཛུགས་སོགས་ཀྱིས་ཉིན་རེ་ལས་ཉིན་རེ་བདེན་པར་འཛིན་
 གྱི། ཆེད་ལས་ནགས་ལས་རིག་པས་གཏན་ལ་འབབས་པའི་སྤྱི་ཚོགས་སྤྱི་ཚུལ་ཚོར་བརྩོན་
 པའི་འཐབ་ལུས་གསར་བ་དེ་ཡང་པ་ནི་སྤྱི་ཚུན་ནགས་ལས་ཀྱིས་ཡག་པོར་བདེན་དཔང་
 ཐོབ་བྱུང་། སྤྱི་ཚུན་ནགས་ལས་ནས་ལེགས་འགྲུབ་ཐོབ་པའི་རྒྱུ་མཐུན་སྤྱི་ཚུལ་དང་
 གཞུགས་ཆབ་སྤྱི་ཚུན་ནགས་ལས་ལས་དོན་ལ་གོང་འཕེལ་གཏོང་བའི་རམ་འདེགས་ལྷུ་
 ས་པ་ཡོད་པ་ནི་ཁོང་ཚོ་ངོས་འཛིན་པ་རེད། ཡིན་ནི་འདྲ་། སྤྱི་ཚུན་ནགས་ལས་ཀྱི་
 ཁོངས་གཏོགས་ཤེས་བྱ་སྤྱོད་བའི་ཆེད་དུ། ནགས་ལས་ལས་དོན་བྱེད་མགན་གྱིས་ནགས་
 ཚལ་སྤྱོད་མཁན་རང་ཡུལ་གྱི་རིག་གནས་འཕྲོད་ལྷགས་བྱེད་དགོས་པ་སྟེ། ནགས་ཚལ་སྤྱོད་
 ད་མཁན་རང་ཡུལ་གྱི་ནགས་ལས་བདག་སྤྱོད་ལས་དོན་ལ་སྒྲིམ་མང་གོ་བ་དང་ལུས་གཏོགས་
 ས་བྱེད་དགོས་པ་རེད། རིག་གནས་འཕྲོད་ལྷགས་བྱེད་པ་ནི་དངོས་པོ་མིན་པའི་རིག་གནས་
 ཁོངས་གཏོགས་ལ་སེམས་མང་པོར་བྱེད་དགོས་པ་མ་ཟེད། ད་དུང་ཐོན་ཁུངས་མང་པོའི་
 ཞབས་འདེགས་ལས་དོན་དང་། ནགས་ཚལ་སྤྱོད་མགན་རང་ཡུལ་མི་རྒྱུས་ཀྱི་ནགས་
 ཚལ་རིན་ཐང་། བདག་གཉིན་ལག་ལེན་ལ་སོགས་པར་ཤེས་རྟོགས་མང་པོ་བྱེད་དགོས།

ཤེས་ཡོན་དང་ཆབ་སྲིད་སྐྱོད་ཚུལ་རིག་པའི་གནས་ཆེ་བའི་རིན་ཐང་དོས་འཛིན་བྱེད་ཆེད་དུ།
 ཞིབ་འཇུག་དེ་ནི་ཤེས་ཡོན་རྒྱན་མཐུན་བྱུང་པའི་རང་བཞིན་གཞིར་བཟུང་ནས་ཤེས་ཡོན་གྱི་
 རིས་མོས་དང་སྒྲུང་མེད་སྒྲུབ་པའི་ལྟ་སྟེགས་དམིགས་སྟེ། ཐོན་ཁུངས་ཀྱི་ཞབས་ཞུ་ལས་དོན་
 ལ་བརྟགས་དཔྱད་བྱེད་པ་རེད། དུས་ཅིག་ཏུ་དངོས་གཞི་ཟེར་བའི་ནགས་ཚལ་ཤེས་ཡོན་དང་
 སྟོལ་རྒྱན་ནགས་ཚལ་ཤེས་ཡོན་པར་གྱི་ཤེས་རྟོགས་དང་མཐུན་བྱེད་པའི་དཔེ་དབྱིབས་ལ་
 རྒྱན་སྟོལ་བྱེད་ལུགས་ཀྱིས་བརྟག་དཔྱད་བྱེད་པ་མ་ཟེད། ད་དུང་སྐྱོད་ཚུལ་ཤེས་ཡོན་རྒྱན་
 མཐུན་བྱུང་པའི་རང་བཞིན་གསལ་པོར་མཆོན་པའི་ནགས་ལས་རིན་ཐང་གི་དཔེ་མཆོན་
 དབྱེ་འབྱེད་ལ་བྱེད་པར་སེམས་བྱུང་བྱེད་པ་རེད།

ཞིབ་འཇུག་དེ་ཡི་གྲུབ་འབྲས་ནི་གྲོང་གུ་འོ་བོད་རིགས་གནས་པའི་ས་ཁུལ་ཤར་སྟོགས་སུ་ག་
 ནས་པའི་ཁམས་པ་ཡི་ནགས་ཚལ་རིན་ཐང་ཤེས་རྟོགས་ཀྱི་དཔེ་རིས་དང་། ར་སྒྲུང་ཁ་གྲམ་
 དཔེ་རིས་དང་། རིག་གནས་སམ་སྐྱོད་དངོས་དངོས་ལུགས་མཉམ་དུ་བྱུང་བའི་ནགས་
 ཚལ་རིན་ཐང་གི་འོས་བབས་འགྲུར་བ་སོགས་འདུ་པ་རེད།

དོན་སྤྱི་ཐོག་ལ་ལྟ་ནས་ཞིབ་འཇུག་དེ་སྐྱོད་པའི་རིག་པའི་གཞུང་ལུགས་དང་ཐབས་ཤེས་གཙོ་
 བོ་ནི་ཤེས་ཡོན་རྒྱན་རིམ་ལྡན་པའི་རིགས་པའི་གཞུང་ལུགས་དང་། རིམ་འདས་ཡིག་ཆ་
 གཞུང་ལུགས། མཆོན་དཔེ་གཞུང་ལུགས། ཡུའེ་ཏན་ལུའོ་ཁོ་(John Locke) ཡི་དོན་བརྗོད་
 རིག་པ་ལ་དཔྱད་གཏམ་བརྗོད་པ་བཅས་གཞུང་ལུགས་ཡོད་པའོ། སྡེ་མ་གཞུང་ལུགས་

དེ་ནམས་གྱིས་རིས་མོས་ཞིབ་བསྟར་རམ་ཤེས་ཡོན་རྒྱུད་རིམ་བསྟར་བའི་སྟེགས་མ་ཞིག་འདོན་པ་དང་། དེ་ནམས་པར་མཉམ་སྟེབ་འབྲེལ་མཐུད་ཀྱི་ཐབས་ཤེས་ཞིག་འང་འདོན་པ་རེད། རྗེས་མ་དེ་ནི་ཡོ་རོབ་དང་ཨ་མི་རི་ཀ་སོགས་རྒྱབ་ཕྱོགས་རྒྱལ་ཁབ་གི་ཤེས་ཡོན་མ་ལག་དང་རབས་སྟུག་ཅོད་པའི་རྗེས་ཤུལ་རེད།

ཞིབ་འཇུག་འདི་ནང་སྟོན་པའི་གྲངས་ཚད་རིས་གཏན་ཞིབ་འཇུག་རིགས་བཞི་ནགས་ཚལ་རིན་ཐང་ཐག་གཅོད་བྱེད་པའི་ཡིག་ཆ་དབྱེ་ཞིབ་རིག་པ་དང་། ནགས་ཚལ་རིན་ཐང་ཤེས་རྟོགས་དཔེ་རིས་ཀྱི་དཀྱུར་ཞིང་མང་བའི་བསྟར་ཚད་ཁྲིའི་རིག་པ། བར་སྒྲུང་དབྱེ་ཞིབ་རིག་པ། ནགས་ཚལ་རིན་ཐང་ཁ་གྲུལ་པའི་ཁོ་ལི་གོ (Kriging) གྲངས་ཚད་འཇུག་པའི་རིག་པ། ནགས་ཚལ་རིན་ཐང་འགྱུར་ལྡོག་དང་རིག་གནས་འང་སྐྱེ་དངོས་དངོས་ལུགས་སྒྲུང་ཚུལ་བཅས་ཀྱི་གཅིག་མཐུན་འགྱུར་བ་འང་WOMBING་དབྱེ་ཞིབ་རིག་པ་སོགས་སྟོན་ཡོད་པ་རེད། དེ་ནང་རྗེས་མའི་རིག་པ་བཞི་ནི་དེ་སྒྲུང་ལུགས་ཚལ་རིན་ཐང་ཞིབ་འཇུག་ནང་སྟོན་མ་མྱོང་། ཞིབ་འཇུག་དེར་ཨང་དང་པོར་སྟོན་པ་རེད།

ཞིབ་འཇུག་དེའི་མཐའ་འབྲེལ་ནི་གྲོང་ཀུའོ་བོད་རིགས་གནས་པའི་ས་ཁུལ་ཤར་ཕྱོགས་སྟུག་ནས་པའི་ཁམས་པ་ས་ཁུལ་དུ་ནགས་ཚལ་རིན་ཐང་ལ་ཤེས་རྟོགས་བཞི་ཡོད་པ་དང་། ས་རྒྱས་བར་སྒྲུང་གི་མཚོན་དཔེ་ལྟ་ཡོད་པ་དང་། ནགས་ཚལ་རིན་ཐང་གི་ཤེས་རྟོགས་མཚོན་དཔེ་བཅུ་གཉིས་ཡོད་པའོ། ཞིབ་འཇུག་མཐའ་འབྲེལ་དེ། ལྷག་པར་དུ་ནགས་ཚལ་རིན་ཐང་

དང་མི་རིགས་སྐད་ཆ་པར་འབྲེལ་བ་དམ་ཟབ་ཡོད་པའི་སྒྲུང་ཚུལ་དེ་ནགས་ལས་ལས་དོན་
 གྱེད་མཁན་ལ་སྒྲུ་མང་གི་རང་བྱུང་ཐོན་ཁོངས་དཔེ་གཟུགས་སམ་འདི་ཁྱུ་གྱི་ནགས་ལས་
 རིན་ཐང་ལ་ཉིན་ནས་སྐྱེ་དངོས་སྒྲུ་མང་གི་ཞབས་འདེགས་ལས་དོན་གྱེད་པ་སོགས་
 ལྷགས་སྟོན་ཡོད་པ་རེད།

ཉིར་སྐྱོད་ཡོངས་ཁྱབ་ཏུ་བཤད་ན། གལ་ཏེ་སྟོལ་རྒྱུན་ཤེས་ཡོན་དུ་རིག་གནས་ལས་བརྒྱལ་
 བའི་ཤེས་རྟོགས་དང་སེམས་ཁམས་ལེགས་སྒྲིག་གི་དོན་སྤྱི་གྲུབ་གཞི་མེད་པ་མ་ཟེད། ད་
 དུང་ལུ་སྟོགས་ཀྱི་ཤེས་ཡོན་མ་ལག་དུ་ཐམས་ཅད་ལེགས་སྒྲིག་གམ་མཉམ་འབྲེས་གྱེད་དེ།
 སྟོལ་རྒྱུན་ཤེས་ཡོན་ནི་རྒྱུན་འབྲུངས་མི་སྤྱི་པ་རེད། རྗེས་མའི་དེང་རབས་རིང་ལུགས་ཀྱི་
 འདུ་ཤེས་བྱང་འབྲེལ་གྱེད་ནས་ང་ཚོས་ཤེས་ཡོན་ཆ་སྟོམས་དང་། རྒྱུན་འབྲུངས་གོང་དུ་
 སྟོལ་བ། མཐུན་སྦྱོར་སོགས་སྟོགས་ལ་དགའ་འོས་པའི་ལམ་སྟོགས་འདོན་དངོས་གནས་
 མཐོང་བྱུང་པ་རེད། ལམ་སྟོགས་དེ་རྣམས་ནང་རིམ་འདས་ཡིག་ཆ་གཞུང་ལུགས་དང་།
 མཚོན་དཔེ་གཞུང་ལུགས། གཏན་ཆོགས་དར་ཤ་གཅོད་པ་གཞུང་ལུགས། འཕྲོད་ལྷགས་
 ལྷན་པའི་བདག་གཉེར། སྐྱེ་ཚུལ་འདུ་ཤེས་མཚོན་དཔེ། རྗེས་མའི་དེང་རབས་ནགས་ལས་
 མཚོན་དཔེ་སོགས་འདུ་པ་རེད། ལམ་སྟོགས་དེ་རྣམས་དང་གསར་རྟོག་དེ་རྣམས་ནས་ལས་
 དོན་རྩལ་གཞི་འགོད་མཁན་ལ་རྒྱུན་འབྲུངས་བྱུང་པའི་ནགས་ལས་དང་སྐྱེ་དངོས་སྒྲུ་མང་
 ཞབས་འདེགས་ལས་དོན་གྱེད་དུས་ཁྱུ་གྱི་དེ་དང་ཁྱུ་གྱི་མིན་པའི་སྟོགས་ཀྱི་ཤེས་

ཡོན་མ་ལག་མཉམ་ལས་མཐུན་སྒྲིལ་གྱི་བྱེད་ལུགས་ཞིག་འདོན་པའོ།

འགག་ཆེ་བའི་ཆོག་སྟེ། མཚོན་དཔེ། སྤྱི་ཚོགས་ནགས་ལས། མཉམ་ལས་མཐུན་སྒྲིལ།
གྲོང་ཀུའོ་བོད་རིགས་གནས་པའི་ས་ཁུལ་ཤར་ཕྱོགས་སུ་གནས་པའི་ཁམས་པ་ས་ཁུལ། ན
གས་ཚལ་རིན་ཐང་།གྲོང་ཀུའོ། བོད་རང་སྐྱོང་ལྗོངས། ཤེས་ཡོན་མ་ལག་ འཕྲོད་ལུགས་ལྡན
པའི་བདག་གཉེར། འཕགས་ཡུལ། ཡུལ་ལྷ། MDS ཁོ་ལི་གོ (Kriging) ་གྲངས་ཚད
འཇུག་པའི་རིག་པ། WOMBLING གི་དབྱེ་ཞིབ་རིག་པ། བར་སྒྲུང་བསྟོམས་རྩིས།

ABSTRACT (Chinese)

摘要

政策制定者、项目设计者和建设单位越来越确信由所谓的专业林学制定的新的社会-生态敏感战略的失败可以很好地被传统林业来证实。他们认为传统林业可以帮助发展成功的持续生态和公平政治的林业项目。然而,为了从传统林业系统中获取知识,森林官员对森林用户本土文化的适应性应当表现为能够潜在地理解和介入当地林业管理的繁杂性。文化适应性不仅要求更多地注意到那非物质的文化领域,而且更需要理解多资源的服务工作、本土的认识和洞察方法、以及本土的森林价值和管理实践。

为了确认知识和政治生态学的重要意义,本研究从知识的可持续性和协同沟通这一交替的、易忽视的角度来调查资源服务工作。同时,以常规方式调查在所谓正式和传统林业知识间认识与沟通的模式,并且特别关注那些显具有生态文化可持续性的林业价值范例的识别。

本研究的主要产出包括东康巴藏族少数民族地区的森林价值的认知图、他们的空间分布图以及随同文化或生物物理现象而发生的森林价值的相应变化。

在概念上,本研究使用的理论方法主要有知识系统论、超级文本论以及范例论和对约翰洛克的叙述法的评论。前者主要提供一个交替比较和对照知识系统的平台和一种在他们之间协同沟通的方法,后者是封装一个被西方知识判断为现代性的轨迹。

本研究应用的定量研究方法有森林价值判定的文本分析法、森林价值认知地图的多维比例尺法、空间分析法,以及森林价值分布的克里格插值法、用于评价森林价值变化和他们对文化或生物物理现象一致变化的边界或 WOMBING 分析法。后面的 4 种方法在本研究中是一种创新,因为从来没有在森林价值研究中运用过。

本研究最终结论认为在东康巴地区明显地形成了森林价值的 4 种认知域、5 种地理空间范例和 12 种认知范例。该研究结果,特别是森林价值与民族语言密切相关的现象,暗示了林业官员可以发展多种自然资源模型或依靠当地林业价值进行生物多样性服务工作。

从广泛应用上讲,如果传统知识由于缺少跨文化认识或心理整合的概念框架而完全整合或融入到西方知识系统中,传统知识就不可能持续。不过,结合后现代主义的理念,我们确实可以发现一些能够为知识平衡、可持续发展和沟通提供一些可喜的径迹。这些径迹包括超级文本论、范例论、逻辑判断论、适应性管理、生态精神范例和后现代林业范例。这些径迹和发现为项目计划者在通往可持续林业和生物多样性服务工作的路上提供了一个全面的当地和非当地知识系统协同沟通的方式。

关键词: 范例, 人文林业, 协同沟通, 东康巴地区, 森林价值, 中国, 西藏, 知识系统, 适应性管理, 圣境, 守护神, MDS, 克里格插值法, WOMBLING 分析法, 空间统计

ACRONYMS

AAA American Anthropological Association

AAPA American Association of Physical Anthropologists,

ACM Association for Computing Machinery

ADB Asian Development Bank

AFP Agence France Presse

AFPA American Forest and Paper Association

AGPS Australian Government Seed and Plant Genetic Resources Service

ANU Australian National University

AR Autonomous Region

ASEH American Society for Environmental History

BBC British Broadcasting Corporation

BLV Boundary Likelihood Values

BMC BioMed Central

BP British Petroleum

BRH Baraha Indian software

CAS Chinese Academy of Science

CBIK Centre for Biodiversity and Indigenous Knowledge

CCICED the China Council for International Cooperation on Environment and Development

CCP Chinese Communist Party

CIFOR Centre for International Forestry Research

CERC Comparative Education Research Centre

CNTA China National Tourism Administration

COP Conference of the Parties of the Convention on Biodiversity

CRES Centre for Resource and Environmental Studies

CRP Conservation Reserve Program

CSF Care and Share Foundation

CSMOS Centre for Subsurface Modelling Support

CSUB California State University, Bakersfield

CSWR Centre for the Study of World Religions

DFID Department for International Development (UK)

DG Directorate General

DIIR the Department of Information and International Relations

DNA DeoxyriboNucleic Acid

DOS Disk Operating System

ECARDC European Conference on Agriculture and Rural Development in China

EMQ Evangelical Missions Quarterly

ENGO Environmental Non Government Organization

ENS Environment News Service

ETFRN European Tropical Forest Research Network

Acronyms and Fonts

EU European Union	ICFT International Campaign for Tibet
FAO Food and Agriculture Organization of the United Nations	ICIMOD International Centre for Integrated Mountain Development
FC Forestry Commission	ICT International Campaign for Tibet
FERN Forests and the European Union Resource Network.	IDL Interactive Data Language
FOC Friends of China	IDPM Institute for Development Policy and Management
FOE Friends of the Earth	IDRC International Development Research Centre
FV Forest Values	IDS Institute of Development Studies
GBKS Gender-Based Knowledge Systems	IFIA Inter-African Forest Industries Association
GDP Gross Domestic Product	IIED International Institute for Environment and Development
GDS Gamma Design Software	IK Indigenous Knowledge
GEOEAS GEOstatistical Environmental Assessment Software	IKC National Reference Centre for Nature Management
GIS Geographic Information System	IMF International Monetary Fund
GMSL Global Mapper Software LLC	IOBC International Organization for Biological Control
GPS Global Positioning System	IP Indigenous People
GS+ Geostatistics for the Environmental Sciences	IPTK Instituto Politecnico Tomas Katari
GSI Golden Software Inc	IQ Intelligence Quotient
HCA Hierarchical cluster analysis	IRR Internal Rate of Return
HCHR High Commissioner for Human Rights	ITP Intermediate Technology Press
HERDSA Higher Education Research and Development Society of Australasia	IUCN International Union for Conservation of Nature and Natural Resources
HMSO Her Majesty's Stationary Office	IUFRO International Union of Forest Research Organizations
IAIC International Academy of Indian Culture	JASO Journal of the Anthropological Society of Oxford
IBH India Book House Ltd	
ICCI Instituto Científico de Culturas Indígenas	

Acronyms and Fonts

JFM Joint Forest Management	PCAST President's Council of Advisors on Science and Technology
KMT Kuomintang - Chinese Nationalist Party	PLA Peoples Liberation Army
MDS Multidimensional Scaling	PR Public Relations
MEA the Millennium Ecosystem Assessment	PRA Participatory Rural Appraisal
MOAAF Ministry of Agriculture and Forestry	PRC Peoples Republic of China
MS Microsoft	RAC Resource Assessment Commission
NBLF Centre for Nature, Forests and Landscape	RDFN Rural Development Forestry Network
NCFES North Central Forest Experiment Station	RMB Renminbi (aka Chinese yuan)
NCSS Number Cruncher Statistical System	RSS Really Simple Syndication
NEF Natural Environmental Function	RT Roundtable
NFPP Natural Forest Protection Programme	RV Recreational Vehicle
NGEM Non-Government Environmental Movements	SADA Spatial Analysis and Decision Assistance
NGO Non-Government Organization	SAP Structural Adjustment Program
NHF Natural Hydrological Function	SASS Sichuan Academy of Social Science
NTFP Non-Timber Forest Products	SD Standard Deviation
NZFIC New Zealand Forest Industries Council	SID Society for International Development
OBU Oklahoma Baptist University	SNP Single Nucleotide Polymorphism
ODA Overseas Development Administration (UK)	SSDf Sum of Squared Differences
ODI Overseas Development Institute	SSDs Sum of Squared Dissimilarities
OUP Oxford University Press	STSC Software Technology Support Centre
PAR Participatory Action Research	SWK Scott Wilson Kirkpatrick & Co Ltd
	SYLFF the Ryoichi Sasakawa Young Leaders Fellowship Fund
	TAR Tibet Autonomous Region
	TEK Traditional Ecological Knowledge
	TEV Total Economic Value
	TIN Tibet Information Network

Acronyms and Fonts

TNC the Nature Conservancy (USA)	USDA United States Department of Agriculture
UC Upland Conversion	
UCL University College London	USDAFS United States Department of Agriculture Forestry Service
UD Undated	
UK United Kingdom	VOA Voice of America
UN United Nations	WB World Bank
UNC University of North Carolina	WCD World Commission on Dams
UNCHR United Nations Commission on Human Rights	WCS World Conservation Strategy
UNCRD United Nations Centre for Regional Development	WDL William D. Loughman
UNDP United Nations Development Programme	WPRS West Palaeartic Regional Section
UNEP United Nations Environment Programme	WRI World Resources Institute
UNESCO United Nations Educational, Scientific and Cultural Organization	WRM World Rainforest Movement
UNHCHR United Nations High Commission on Human Rights	WSSD World Summit on Sustainable Development
UNRISD the United Nations Research Institute for Social Development	WTN World Tibet Network News
USA United States of America	WTO World Trade Organization
USD United States Dollars	WWF World Wildlife Fund
	YAP Y Alu Polymorphism
	YEDP Yunnan Environmental Development Programme
	YFB Yunnan Forestry Bureau
	YPG Yunnan Provincial Government

Fonts Used

Times Roman 12 point has been used for most normal text

Arial scalable fonts have been used for maps plots and figures.

Tibetan Machine Web or Tibetan Machine font has been used for Tibetan

SimSun GB18030 font has been used for Chinese

BRH Devanagari font has been used for Hindi, Romani and Sanskrit

David font has been used for Hebrew

Windows ISO-8859-7 character set has been used for Greek

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CHAPTER 1 INTRODUCTION

1.1 INTRODUCTION

Although the need to pay attention to the unique cultural and ecological interface between indigenous people (IP) and their environment has been increasingly emphasised in the last ten years, it still remains highly contested¹. This is in spite of the fact that numerous studies on both indigenous knowledge (IK) and forestry stewardship reveal a wealth of information on forest protection, use and conservation, and confirm the important role indigenous people have played in forest perpetuation and biodiversity maintenance. Some policy-makers, project planners and development organisations are convinced that, the failure of the new socio-ecologically sensitive strategies co-opted by 'professional' forestry could be better addressed by indigenous forestry. They believe that indigenous forestry might assist with the development of successful forestry projects that are ecologically sustainable and socio- politically equitable². In spite of the current attention to Indigenous Knowledge³ in much of the world, the development ideologies of capitalism, socialism, Marxism-Leninism, Cartesian Science, formal technologies, government interventions, and the 'scientization of alternative knowledge systems'⁴, continue to colonize the consciousness of marginalized peoples. As a result indigenous peoples are reduced to a single 'backward' description and specific forest-related knowledge continues to be viewed as inferior and in need of 'elevation' according to the logic of the superior knowledge and 'real' science⁵. Some foresters have attempted to 'elevate' indigenous knowledge through 'integration' or 'incorporation' and even suggested that it might represent a 'paradigm shift'. Rather than representing a 'paradigm shift', integration appears in common with 'participation' and 'co-management' to be yet another 'western tyranny'⁶. Integration, from this perspective contains the implicit assumption that the cultural beliefs and practices known as forestry

1 Jonas 2004, van Leeuwen 1998, Posey 1999

2 Davis 2004, Umans 1992

3 MEA 2004, Dei et al 2000

4 Howard 1994

5 Esteva 1985

6 Hildyard 1998, Kaimowitz 21 June 2001

knowledge conform to western conceptions about 'knowledge' and power relations and it tends to view traditional forestry knowledge from the perspective of a western/traditional dichotomy, only as 'data' useful for forest management bureaucracies or industry⁷. In order to learn from indigenous forestry systems, the acculturation of foresters in the vernacular culture of the forest users is an essential process for understanding/intervening in a local forest management complex. Acculturation entails not only more attention to the immaterial cultural realm⁸, but an understanding of multiple resource stewardship, and 'practices of care' based on normative pluriformity⁹. While acknowledging the significance of the politics of knowledge¹⁰ and political ecology¹¹ this study examines resource stewardship from an alternative neglected angle, that of epistemic learning and 'epistemological bridging'¹². It will examine, in general, learning and the accommodation of varied ways of learning, and in particular, bridging the dichotomy between 'formal' and indigenous forestry knowledge, and the identification of indigenous forestry paradigms that are evidently exemplars of "bio-cultural"¹³ sustainability.

1.2 JUSTIFICATION

Since the second world war although western development discourse has 'made space' for the reality of non-western paradigms it continues generally to be privileged on ethnocentric 'western' values and epistemic frameworks. It may seemingly mouth the politically correct mantras of ethno-environmental concern, and measures, such as participation, that include the 'other' but in reality it often reduces indigenous knowledge to exogenous emic categories, that are disembodied from their socio-cultural context and the environment, to exploitable resources, devoid of meaning or value.

7 Shiva 2000, Davis 2004

8 These include worldviews, paradigms, cognitive and epistemological frameworks.

9 Rose 2001, Umans 1992

10 Shiva 2000

11 Bryant 1998, and see pages 2, 79, 332 and 420

12 Davis 2004, MEA 2004, Rist et al 2004

13 Harmon 1998

Classic 'western' development theories have gone through several stages¹⁴ but they are evidently still predicated on the same dominant 'knowledge system' which appears to have been universally applied. These measures and this knowledge system seemingly have very poor 'goodness of fit' or 'congruence' with the reality of vernacular knowledge and indigenous society.

Rather than helping the poor western knowledge and development has exacerbated poverty and resulted in dysfunctional culture, the erosion of resources, social cohesion, indigenous knowledge, intellectual property, gender roles and self-esteem. Rather than helping the poor on the margins of society, development apparently made them worse off, broadened the gap between rich and poor and reinforced repressive and exploitative political and class systems¹⁵. In response to these problems, new concepts of development began to emerge between the 1960's and 1980's. These mostly 'neo-populist' approaches included; 'bottom-up' development, a greater attention to the social, political and environmental aspects of development, people-centred development, 'post-modern development'¹⁶, 'indigenous knowledge systems'¹⁷, gender issues and the involvement of indigenous people in resource management and conservation strategies¹⁸.

Although these new approaches have influenced the focus and modus operandi of mainstream development many of them do not represent distinct new paradigms for indigenous people or for planet earth. They are not paradigms¹⁹, they only focus on deconstruction, and they operate within the same discursive space, language of power, and epistemic framework as before. This study will explore the existence of indigenous paradigms that not only have goodness-of-fit with indigenous culture but can be drawn on as exemplars of sustainable resource management.

14 Economic growth, growth with equity, basic needs, participatory development, and sustainable development (Agrawal 1995a).

15 Frank 1967a + b

16 Postcolonialism, postdevelopment, communitarianism

17 As a possible platform to fight hunger, poverty and underdevelopment.

18 Chambers 1983, Davis 1998, Eade 1997, O'Riordan 1981, Shiva 1989, Slater 1995

19 They lack a metatheoretic and epistemic base.

1.3 CONCEPTUAL ORIGIN

This study has its conceptual origins in the Nepal Himalaya where the author lived and worked for 7 years²⁰ and learned to 'hear different drummers'²¹. During a forestry study tour of NW India in 1985, the author was personally challenged by Chipko activists, Vandana Shiva and Sunderlal Bahugana, not only in terms of the negative impact of 'Scientific Forestry', but of the reality and bio-cultural suitability of indigenous forestry paradigms. This challenge was augmented by 5 years of community forestry in Jumla²² where in spite of a bi-cultural approach the author was continually challenged by the reality of local animistic and shamanistic beliefs, and had to repeatedly revise forestry strategies and initiatives to 'fit' local socio-cultural conditions. Largely as a result of interfacing with people with an alternative worldview, the author learned to understand and interpret the world, and any forestry initiative, from an endogenous perspective²³. The study however was birthed while the author was living in China²⁴, during an international development feasibility study in Eastern Tibet in 1995²⁵ and largely as a response to the lack of 'ethno-forestry' research or forestry impact assessment studies conducted among Tibetans.

Subsequently the author was able to draw on other studies and visits to China, namely four baseline/feasibility studies for the Care and Share Foundation (CSF)²⁶, two relief efforts for Friends of China (FOC) in 1996, ethno-forestry consultancy for Yunnan Environmental Development Programme (YEDP)²⁷, ethno-forestry consultancy for The Nature Conservancy (TNC)²⁸ in 2002, field research²⁹ and pertinent papers³⁰.

20 Between 1984 and 1991

21 To paraphrase Henry David Thoreau (1854).

22 NW Nepal

23 Studley 1992

24 1993-1996

25 Studley et al 1995

26 In 1994/1995 and 1998/1999.

27 Funded by DFID in 2001, 2003, 2004, 2005

28 An NGO from USA.

29 In 1995, 1999, 2001, 2002, 2003, 2004, 2005

30 Studley et al 1995, Studley et al 1996 a+b, Studley 1999 a+b, 2000, 2002 a+b, 2004 c..f

1.4 THE RESEARCH

This research was based on academic studies, field-testing and field-work and was cross-fertilized by collateral learning from development projects, feasibility studies, consultancy, funding proposals and pertinent publications

The primary aim of this study was to explore the interface between knowledge systems and resource stewardship with a view to finding suitable endogenous paradigms that will allow the indigenous peoples of Eastern Kham to perpetuate, protect, utilize and conserve their forest and trees on a sustainable basis without compromising their socio-cultural systems, cosmovision or well-being. In pursuance of the aim the research will contribute:

- to the broad theorization of knowledge
- to the indigenous knowledge debate
- by exploring the contribution of indigenous knowledge and forest values to sustainable resource stewardship and forestry outcomes
- by suggesting cross-cultural tools and methods for indigenous knowledge elicitation and analysis
- by suggesting methods of bridging between multiple knowledge systems
- by suggesting outcomes in China and Eastern Kham.

1.5 THE STUDY AREA

Initially the study area included the whole of Kham, but due to the challenges of terrain³¹, translation, time and bureaucracy³² 'Eastern Kham' was selected for field research although ethno-linguistically the peoples of East and West Kham are very similar as is their history and identity. Although fieldwork was confined to the peoples of Eastern Kham analysis must be understood in relationship to Kham, Cultural³³ Tibet, Political Tibet³⁴, and Western China (See Map 1-1).

31 The 6th field-trip covered 3000km in 13 days over snowy icy roads with passes that exceeded 5000m

32 The author would have required a letter of personal invitation from each county government in West Kham, but this was not required in East Kham.

33 Or Greater Tibet where the dominant culture is Tibetan.

34 The Tibetan Autonomous Region.

'Western China'³⁵, which comprises 10 provinces or administrative units, encompasses a region known by westerners as 'East Tibet', by the indigenous Tibetan people as Kham, and by the Republic of China as 'Xikang'.

Kham³⁶ is deeply dissected by four of Asia's largest rivers³⁷, which flow in a southeast course through deep limestone and sandstone gorges. Elevation ranges from 2000m to more than 7000 m and the area is dominated in the east by Minyak Gangkar³⁸. The steep slopes are mostly covered by coniferous forest, and the region contains China's largest forest 'zone'³⁹. Nowadays this vast region is divided for political and historical reasons between four Chinese provinces and comprises 47 counties. The region, before it was invaded by the Han Chinese in 1950 and its forests were clear-felled, was characterised by its very rich biodiversity and today in a few locations the untouched ecosystems are among the most diverse living assemblies in Asia⁴⁰. There are still believed to be over 1500 species of higher plant, more than 90 mammal species, more than 350 bird species, and more than 25 reptile, and amphibian species.

'Eastern Kham' is situated between the Yangtze and the Dadu River⁴¹ at the Eastern end of the Qinghai-Tibetan Plateau. It is peopled mostly by ethnic Tibetans, and prior to invasion/ 'liberation'⁴² and its annexation by the Peoples Republic of China, was part of 'Greater Tibet'. Situated on the eastern periphery of ethnographic Tibet it has always been contested territory⁴³ and loyalties have continually changed between local and national powers⁴⁴.

35 Which comprises Xinjiang, Tibet AR, Gansu, Qinghai, Ningxia, Shaanxi, Sichuan, Yunnan, Guizhou and Chongqing municipality.

36 593,870 km²

37 Bramaputra, Salween, Mekong and Yangtze.

38 Ch. Gongga Shan (7590m)

39 300,000 km²

40 Ogilvie 1996, Smil 1984

41 Or between ca 97° - 103°E and 26° - 34°N.

42 1949

43 actual and representational.

44 Manchu, Mongol, Han Chinese and Tibetan.

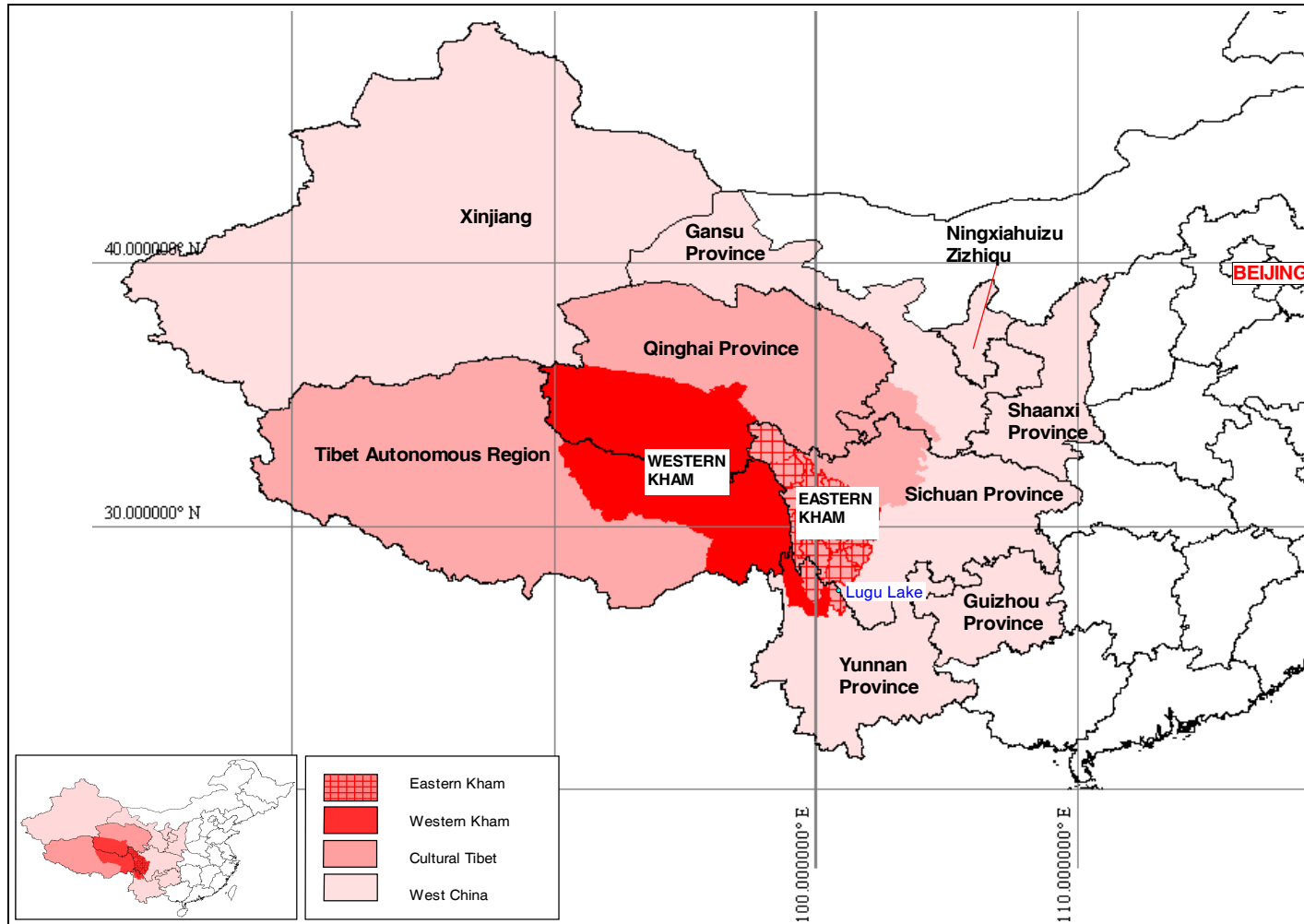
As a result of recurrent disasters, especially the floods in 1998, the Chinese government promoted very ambitious plans in both western and eastern Kham for forest conservation, eco-tourism and reforestation, culminating in a felling ban and the closure of 9 million ha of grazing lands⁴⁵. These plans have largely been made without reference to the local people, or without an adequate understanding of their environmental perception or ethno-forestry knowledge and practices. Additionally since 1999 the Chinese government has announced very ambitious plans to develop Western China⁴⁶.

In this chapter, I have identified a lack of fit between mainstream development/ environmental trajectories with the values and customary forest practices of indigenous peoples and the lack of research by the Chinese in ethno-forestry practices or forest values. In the next chapter, I will introduce knowledge system theory, and paradigm theory as a framework to explore alternative worldviews, and as a means of exploring the lack of fit and of understanding indigenous forest values.

45 To facilitate re-forestation.

46 Dubbed 'The Great Leap West' (TIN 2000).

Map 1-1 Map of West China, Cultural Tibet and Kham



CHAPTER 2 CONCEPTS

Both 'knowledge system theory'⁴⁷ and 'forestry paradigm'⁴⁸ have been introduced into the forestry literature very recently, but their conceptual basis will be reviewed in this chapter because they offer a framework to examine not only ethno-forestry but mainstream development and environmentalism.

2.1 KNOWLEDGE AND KNOWLEDGE SYSTEMS

2.1.1 Knowledge

'Knowledge' is defined as the aggregated and quantifiable sum-total of a culture's information about how the world is constructed and operates⁴⁹. It is constituted by the ways in which people categorize, code, process and impute meaning to their experiences. This is as much true of 'scientific' as of vernacular forms of knowledge. We should not therefore equate knowledge with some professional, specialized or esoteric set of data or ideas. It is something that everybody possesses, even though the grounds for belief and the procedures for validation of knowledge will vary. Knowledge emerges out of a complex process involving social, situational, cultural and institutional factors. The process takes place on the basis of existing conceptual frameworks and procedures and is affected by skills, orientations, experiences, interests, resources and patterns of social interaction⁵⁰. Moreover, knowledge is constructive in the sense that it is the result of a great number of decisions and selective incorporations of previous ideas, beliefs and images, but at the same time destructive of other possible frames of conceptualization and understanding. This is not an accumulation of facts but involves ways of construing the world. Nor is knowledge ever fully unified or integrated in terms of an underlying cultural logic or system of classification. Rather it is fragmentary, partial and provisional in nature and people work with a multiplicity of understandings, beliefs and commitments.

47 Banuri and Marglin 1993

48 Gilmour and Fisher 1991

49 Levin 1991

50 Arce and Long 1992

2.1.2 Knowledge Systems or Worldview

'Knowledge system' and 'worldview' will be used interchangeably throughout this study despite slight differences in their anthropological meaning. 'Knowledge systems' are the collective communities of knowledge, cognitive frameworks and screens of perceptual consciousness that are shared by a particular society that they hold about their world, about reality, and by which they order their life experiences⁵¹. The processing of knowledge⁵² can best be understood in the context of the 'worldview', 'knowledge system', 'life-world', 'cognitive systems' or the culture of the people who share it⁵³. Although the term 'culture' is not easy to define, because of different emphasise⁵⁴ I cannot agree with Banuri that 'culture' is synonymous with worldview⁵⁵. There are many, who I agree with, that regard culture and worldview as distinct categories⁵⁶. More properly worldview could be regarded as a foundational element of culture. The term culture will be used in this study: to refer collectively to a society and its way of life; to comprise what people think, what they do, and the material products they produce; and be considered as a learned social phenomenon⁵⁷. From this view, cognitive processes, beliefs, values, knowledge, worldviews and paradigms are all elements or sub-sets of culture. The conceptual basis of 'worldview' is derived from an extensive literature in sociology, psychology, and anthropology⁵⁸. Most of us are not conscious of our worldview. We do not learn it so much as absorb it from our surrounding culture. It is passed on from generation to generation with minimal change, the assumptions rarely being reviewed or revised. A worldview gives a culture structure, a subconscious legitimacy in the minds of the people. It serves as the basis for evaluating, judging and validating experience. It is a yardstick with which people measure events and circumstances in the culture providing criteria of acceptability. It provides psychological reinforcement for a society's way of life. It creates a 'we-they' dynamic; through a common worldview people identify with their society as opposed to all other societies. A worldview provides an integrating function for new information, values, philosophies or experiences. According to Schutz (1962) knowledge is

51 Banuri and Marglin 1993

52 Our own and others.

53 Banuri 1990

54 Historical (Geertz 1973), behavioural, normative, functional, mental and structural (Levi-Strauss 1974).

55 Banuri 1990 p 76

56 Eaton 1998, Sahtouris 1995

57 Bodley 1997

58 Durkheim 1933, Geertz 1973, Mead 1934, Weber 1930,

organized in spatial and temporal 'zones ', or domains of different degrees of relevance.

Everyday life is dominated by the solving of practical problems and this occupies a prominent place in a person's knowledge. Its validity is taken for granted until one encounters a problem that cannot be easily solved. This requires other more explorative types of knowledge, and often requires choices between alternatives. To do this we intuitively draw upon existing stocks of knowledge, on prefabricated strategic models, or allow ourselves to be guided by certain normative views or social commitments.

Beginning in childhood each person interacts with their physical and social environment, and through this myriad of environmental interactions, worldview presuppositions are unconsciously constructed. The process occurs over a long period of time, with the formative, childhood years being the most important. Socialization and schooling and formal education contribute to worldview development and worldview provides a foundation upon which cognitive frameworks are built during the learning process. At some point of maturity the malleability of a worldview begins to decrease and yet a worldview has an adaptive function which allows even adults to adjust to new environments. Thus, while worldview presuppositions are strongly held they are not immutable. The strength with which a mature worldview is held appears to be inversely related to the degree of heterogeneity in a culture. The more heterogeneity, the less strongly a worldview is apt to be held. The process of worldview development and change is known as 'dialectical constructionism'⁵⁹ which resonates with 'genetic epistemology'⁶⁰ and constructionist theory of learning⁶¹. In human mental architecture, worldview⁶² is the foundation upon which cognitive and perceptual frameworks are built. In constructivist theory, cognitive frameworks are a crucial factor in the assimilation of new knowledge⁶³ and in forming attitudes and interests. It follows then that worldview as a foundation for cognition and perception has a significant influence on learning and attitude development.

59 Kearney 1984

60 Piaget 1971

61 Ausubel et al 1978

62 And its constituent paradigms.

63 Tobin 1993

Based on worldview theory, indigenous, modern and post-modern communities are not just different political groups, but they embody different systems of knowledge, different ways of understanding, perceiving, experiencing, in sum, of defining reality. This includes not only notions of one's relationship to the social milieu, but also the spiritual and natural environment. An understanding of worldview theory is important if we want to understand our worldview, intra-worldview variation on the basis of gender or among institutionally trained foresters but it is crucial if we want to interpret indigenous knowledge and practice from the perspective of the local indigenous peoples and forestry paradigms predicated on normative pluriformity.

2.2 PARADIGMS

The term paradigm comes from the Latin *paradigma* and Greek *paradeigma*⁶⁴ and is defined most often as a 'pattern' or 'example'. In the 1960's the US historian and philosopher of science Thomas Kuhn⁶⁵, seemingly showed that social and cultural conditions affect the directions of science. He argued that even scientific knowledge is relative, depending on the 'paradigm' that dominates a scientific field at any given time. Such paradigms are so dominant that they are uncritically accepted as true until a 'scientific revolution' creates a new orthodoxy and a new paradigm is selected. Kuhn's original use of the term 'paradigm' was narrowly restricted to the context of his critique of positivism, particularly in the natural sciences, and in this sense it resonated with 'episteme'⁶⁶.

Beginning in the 1970's, however, disparate trajectories of the post-modern⁶⁷ begun to coalesce into an expanded definition. Based on this new view, those not satisfied with 'old orthodoxies' could change or choose from a network (or set) of co-existing paradigms within any contemporary theoretical or artistic field. As a result the term was co-opted by politics, social science, business and development studies⁶⁸. Although the term has spread, it is not yet a dominant concept⁶⁹ and it continues to be contested⁷⁰ especially in forestry, which is

64 *παράδειγμα* is Greek for to show side by side.

65 Kuhn 1962

66 Foucault 1970

67 Ramsey theory, Gestalt and Chaos theory, sociology of knowledge, anthropology, biology, sociology and indigenous studies.

68 Chambers 1993, Pieterse 1998

69 Especially its post-modern view.

70 Best and Kellner 1997, Young nd

discussed later⁷¹. Kuhn did say that paradigms were "the most novel and least understood aspect of this book"⁷² and this is still reflected in most dictionaries which either define paradigm as a model, an exemplar, an ideal, an archetype, or a grammatical term⁷³. Some use Kuhn's original sense⁷⁴, but few include a 'post-modern' definition.

While it is true that some paradigms are exemplars or archetypes, they are not synonymous with 'model', 'worldview' or discourse, although paradigms often mould or are moulded by discourse, as exemplified by *fengshui*⁷⁵ in chapter 7 (section 7.2.2) and explored further in chapter 8 (section 8.1.8).

Drawing on Capra⁷⁶ and Kuhn⁷⁷ I offer the following definition:-

*A paradigm is a constellation of concepts, values, beliefs, perceptions, methodological assumptions and practices shared by a community, **inscribed in a larger worldview** which forms a particular vision of reality that is the basis of the way a community organises itself*

Current thinking suggests that it is not as Kuhn (1962) suggests that 'more mature' paradigms replace 'immature' paradigms which then subsume and explain even more of the data of empiric observation, rather there are any number of co-existing paradigms none of which can encompass all of the data. The number of possible paradigms depends on the number of elements in a set, the rules of perception used, its geometry in 'phase space',⁷⁸ and upon partisan human interests. Such a theory decentres most of the canons of modern science, such as linearity, logical consistency and coherence, the method of successive approximations,

⁷¹ See section 5.7.3

⁷² Kuhn 1970 page 187

⁷³ Dictionaries :- Merriam-Webster Collegiate Dictionary 2001, <http://www.factmonster.com>, The Oxford English Reference Dictionary (Oxford University Press 1996), The Pocket Oxford Dictionary of Current English (Oxford University Press 1996), A Dictionary of Geography (Susan Mayhew Oxford University Press 1997), The Penguin Dictionary of Sociology (N Abercrombie et al 1994), The Penguin Dictionary of Psychology (Arthur Reber 1995), Cambridge International Dictionary of English

⁷⁴ as an evolving pattern of scientific thought and investigation.

⁷⁵ The Chinese art or practice of positioning objects, especially graves, buildings, and furniture, based on a belief in patterns of yin and yang and the flow of chi that have positive and negative effects.

⁷⁶ Capra 1997 page 6

⁷⁷ Kuhn 1970 page 175

⁷⁸ phase space is a construct used in mathematics and physics to demonstrate and visualise the changes in a given system, that has application to paradigm theory or cognition (See van Gelder and Port (eds.) 1995).

predictability, replaceability, falsifiability, and any grand unified theories⁷⁹. In order to select (or 'shift' to) one subset out of the total set of paradigms we have to turn to the sociology of knowledge to such concepts as culture, socio-linguistics, symbolic interaction, cognitive and epistemological systems, construction theory, interest theory and stratification theory. It is arguably the stratification of power and wealth which shapes the selection and legitimacy of paradigms on the road to knowledge. Kuhn's more recent works⁸⁰ suggest his more recent position is more akin to current theory. Twentieth century paradigm shifts across a wide variety of fields can be seen as part of a larger shift (See Table 2-1) from positivism to post-positivism⁸¹.

Table 2-1 Contrasts between positivism and post-positivism

Positivist	Post-positivist
Neutral	Value-conscious
One objective material reality	Multiple subjective realities (material and spiritual)
Fragmented	Integral - action orientated
Etic research	Emic research
Quantitative hard data	Qualitative soft data
Representativity of data	Authenticity of data
Theoretical backing and validating of Hypothesis	Feedback of information to actors/ people
Information for external intervention	Information for self-determination
Subject-Object relationship	Subject-Subject relationship (Learning Process)
Focus on control	Focus on understanding
Top-down	Bottom-up

79 Best and Kellner 1997, Young nd

80 Kuhn 1970, 1977a + b, 1979

81 Berman 1981, Capra 1983, Merchant 1992

Although domain assumptions, beliefs, values, critiques, discourse analysis, 'attractive features', aspirations and normative orientations are often components of paradigms, they do not in themselves constitute a paradigm and the integration of 'new' knowledge into an existing paradigm does not usually represent a 'paradigm shift'⁸².

For any phenomena, domain, worldview 'sub-set', or metaphor, to be accepted as a paradigm it must meet a number of requirements⁸³. It must:

- Provide a cohesive mutually supporting metatheory
- Be consistently free of major contradictions
- Guide expectations
- Help adherents to sort, organise and classify information
- Provide an explanatory framework that defines practice
- Be accepted by a community of adherents
- Be applied in practice
- Include exemplars that can be held up as paradigms in practice
- Lend itself to interrogation (learning from) on the basis of cognition, metacognition and epistemic cognition
- Be inscribed within and harmonize with a worldview
- Inform adherents of what is important and legitimate without having to refer to lengthy normative and methodological discussions

Paradigms include dynamic mechanisms that enable new ideas and technologies to be accepted or rejected, and iterative feed-back mechanisms that allow for some modification.

When major anomalies or inconsistencies arise within a given paradigm that present problems we are unable to solve, our view of reality must change, as must the way we perceive, think and value the world. We must take on new domain assumptions and expectations, and this requires the selection (shift or change) of an alternative more appropriate paradigm. This equally applies in a 'cross-cultural' context if we are seeking to adopt, build on, learn from, or understand endogenous knowledge or practices on the basis of alien worldviews or paradigms

⁸² Pieterse 1998, Wiersum 2000

⁸³ Chambers 1993

2.3 TYPES OF KNOWLEDGE SYSTEM

Although the terms 'western', 'scientific', 'classical', and 'indigenous knowledge' systems, will be used throughout this study, as constructs, it should be understood that there is a multiplicity of logics and practices that underlie the creation and maintenance of each system. Certain characteristics from each system will, however, be highlighted for the purpose of comparison. The terms 'western' and 'indigenous' are particularly problematic and this study will argue the need to move away from the sterile dichotomy between indigenous and Western knowledge. A new view of science⁸⁴ which resonates with post-modern science, recognizes 'multiplicity, patchiness and heterogeneity' in discursive 'research space', offers a resource to build new epistemic foundations. It is only when we begin to recognize intra-group differentiation and when we seek out bridges⁸⁵ across the constructed chasm between the two, that we will initiate a productive dialogue to safeguard the interests of those who are disadvantaged⁸⁶.

2.3.1 Modern Knowledge Systems

Although the terms 'modernity' or 'modern knowledge systems' are used universally they are by no means homogenous, and both include disparate elements and characteristics. The constellation of beliefs, traits, scientific theories and metaphors that underpin 'modern knowledge' were formulated in the sixteenth and seventeenth centuries. Between 1500 and 1700 there was a dramatic shift in the way people understood and interpreted the world. This new orthodoxy, typified by the 'Cartesian worldview', privileged itself above alternative 'modern' trajectories, and gave western civilization the characteristics of the modern era. These characteristics included the use of the world-machine as the dominant metaphor of the age and the 'ascendancy of humankind'⁸⁷.

Although modernity was dominated by the Cartesian worldview⁸⁸ and its projects of capitalism, socialism and neoclassical development economics, there have always been subdominant trajectories that have competed for space, within or as a counterpoint to

84 Pickering 1992 page 8

85 Cognitive and epistemological.

86 Agrawal 1995 a + b

87 See Thomas 1983

88 Capra 1982, Pieterse 2001, Shiva 1989

modernity. These have ranged from the romantics⁸⁹ through Christian socialism⁹⁰ anarchism⁹¹, fascism⁹², organic and holistic traditions⁹³, trade unionism, the suffragette movement⁹⁴, anti-industrial capitalism⁹⁵, and non-western modernity such as Chinese humanism or Confucianism⁹⁶. The Cartesian worldview remained dominant for over three hundred years but during the 20th century an increasing number of anomalies and contradictions could not be ignored and it became increasingly questioned⁹⁷. This resulted in not only a 'crisis for modernity' but a search for alternative worldviews that reflected current realities. At the beginning of the last century physicists begun to investigate atomic and subatomic phenomena which culminated in the theory of relativity and quantum theory. They became aware that the Cartesian worldview they had adopted had very poor goodness of fit with the reality of their studies. The questioning of the very basis of their most cherished ideas resulted in a major reworking of their worldview⁹⁸. Physicists were followed by avant guard elements within other disciplines⁹⁹, who adopted new paradigms and perspectives, including 'poststructuralism'¹⁰⁰, which coalesced within what became known as a 'post-modern' worldview¹⁰¹. In spite of the rhetorical ascendancy of 'postmodernism' there are those today who believe we have never been modern and those who argue that we are still part of the cultural period of modernity¹⁰². Many disciplines, especially those most influenced by the Cartesian worldview¹⁰³ have now reached the limit of their worldview and will seemingly need to adopt an alternative paradigm to be consistent with modern physics and new realities. There is an apparent need for them to transcend the classical models, to go beyond mechanistic and reductionist paradigms and embrace holistic and ecological paradigms.

89 Goethe, Thoreau, Emerson, Wordsworth

90 Inge, Bryant, Temple

91 Godwin, Kropotkin

92 Schopenhauer, Nietzsche, Bergson, Sorel, D'Annunzio, Gentile

93 Ruskin, Saint-Simon, Comte, Durkheim, Teilhard de Chardin, Jung

94 Pankhurst

95 Mill, Morris, Lewis, Williams, Elliot

96 Eckersley 1992, Tu Weiming 1998

97 Capra 1982

98 Capra 1982

99 Science, ecology, art, music, architecture, literature, philosophy, politics and social theory.

100 Foucault 1970

101 Lyotard 1986

102 Goodliff 1987, Latour 1993

103 Biology, medical science, psychology, psychotherapy, economics, science, 'scientific forestry' and development studies.

2.3.2 Classical 'Non-western' Knowledge

For the purpose of this study I shall modify the term 'classical knowledge' used by Haverkort et al (1999) to describe knowledge systems developed usually by the 'ruling classes'¹⁰⁴ in the 'non-western' world' between ca 1766 BC and 1500 AD, and which often remain in a residual form even today¹⁰⁵. Classical knowledge systems continue to survive today and often overlay and impact indigenous knowledge systems. They are being increasingly examined as the basis for more holistic paradigms of sustainable development.

2.3.3 Indigenous Knowledge

The terms 'indigenous'¹⁰⁶ 'native' and 'tribal' will be used interchangeably despite slight differences in their anthropological meaning. Although defining 'indigenous' has proved problematic for international organisations, indigenous peoples have provided several definitions¹⁰⁷. The World Council of Indigenous Peoples has adopted the following definition:-

*"Indigenous peoples are such population groups who from ancient times have inhabited the lands where we live, who are aware of having a character of our own, with social traditions and means of expression that are linked to the country inherited from our ancestors, with a language of our own, and having certain essential and unique characteristics which confer upon us the strong conviction of belonging to a people, who have an identity in ourselves and should be thus regarded by others"*¹⁰⁸

Indigenous peoples throughout the world, occupying different agro-ecological zones have generated vast bodies of knowledge related to the management of their environment. This store of knowledge is known by many names. It is termed 'indigenous knowledge', 'traditional knowledge', 'indigenous technical knowledge'¹⁰⁹, 'local knowledge', 'traditional cultural

104 In Marxist political economics, the **ruling class** refers to that segment or class of society that has the most economic and political power.

105 Examples include Indian knowledge based on the Vedas, Chinese knowledge based on Confucianism and Daoism, Tibetan knowledge based on Buddhism, and Egyptian, Aztec, Inca and Shona knowledge.

106 Burger 1990, Grimes 1988

107 Posey and Dutfield 1997

108 Posey and Dutfield 1997 page 27

109 Howes and Chambers 1980

knowledge', 'traditional ecological knowledge' and 'traditional environmental knowledge'¹¹⁰ denoting slightly different meanings to different users of the concept. There is, however, consensus amongst scientists using various terms that such knowledge:-

- is linked to a specific place, culture or society
- is dynamic in nature
- belongs to groups of people who live in close contact with natural systems and
- contrasts with 'modern' or 'western formal scientific' knowledge.

Indigenous knowledge encompasses spiritual relationships, relationships with the natural environment and the use of natural resources, relationships between people, and is reflected in language, social organization, values, institutions, laws and material practices.

In this chapter we have defined and considered the development of three knowledge systems but in order to understand their anatomy and make comparison between them an understanding of the 'enlightenment', 'post/modernity' appears to be a pre-requisite. The next chapter will comprise a critique of the enlightenment and post/modernity and its impact on environmental and development discourse

¹¹⁰ Johnson 1992 a + b

CHAPTER 3 'WESTERN' KNOWLEDGE SYSTEMS AND THEIR INFLUENCE ON ENVIRONMENTAL AND DEVELOPMENT DISCOURSE

3.1 THE ENLIGHTENMENT AND MODERNITY

3.1.1 Introduction

The last century has seemingly witnessed major changes in thought from a mostly Cartesian worldview to an emerging 'post-modern' worldview. It is important to understand however that the Cartesian worldview was the product of an epistemological cartel, which still prevails in much of the world today. For this reason we will begin this chapter by examining the roots of the cartel and the narratives of one of its proponents as a platform for examining environmental and development discourse.

3.1.2 Modernity, the Venetian Oligarchy and the Narratives of John Locke

The cultural period of 'modernity' is often equated with the so called 'age of enlightenment'¹¹¹, but its roots go much deeper than that. Some of the factors that made modernism possible were: the Rosicrucian/Freemason influence of a Venetian oligarchy¹¹² the development of capitalism with William Petty¹¹³, the development of the 'scientism'¹¹⁴ with Francis Bacon¹¹⁵, the development of the 'enlightenment' with John Locke, and the development of technology¹¹⁶. Depending upon which factors you include, the modern world was born somewhere between the beginnings of the Italian Renaissance¹¹⁷ and the Enlightenment's origins in the later seventeenth, with the crucial phase taking place between 1750 and 1850¹¹⁸.

111 Late-seventeenth to eighteenth-century.

112 Sometimes referred to as the 'black' nobility.

113 1623-1687

114 Anti-science

115 1561-1626

116 Bacon 1870a-f, Merchant 1989

117 From ca 1470

118 Goodliff 1987

During the Renaissance a major paradigm shift occurred that was characterised by a new interest in classical languages, culture, humanistic literature, and an anthropocentric worldview. In the medieval period, a theocentric worldview was central to Western culture, evidenced by religious art and the architecture of High Gothic. Now humanity¹¹⁹ took centre stage and became the measure of all things. Leonardo da Vinci's drawing of a male figure encompassed by a square and a circle epitomises this change¹²⁰

The Enlightenment gave birth to another radically transformed paradigm of human society and a new understanding of what it is to be human: a confident belief in the ability to progress towards a utopia of rationalistic, humanistic and autonomous harmony. This paradigm however was based on an epistemological cartel and a scientific dictatorship, orchestrated in England by a 'Venetian oligarchy' under the aegis of the Royal Society, masterminded by Paulo Sarpi. The origins of the 'Venetian oligarchy'¹²¹ can be traced back to the Guelphs or 'Black Nobility', believed to be of Khazar¹²² extraction and married into the royal houses of Europe in the early twelfth century. The power of the Guelphs extended through the Italian and German financial centres and the 'Lombards' became bankers not only to the Kings of England¹²³ but the entire Medieval world. In order to aid their control of finance and politics they perpetuated

119 Especially men.

120 Goodliff 1987

121 The Venetian oligarchy earned the title of 'black' nobility from their ruthless lack of scruple, and their employment of murder, rape, kidnapping, assassination, robbery and deceit on a grand scale, brooking no opposition to attain their objectives. One way to understand the nature of the Venice oligarchy is to look at the poets' portrayal of the unbelievable duplicity that the Venetians represented: portrayals by Marlowe in *The Jew of Malta* (1633), and by Shakespeare (whose mistress was a Venetian Jewess) in *The Merchant of Venice* (1600) and especially in *Othello, the Moor of Venice* (1622). The quintessential Venetian is Iago. Yet the most brilliant portrait of Venetian method was done by Friedrich Schiller in his book, *The Ghostseer* (1795). When Marlowe's 'Dr Faustus' (1604) was staged it caused complete pandemonium in Venetian circles, in England, when he identifies Francesco Giorgi (Zorzi) with Satanism. Shortly after the play was performed Marlowe was assassinated.

122 <http://www.khazaria.com/> accessed 5th July 2005

123 The roots of Venetian influence in England run deep. During the 1200s Henry III was bankrupted by Lombard Bankers and in the 1500s Venetian factions (Francesco Giorgi (Zorzi), The Howards, Russels, Herberts, Cavendishes, Thomas Cromwell) were dominant in the court of Henry VIII and/or Elizabeth 1st. Francesco Giorgio (Zorzi), sent to England as the sex adviser to Henry VIII, introduced Cabbalist Rosicrucianism to the court. His *Harmonice Mundi* (1525) and *In Scripturam Sacram Problemata* (1574) laid the foundation both for an occult takeover of England and the creation of speculative freemasonry.

gnostic¹²⁴ cults leading to Rosicrucian¹²⁵ Freemasonry. After the battle of Cambrai¹²⁶ in 1509 and battles that followed, the Venetian *Giovani*¹²⁷ decided it was time to move their family fortunes and worldview to England and clone the British monarchy as the future 'doges'¹²⁸ of a ruling, global financier oligarchy. The move to England and the creation of the British Empire was only part of the answer. As long as the forward motion of Renaissance science continued, all would be forced to imitate it on pain of being militarily defeated. The Venetian oligarchy did not think it could dominate in the face of continuous progress in science and technology. Rather than attacking science from outside they established an epistemological cartel or scientific dictatorship in order to control it. This task fell to the Venetian intelligence leader, Paolo Sarpi, who lived from 1552 to 1623. He was nominally a Servite¹²⁹ monk, the leading organizer of the *Giovani*, and the 'master of all sciences'¹³⁰ with an estimated very high IQ¹³¹. He was a mathematician, the director of Galileo's telescope project, the creator of modern empiricism and he wrote seminal papers on knowledge, epistemology, cognition, human nature, social theory, and logic.

Sarpi launched the enlightenment under the aegis of a secret society¹³² predicated on an epistemological cartel comprising a network of Freemason protégées, Bacon, Hobbes, Locke, and Newton, who plagiarized much of his work. This consciously induced paradigm shift facilitated the introduction of 'Masonic Science' or 'scientism'¹³³ in such a way that the investigational methods of the natural sciences were imposed upon all fields of inquiry. The

124 The doctrine of salvation by knowledge.

125 The Rosicrucians are a legendary and secretive order dating from the 15th or 17th century, generally associated with the symbol of the Rose Cross, which is also used in certain rituals of the Freemasons.

126 <http://www.boglewood.com/timeline/agnadello.html> accessed 9th May 2005

127 The *Giovani* were a political faction meaning "young houses" equivalent to "Young Turks" (Hanioglu 1995) who managed to gain control of Venice in 1582. The *Giovani* were men with deep intellectual roots, highly conscious of the distinct historical position of Venice in the life of the West, and very eager for their city to overcome her commercial, agricultural, and strategic problems and survive
http://www.seattlecatholic.com/article_20040921.html accessed 3rd November 2005.

128 The elected chief magistrate of the former republics of Venice and Genoa.

129 The Servite Friars or Servants of Mary are one of the five original mendicant orders.

130 Trevor-Roper 2001

131 Cox 1926

132 Variousy characterized (Abendsen 2000, Millett 1969, Weber 1972) as:- a hermetic order, a gnostic Rosicrucian/ Freemason cult, patriarchal, an invisible college, and by 'herrschaft' domination, sexual politics and homosexual practice on the basis of sexual orientation and/or initiation/cultic rituals.

133 The belief that there is one and only one method of science and that it alone confers legitimacy upon the conduct of research.

Chapter 3 Western knowledge systems
control over the knowable was achieved through the promulgation of a 'Scientific Dictatorship'¹³⁴ to accredit science, the sexual politics of patriarchal 'herrschaft', and a Rosicrucian/ Masonic institution, namely the Royal Society, to disseminate it ¹³⁵.

In addition the *Giovani* very consciously built up their own faction among the English nobility¹³⁶ by creating a protestant-controlled merchant class with support from the Guelphs, who eventually transferred operations to London. For the first time, a non-hereditary king, William of Orange¹³⁷ was invited to rule by a group of noble families. This was a decisive break with previous English history. For the first time, the king was beholden to an English oligarchy, though William was not particularly happy about his power being circumscribed. Guelph support for English merchants was most explicit with the creation of the Venice company by the Earl of Leicester¹³⁸ who was granted trading routes by the Venetians. Later the Guelphs were not only responsible for the slave and drug trade but spread their oligarchic power through the Levant Company, the Bank of England, the East India company, Barings Bank and the formation of the British Empire. They continued to maintain political, economic and epistemological control through Freemasonry¹³⁹.

3.1.3 John Locke

I could have explored enlightenment philosophy by referring to any number of important figures but I chose John Locke¹⁴⁰ because he is considered to be one of the most important and influential philosophers of the Enlightenment in both England and France and to have provided the inspiration for the US constitution and the basis for classic liberalism¹⁴¹.

There is every reason, however, to suggest that many of his ideas were not original. Most of

134 Huxley 1958

135 Abendsen 2000, Baigent et al 1982, Hoffman 2001, Lomas 2004, Millett 1969, Pouzzner 2001, Weber 1972

136 The Spencers, Godolphins, and Churchills.

137 William the Third 1650-1702

138 Robert Dudley

139 Lord Shelburne, for example, used his position, in government (Foreign Secretary and Prime Minister) and as an 'illuminated' Freemason, to control the East India Company and Barings Bank, to fund the Jacobin revolt in UK, to pre-orchestrate (with the Martinists) the French Revolution and destroy the trading monopoly of the english-speaking colonies in North America. Shelburne's aim was to bankrupt and re-absorb North America into the British imperial domain, and he would have probably succeeded if the American founding fathers had not clearly understood the danger in Shelburne's free trade ruse.

140 1632-1704

141 Compared to Hobbes totalitarianism

Locke's editors and biographers make no mention of Sarpi although Lord Macauley¹⁴² treats Sarpi as one who anticipated Locke. In reality, according to the Doge¹⁴³ of Venice, Marco Foscarini, Lock plagiarized Sarpi's work extensively and the catalogue of Locke's library includes 13 works by Sarpi¹⁴⁴.

In spite of this, and his death 300 years ago¹⁴⁵ Locke's works do 'popularize' the enlightenment and his views keep resurfacing to this day. We find references to Lockean thought in rights of common¹⁴⁶ and land ownership¹⁴⁷, biopiracy¹⁴⁸, the plunder of knowledge¹⁴⁹ and intellectual property¹⁵⁰, global dispossession¹⁵¹, earthcare¹⁵², water wars¹⁵³, treatment of indigenous people¹⁵⁴, gender issues¹⁵⁵, political theory¹⁵⁶, and even as a post New Labour¹⁵⁷ "prophet for our times"¹⁵⁸. For these reasons he is worth considering in some detail¹⁵⁹.

John Locke was reared in Pensford¹⁶⁰, the son of a county attorney who was an Anglican with Puritan leanings. Locke graduated from Christ Church, Oxford with a BA and MA, although most of his academic interests lay outside his course work. He was steeped in the new physical sciences, an avid reader of Descartes, Bacon, Pascal and Newton, and a close friend of Robert

142 Macauley 1863

143 The title borne by the ruler of Venice. www.netserf.org/Glossary/D.cfm accessed 3rd July 2004

144 Tarplay 1996

145 Thursday 28th October 1704

146 Shiva 1997a

147 Chilson 1997, Freyfogle 1998, Teisch 1997

148 Shiva 1997b

149 Shiva 1997b

150 Dutfield 1999

151 Andreasson 2004

152 Merchant 1996, 1997

153 Shiva 2002

154 Sahtouris 1992

155 Arneil 2001

156 Kreis 1998

157 New Labour is an alternative name of the British political Labour Party. The name is primarily used by the party itself in its literature but is also sometimes used by political commentators and the wider media. The rise of the name coincided with a shift towards the right (from the left) of the British political spectrum (albeit a trend to more centrist policies first commenced under the leadership of Neil Kinnock)
en.wikipedia.org/wiki/New_Labour accessed 12th October 2005.

158 Kettle 2004 <http://politics.guardian.co.uk/print/0,3858,5047440-107865,00.html> accessed 12th October 2005

159 Nosotro 2004

160 North East Somerset.

Boyle. He was a 33 degree¹⁶¹ Master Mason, a member of the Royal society, and a shareholder in two slave-trading companies¹⁶². The views he expressed about empirical cognition and 'liberal' social, political and economic theory became the core of eighteenth-century thought were to have a major influence on 'western' views of; the natural world, the non-human, rationality and reason, race, gender, property, progress and social evolution, civilization, civil society, democracy, individualism, free markets, laissez-faire capitalism, and representative government¹⁶³. Locke's views on evolution, mechanistic reductionism, nature, liberal political philosophy and property are especially germane for this study, although his views on race, gender, and progress are also important, space does not permit.

Evolution

'Becoming' underpins Freemasonic 'science' in common with other ancient Hermetic mysteries¹⁶⁴. Its purpose was the spiritual 'evolution' of those who aspire to perfect their own nature and present rational state and transform it into a more god-like quality, unifying their consciousness with the Omniscient¹⁶⁵. There is little doubt that both Erasmus¹⁶⁶ and Locke cribbed from the Lodges occult doctrine of 'becoming'. Locke however also appears to have extrapolated the Hindu/Cathar doctrine of reincarnation into the context of metaphysical naturalism and formulated a theory of evolution. The British East India Company had imported the Hindu belief in reincarnation to England where it was adopted by the Royal Society. As a prominent member of the Royal Society Locke studied reincarnation extensively and working with the occult doctrine as an extrapolative inspiration developed his own evolutionary ideas. Locke's theory of evolution received the support of a number of Charles Darwin's predecessors¹⁶⁷ who were all Masons. His thoughts and writings were handed down to another Mason and Royal Society Fellow, Dr Thomas Huxley, who advanced the study of evolution and convinced Charles Darwin to write 'The Origin of Species'¹⁶⁸. The two doctrines of reincarnation and evolution have continued as recurring themes in Freemasonry

161 The highest Masonic degree - 33 degrees is based on Vedic astrology and the moon's movements against Alcyone (the mother star) which is associated with mastery.

162 Royal Adventurers and Royal African.

163 Arneil 2001

164 Bardon 2001

165 Wilmhurst 1980

166 Erasmus 1794

167 Dr Erasmus Darwin, Sir Francis Darwin and Reginald Darwin.

168 Darwin 1859

Chapter 3 Western knowledge systems literature¹⁶⁹, which envisages the establishment of the Kingdom of God (on earth) through men who had evolved into god-like beings^{170 171}.

Mechanistic reductionism

Borrowing from Sarpi and others¹⁷² Locke developed a philosophy of atomic reductionism starting with individuals and applying the same principles to politics and economics. The basic ontological and epistemological assumptions of reductionism are based on homogeneity. It sees all systems as made up of the same basic constituents, discrete, unrelated and atomistic, and it assumes that all basic processes are mechanistic. The mechanistic and sexist metaphors of reductionism reconstructed knowledge, nature and society allowing for the development of elite knowledge systems and the domination of nature, women and the non-west. Robert Boyle, a close friend of Locke used this same philosophy, as Governor of the New England Company as an instrument of power over nature and the original inhabitants of America¹⁷³.

Nature

John Locke's Two Treatises of Government¹⁷⁴ set forth his ideals for the transformation of nature through domination and ownership. Because contradictory implications exist depending on particular readings of his text, it is easiest to reconcile Locke's views as elements of an overarching metanarrative of Edenic recovery. The phases of the Lockean recovery narrative can be constructed as follows

- The creation of Adam and Eve
- The Fall and its consequences
- The 'state of nature'
- The evolution of private property
- The state of civil society¹⁷⁵

169 The New Age Magazine, March 1922 page 7

170 '.. and ye shall be as gods' - Gen 3:5 King James Version (online)

<http://www.biblegateway.com/passage/?search=Genesis%203:5&version=47;9>; accessed 27th June 2005.

171 This view appears to resonate with Greek and Roman mythology.

172 Aristotle, Thomas Aquinas, William of Ockham, Descartes, Hobbes, Bacon, Newton, Boyle and Du Trieu

173 Easlea 1981, Merchant 1980, Shiva 1989

174 Locke 1690

175 e.g. 'capital' farmers.

The unfolding of a Locke's recovery narrative in Europe and America provided the legitimization for converting forests and deserts into the improved, ordered gardens of capitalist culture. Integral to the possibility of recovery is the idea of 'dominion over nature'¹⁷⁶ and western science and industry from the outset shared the conviction that man is master of all nature and would bring about a golden age for all humanity by conquering, subduing and transforming material nature to his own ends. Locke does not conceive of human beings relationally, but rather as 'free' individuals, who are disengaged from the world, 'things' and people and views nature from an instrumental view point. For Locke nature is not sacred and has no value in itself, gaining value only when transformed by industrial "man"¹⁷⁷. The desacralization of nature derives essentially from science's denial of time and complexity, the assumption that nature is governed by universal, timeless and simple laws, which can be understood by technicians in the same manner as they understand the working of machines.

'Scientific Forestry', which will be discussed in chapter 5 section 5.4, has all the ingredients of classical science, most notably the claims of simplicity and reversibility, claims which are rejected in indigenous modes of knowing¹⁷⁸

Liberal political philosophy

Locke was one of the first thinkers to formulate a comprehensive liberal philosophy which was hostile to the prerogatives of kings, aristocrats and the church and emphasised freedom, possessive individualism, 'happiness' based on accumulation, representative government, property rights, religious toleration, and expanding laissez-faire capitalism. Although Locke considered property rights as an essential component of human freedom he failed to consider societal power asymmetries, which allowed clever usurpation (of land or title) to be considered an irrevocable right¹⁷⁹. As a result Locke's discourses provided legitimacy for the mass expropriation of common land, rights of common and copyhold which not only led to a marked decline in living standards, and even famine for the poor but to the total extinction of England's yeoman farmers¹⁸⁰. Locke argues that enclosing commons, and expropriating land

176 Genesis 9:2

177 Please note Locke's (1690 II. 5. 37) gendered language. When he uses man he is not referring to humankind.

178 Banuri and Marglin 1993, Eckersley 1992, Merchant 1996, Prigogine and Stengers 1984, Shiva 1992,

179 Andreasson 2004

180 Goldie 1997, Hay and Rogers 1997, Laveleye 1878, Travis 2000

Chapter 3 Western knowledge systems and accumulating wealth, is 'fair' because it is agreed with the tacit and voluntary 'consent' of 'civil society', and is within prescribed limits¹⁸¹. By consent however Locke does not mean unanimity and as parliamentary elections were limited to property owners, any appropriation or 'enclosure', in effect, only required the consent of 1% of the population, who were mostly property owners¹⁸². Lock's views privileged the rights of 'civil society'¹⁸³ over the rights of the yeomen, peasants, 'commoners', the non-west, the non-human and non-male and their cornucopian assumptions were predicated on humankind's ingenuity¹⁸⁴ and technical optimism¹⁸⁵. His views on limits of land appropriation were soon forgotten or violated. He also went beyond property accumulation for personal need arguing it would maximize the wealth of society and thereby the well-being of all. He, like many economists today, based his views on fatally flawed assumptions, namely that a) natural wealth is abundant relative to need, and b) the benefits of an overall increase in economic activity are widely shared even when wealth is distributed unequally. For millions of poor people neither premise is valid, because property rights have excluded their access to land, and technology has often eliminated their jobs¹⁸⁶.

Property

The fourth phase of Locke's narrative is the evolution of private property, which is sub-divided into three stages

- Hunting/gathering/fishing
- Farming
- The marketing of commodities.

Property 'ownership' he believed was the sacred right of the 'rational and industrious'¹⁸⁷ and was 'fixed' by 'enclosing' and mixing 'labour'¹⁸⁸ with common land. The act of enclosure he considered was sufficient 'labour' to justify the exclusion of others¹⁸⁹. Locke attempts¹⁹⁰ to use

181 the land must not be 'owned' by another, and the land left for others must be of the same quality as that appropriated.

182 Goldie 1997, Hay and Rogers 1997, Locke 1690, Travis 2000

183 i.e. western property owning men.

184 To go beyond the laws of nature.

185 Goldie 1997, Travis 2000

186 Eckersley 1992, Korten 1996, Locke 1690

187 i.e. economically productive property owning farmers.

188 Intensive economic exploitation.

189 Goldie 1997

190 Locke 1690

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the Bible to add legitimacy to his case for property ownership and economic exploitation of resources on the basis of highly suspect hermeneutics¹⁹¹. He 'extends' the meaning of Genesis 1:28¹⁹² from merely 'subduing'¹⁹³ the earth to enclosing land from the commons and 'owning' it as private property, although the Bible is explicit that God 'owns' the natural environment¹⁹⁴ and humankind are only stewards¹⁹⁵. He uses 1 Tim 6:17 to question the yeoman's rights of common, and his copyhold because of his failure to fully commercially exploit his resources. He pronounces¹⁹⁶ that because he is not making full use of it, he is not "*enjoying things richly*"¹⁹⁷ and that "*nothing was made by God for man to spoil or destroy*"¹⁹⁸. Lock's economic case for property rights serves to define and delimit 'property'. The crucial proto-utilitarian concept of 'waste' distinguishes the claims of those who fence and intensively exploit from the subsistence activity of yeomen and peasants¹⁹⁹. As a result of Locke's thinking not only was common land illegally acquired by 'capital farmers' but additionally the yeoman's customary rights, privileges and even copyhold, were all expropriated, and those seeking to exercise rights in common were regarded as criminals. Many yeomen farmers and peasants lost their independent status and were forced from the land on which they had the same feudal right as a Lord. Many yeomen either became agricultural labourers or factory workers, and their dwellings were razed to the ground or left to become derelict²⁰⁰. Locke's account of property provided not only the basis for excessive land holdings in the UK, colonial policy in the USA, but for global laissez-faire capitalism²⁰¹. His treatise effectively legitimized

191 The theory and methodology of interpretation, especially of scriptural text.

<http://www.answers.com/topic/hermeneutics> accessed 11th August 2005.

192 Bible: English Standard Version (online) <http://www.gnpcb.org/esv/search/?q=Genesis+1%3A28+> accessed 5th July 2005.

193 **כבש** *kabash* is Hebrew for subdue.

194 Psalm 24:1 Bible: English Standard Version (online) <http://www.gnpcb.org/esv/search/?q=Psalm+24%3A1> accessed 5th July 2005.

Psalm 89:11 Bible: English Standard Version (online) <http://www.gnpcb.org/esv/search/?q=Psalm+89%3A11+> accessed 5th July 2005.

1 Chron 29:11 Bible: English Standard Version (online)

<http://www.gnpcb.org/esv/search/?q=1+Chron+29%3A11+> accessed 5th July 2005.

195 Acts 4: 32-35 Bible: English Standard Version (online)

<http://www.gnpcb.org/esv/search/?q=Acts+4%3A32-35> accessed 5th July 2005.

196 Locke 1690 (section 31)

197 1 Tim 6:17 Bible: English Standard Version (online)

<http://www.gnpcb.org/esv/search/?q=1+Tim+6%3A17+> accessed 5th July 2005.

198 Locke 1690 2nd Treatise - Property Chapter 5 #31, Travis 2000

199 Goldie 1997, Locke 1690, Travis 2000

200 Marx 1976, Price 1803, Rogers 1866

201 Arneil 1996

Chapter 3 Western knowledge systems theft by removing resources 'from nature' through mixing land with labour and laid the foundations for enclosure movement in UK, Europe and the colonial construct of *terra nullius*²⁰² or *res nullius*²⁰³. As in England this denied the existence and prior rights of original inhabitants and negated the regenerative capacity and life processes of the earth²⁰⁴. Today his views continue to provide the basis for the expropriation of all manner of customary rights of common and 'intellectual property' in the west and non-west²⁰⁵.

The age of modernity, predicated on the views of John Locke, led to three projects of progress, socialism, capitalism, and developmentalism²⁰⁶. These projects, however appear to have either failed or are in crisis, and the ideology, validity and domain assumptions of modernity are being questioned²⁰⁷.

3.1.4 Development at the 'End' of Modernity

The twentieth century, which is often claimed to be the most civilized ever, was instead, the cruellest and bloodiest in human history. Over fifty million lives were destroyed by World War II alone and an atom bomb caused destruction on an unprecedented scale. Both world wars were seemingly instigated by conquerors who believed their 'race' was superior to others, and that they deserved a greater share of the world. The Second World War was started by a dictator whose rule seemingly led to mass genocide of 'racial inferiors' on an unparalleled scale. Yet he was supported by a nation that was considered to be at the peak of Western civilization. The world that led to these catastrophes came to an end after the two bloodiest wars in human history and modernity lost its credibility with Auschwitz and Stalin²⁰⁸. Empires fell, dictators and monarchs were deposed and colonialism ended²⁰⁹. The faith in authority had been shaken, as was its elitist posturing, its hierarchical class systems, and the concept of progress itself. Humankind's longing for ultimate meaning failed to be realised by the progress brought about

202 Or 'vacant' land (Locke 1690 sect 36).

203 The property of no man (Locke 1690 sect 36).

204 Cooper 1990b, Shiva 1997, Teisch 1997

205 Pandey 2000

206 Developmentalism comprised several forms, namely evolutionism, modernization and development theory which correlated with different epochs of western hegemony, and was predicated on a discourse of power.

207 Banuri 1994, Brohman 1995, Fals-Borda 1985, Griffin 1988, Nandy 1988, Pieterse 1991, Said 1979, 1993, Slater 1997.

208 Lyotard 1986

209 Hobsbawm 1988

Chapter 3 Western knowledge systems by science, technology and growth economics²¹⁰ or developmentalism. The dependency approach provided diminishing returns both conceptually and politically. In that sense there was an 'impasse', because the modernization and dependency approaches appeared to checkmate each other, and this was exacerbated by the 'crisis of marxism' and the collapse of socialism as we know it²¹¹. The crisis in classical development coupled with the strength of NGO's and grassroots politics, the roll-back of the state, the advance of market forces, and the breakdown of regulation, forced development to redefine itself and led to new challenges from a range of neo-populist and post-modern development approaches. Classical mainstream development²¹² responded by developing two streams, one based on neoliberalism and Structural Adjustment Projects (SAPs) , typified by the IMF, and the other based on 'human and social development', typified by the UN. The image of development was redefined and was no longer viewed only in terms of GDP growth. Human and social development was seen as more appropriate goals and measures of development, and practice. These goals, however have been achieved largely by co-opting the rhetoric and practices of 'neo-populist' approaches, and have seemingly resulted in 'schizophrenia' as development institutions²¹³ have attempted to match new rhetoric with old praxis²¹⁴. The development trajectories included under the rubric of neo-populism, postcolonial and postmodernism are disparate and not necessarily new, as in some cases they resonate with anti-enlightenment and 'pre-modern' ideologies²¹⁵. Space only permits me to mention three approaches (alternative, postcolonial and postdevelopment) that are evidently germane with this study. We will consider 'alternative development' and 'postcolonialism' in this section because neither represents major departures from mainstream development and 'postdevelopment' which is considered in section 3.2.

Alternative development began in the 1970's as a very distinct alternative to classical development and although Hettne (1990) tries to argue that alternative development represents a counterpoint to mainstream development, its recent position could best be described as a

210 Kwok 1998, Wiener 1981,

211 Hettne 1995, Munck 1999, Schuurman 1993

212 Blaikie 1996

213 eg The World Bank

214 Pincus 2001, Rich 1994

215 Cooper 1990b, Nandy 1986

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reactive position that lacks theoretical cohesion. Many of its once distinct elements²¹⁶, which may have constituted an alternative development 'profile' have subsequently been co-opted by mainstream development. Its critical concerns have been instrumentalized and rather than challenging the development-as-growth model have allowed development to re-invent itself under a different name²¹⁷. It has never been anti-theoretical but it is intellectually segmented and it lacks both the cohesion and a distinct epistemic and a metatheoretical framework to be considered as an alternative development paradigm²¹⁸.

Although post-colonial studies²¹⁹ appear to resonate with the post-modern in that they offer tools for; deconstructing Western discourses, the aestheticization of politics and for the politics of difference, they are evidently conservative, offer little in the way of reconstruction, or a new exemplar or master paradigm and prolong the imperial. All we are seemingly offered are uncritical celebrations of difference, and an emphasis on academic writing and self-reflexivity²²⁰.

Mainstream development and many of its trajectories appear to be increasingly caught on the horns of a dilemma between the 'UN stream'²²¹ and the 'IMF stream'²²² while the World Bank plays 'tug-of-war' between the two. In spite of the changes and the rhetoric mainstream development discourse still appears to be an elite hegemonic tyranny that does not challenge globalizing capitalist growth paradigms, and favours transnational corporations at the expense of the poor and the environment. A much more fundamental change, however that resulted not only from disenchantment with modernity and the failures of development, but with advances in physics, science and ecology resulted in new trajectories of what became known as the 'post-modern' worldview.

216 Basic needs, participation, environmental sustainability, physical well-being etc.

217 Pieterse 1998

218 Pieterse 1998, Munck 1999

219 Crush 1995, Slater 1998, Watts 1995

220 Watts 1995

221 Human and social development.

222 SAPs and global monetarism.

3.2 POSTMODERNITY

Although postmodernism is still evolving, and it has a certain semantic instability there is some common ground between its sub-sets. Since the 1980's elements of postmodernism²²³ have had an increasing influence on development and ecology. From the perspective of this study it does allow for a proliferation of meaning and form, it does enable us to critique the 'western' worldview, and to consider the non-western world and alternative knowledge systems. The post-modern path has been seeded by several important factors:-

- A growing disenchantment with enlightenment dogma, the failures of modernism and developmentalism
- An emerging global culture²²⁴
- Poststructuralism and discourse theory²²⁵
- Ecological and ecosocialist studies²²⁶
- New environmental and social movements²²⁷
- Non-western development paradigms²²⁸
- Changes within science and physics²²⁹ and
- Feminist critiques of development and ecofeminism²³⁰

The only 'development' expression of postmodernism, however that appears to be apposite for this study is 'postdevelopment'²³¹. Although postdevelopment includes ethnosensibilities germane to this study it appears to be largely predicated on discourse analysis and resistance rather than emancipation and its position appears to be flawed. It attributes to development a single and narrow meaning, a consistency which does not match either theory or policy, and thus replicates the rhetoric of developmentalism, rather than getting to grips with polysemic²³² realities. There are also dangers of ethnochauvanism or the reification of culture, locale,

223 Poststructuralism in particular.

224 Griffin 1988, Featherstone 1995

225 Agrawal 1996, Foucault 1980

226 Cobb 1988, Eckersley 1992

227 Eckersley 1992, Parajuli 1991, Peet and Watts 1996, Pieterse 1998, Routledge 1993

228 Escobar 1984, 1992a and b, 1995, Ferguson 1990, Latouche 1993, 1996 Macy 1985, Maybury-Lewis 1992, Munck and O'Hearn 1999, Pieterse 1991, Shiva 1989

229 Capra 1988, Callicott 1982, 1986, Griffin 1988, Pieterse 1999

230 Eckersley 1992, Shiva 1989, Zimmerman 1994

231 Pieterse 1998, Sachs 1992

232 A word with several meanings.

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people and indigenous knowledge and its one-dimensional view of globalization may be equated with homogenization. At best it can be interpreted as a neo-traditionalist reaction to modernity²³³.

The only common ground shared by the different sub-sets of post-modern development is an attempt to go beyond the limitations of modernism and the Enlightenment worldview that developed out of Galilean-Cartesian-Baconian-Newtonian science and transcend its individualism, anthropocentrism, eurocentrism, universalism, patriarchy, mechanization, economism, positivism, relativism, nationalism and militarism²³⁴. Post-modern development expressions do not appear to include an adequate **paradigm** for the purposes of this study, because of their lack of direction and their refusal to translate critiques into construction.

Postmodernism does, however, appear to offer a **suite of tools and trajectories** that are germane to this study. The tools it offers will enable us:-

- to bring politics into development discourse, critique certain aspects of the western worldview and consider the non-western world²³⁵.
- to bring abductive logic into the study and an IT²³⁶ conceptual framework that enables us to examine society in greater substantive detail that is web-like, non-hierarchical, multilinear, hypertextual, decentred, relational and contextual²³⁷.
- to adopt a reflexive spirit that goes beyond ethnocentrism and move towards a more genuinely global expansion of knowledge and understanding.
- deconstruct western development myths using cultural analysis and hermeneutics.
- respect and learn from non westerners, alien paradigms and worldviews and engage in the cultural politics of transformation²³⁸.

In this chapter we will, use some of the 'critical tools' of postmodernism to critique environmental and development discourse and review two trajectories that are seemingly

233 Pieterse 1998

234 Griffin 1988

235 Munck 1999

236 Information Technology

237 Landow 1993, Ryder 1997

238 Slater 1997, Tucker 1999

germane²³⁹ to this study.

3.3 ENVIRONMENTALISM, DEVELOPMENT AND NATURE

Discourses of development, environmentalism, and nature have been influenced by 'developmentalism'²⁴⁰ and 'green governmentality'²⁴¹ although they are being contested by religeo-environmental, organic and post-modern approaches

Nineteenth century evolution discourse conformed to a pattern that had classical antecedents. Victorian anthropology, race science, social science and evolutionism were all part of colonial discourse²⁴². During the nineteenth century race science, which drew on the works of Locke²⁴³ served as the nexus between natural history and social history and between biological and social evolutionism. Race science and evolutionism both explained and justified European supremacy; identifying the Caucasian, Nordic, and in particular the Anglo-Saxon race as superior in its endowments, with Europe leading the way in the trajectory of evolution, and exhibiting the most advanced stage of 'human perfectibility' expressed in rationality, civilization, favour with God, and moral superiority²⁴⁴. Nineteenth century social science was engaged in studies surrounding changes taking place in Europe which were variously associated with industrialization, urbanization and the enlightenment. They were characterized by: stage theories, dichotomous theories and critical variable theories²⁴⁵. They shared a depiction of social evolution in stages; primitive, savagery, barbarism, civilization²⁴⁶, which were not dissimilar to the stages developed by the Chinese²⁴⁷. Twentieth century social science, however rejected race science and social evolution but it resurfaced after the second world war in modernization theory and in the discourse of development²⁴⁸. The early concerns of development reflected the interests of the ruling elites in both the developed and developing countries. The modernization paradigm took it for granted that the societies characterized by

239 Two other forestry-related trajectories will be considered in Chapter 5.

240 Aseniero 1985, Pieterse 1991

241 Luke 1999b

242 Said 1979, 1993

243 Locke 1690

244 Locke 1690

245 Pieterse 1991

246 Locke 1690, Marx 1886, Morgan 1877

247 Barfield 1989, Cannon 1989, Dikotter 1992, Dreyer 1976, Gladney 1994a, Heberer 1987, and 1989

248 Esteva 1992

Chapter 3 Western knowledge systems industrial capitalism are universally desired²⁴⁹ but in fact no people ever voted for capital accumulation and industrialization, processes that have usually implied a substantial amount of coercion. Modernization theory and growth was relatively unconcerned with the problem of scarcity, change, limits to growth or environmental destruction or conflict.

Although new world views²⁵⁰ emerged in the 1960's that were critical of dominant western attitudes towards the nonhuman world, they represented the exception. It took over a decade of political agitation before the environmental crisis²⁵¹ and 'limits to growth'²⁵² was discussed and western countries began to consider environmental laws²⁵³. From the 1970's onwards researchers²⁵⁴ drew our attention to environmental degradation and its relationship with protest and conflict. It became apparent that environmental degradation and diminishing shared renewable natural resources could cause violent conflict and form a crucial part of the complex of poverty. Once we studied the destructive consequences of our exploitation of our environment, the majority world and the nonhuman world, the facts became indisputable²⁵⁵. Because the destruction has been vastly accelerated by the industrial revolution why have we have been so oblivious. We interpret events according to our worldview, namely the prevailing scientific²⁵⁶ and technical- commercial paradigms which were established in the context of materialistic dualistic world views which lack ecological interconnectedness²⁵⁷. According to these paradigms questions of community welfare or environmental sustainability are only issues of public relations. As for the intrinsic values of forests and wildlife they are all reduced to their objective commercial potential²⁵⁸. In the context of dualism, the human sciences along with ethics and theology accept nature as the given stage for human drama. They do not encourage attention to changes in the stage. In the context of mechanism nature appears as ahistorical. Hence, only those who actually went and looked noticed the changes, but because they did not develop mechanistic theories of what they saw their findings were either ignored

249 Slater 1995

250 Bookchin 1962, Carson 1962, Reich 1971

251 O'Connor 1989

252 Club of Rome 1972, Meadows 1972

253 Hettne 1995

254 Timberlake and Tinker 1984

255 O'Hagan 1995

256 Both natural and human

257 Carson 1962, Mander 1997

258 Mander 1997

Chapter 3 Western knowledge systems or wrongly interpreted^{259 260}. Those theories which were developed to conceptually connect 'environment' 'development'²⁶¹, reduced ecology to 'resource efficiency' and 'risk management' and were blind and ignorant of diversity outside the economic society of the West²⁶². Although mainstream developmental and environmental approaches are being challenged by new social movements, by postmodernism, radical sustainable development, by alternative development strategies and by non-western concepts of progress, there are dangers of the cooption which may result in little difference to mainstream values, paradigms, theoretical or epistemic frameworks²⁶³. Things patently are not improving as it would appear that in both the West and the East, that domestic and global environmental agendas are increasingly being subverted and rearticulated by state, NGO, corporate and international bodies, giving rise to ethnocentric strategies of social control and Foucault inspired projects of 'green governmentality'²⁶⁴ predicated on mainstream discourses of sustainable development where the meaning of 'environment' and 'nature'²⁶⁵ are being contested²⁶⁶.

Governmentality involves the establishment of complex social techniques and institutions to intensify the mechanisms of control over the population²⁶⁷. Darier (1996) rearticulates Foucault's ideas in terms of three dimensions or categories which represent the main power effects which modern state policies can have on private and societal lives. These include the

- Centralization of power around the government,
- The intensification of the effects of power at all levels,
- The emergence of new knowledge useful for implementation or intensification of power.

259 Cobb 1988

260 For example, the tendency to treat environmental protest as an aspect of power and wealth sharing was common up to the 1980's (Eckersley 1992, Rodman 1980). This was in spite of the fact that many of the western protesters were the children of the affluent, who were seeking an alternative worldview that opposed the 'functional rationality' of modernity (Berger 1974).

261 eg eco-cratia discourse.

262 Sachs 1992

263 Routledge 1993

264 Darier 1999, Luke 1999b

265 Luke 1999b

266 The term governmentality was presented and explored by Foucault (1991,1984) at the end of the 1970s and implies a novel definition of power that has profound implications for our understanding of political power and public policy.

267 Foucault 1991, Luke 1995

Governmentality is a difficult concept to define, and is more of an approach for understanding and interpreting the elements of power in the policy process than a clearly defined analytical concept. Irrespective of its definition it is important to understand what it means to individuals, populations, or organizations to be governed and be under governance, and how modes of governance influence our lives, cultures, and actor relations.

3.3.1 Mainstream 'Sustainable' Development

The term 'sustainable development' which suffused development discourse in the 1980's and early 1990's followed the report of the World Commission on Environment and Development²⁶⁸ and the United Nations Conference on Environment and Development Earth Summit in Rio²⁶⁹. The best known definition of sustainable development speaks of:-

*"development which meets the needs of the present, without compromising the ability of future generations to meet their own needs"*²⁷⁰

As a definition its strengths appear to lie in the way diverse and sometimes divergent ideas are blended often uncritically into an apparent synthesis²⁷¹ but as a concept it lends itself to considerable ambiguity²⁷² and the absence of a clear theoretical and analytical framework²⁷³. As a 'catch phrase' which would apparently 'integrate environmental conservation with economic development' it has transformed the rhetoric but rarely the reality of established development institutions and many Non Governmental Organisations (NGOs). Different actors have interpreted it in different ways to suit their institutional needs and views²⁷⁴. It has become a 'slogan'²⁷⁵ for all those who want to appear to incorporate environmental considerations into the development process without unduly 'rocking the boat'²⁷⁶. Many of the initiatives developed as a result of Earth Summit and predicated on sustainable development have seemingly failed. Indeed many business and political leaders have appeared to avoid

268 Brundtland 1987

269 Adams 1995

270 Brundtland Commission 1987 page 8

271 Adams 1990

272 Adams 1995

273 Lele 1991

274 Peet and Watts 1996

275 Conroy 1988

276 Bryant 1998, Redclift 1987, 1996

making the choices that a transition to sustainable development would necessitate. The Institute of Chartered Foresters (UK) only added the word 'sustainable' to their ethical code after protracted pressure²⁷⁷. The absence of any agreement about what 'sustainable development' actually means, still less whether it can be achieved in the real world, does not mean it should be discarded. According to Redclift²⁷⁸ 'sustainable development' is a powerful conceptual term and provides a platform for discussing development and the environment. As such, it can assist us to identify areas of convergence and divergence in the discourse about development and the environment, and in the way these processes are understood. Although thinking about sustainable development is diverse, there is a clearly discernable mainstream within it²⁷⁹, which draws on just one reformist sub-set of a continuum of ideas about sustainable development. Other sub-sets provide a very different and more radical agenda for development action. Mainstream thinking sees sustainable development as something that takes place without threatening economic growth.²⁸⁰ It not only fails to challenge the capitalist growth paradigm, it also appears to be remarkably resistant to ecocentrism. It lies at the centre of the existing Western industrial economic and technocentric paradigms, and growth is the most prominent feature of its policy objectives²⁸¹. The core of technocentrist thinking in sustainable development is Lockean both in terms of its utilitarian view²⁸² of science and the application of science to solve human problems²⁸³. In the case of forests, the picture is particularly grim, given the realities²⁸⁴, as this view reduces forests to so many 'cubic metres' or £'s per hectare. Consideration of the entire forest biotic community is out of the picture: intrinsic values are never discussed; the spiritual emanations of ancient forests are not perceived; sustainable economic processes are 'inefficient' and too slow for the market machine; and long-term planetary health becomes much too long-term for a technical-commercial values construct²⁸⁵. A utilitarian view can be found both in the World

277 Studley 1995

278 Redclift 1992

279 Brundtland 1987, IUCN 1980, Lele 1991

280 Brundtland 1987

281 O'Riordan 1981, O'Riordan and Turner 1983

282 i.e. What is useful is good

283 Locke 1690, Merchant 1997

284 A recent study in China revealed that intrinsic values were ca 11% of Total Economic Value and commercial and spiritual values were ca 5% (Studley et al 2005).

285 Mander 1997

Conservation Strategy (WCS) and in Caring for the Earth²⁸⁶. WCS has three main aims: to maintain essential life-support systems, to preserve genetic diversity, and to promote sustainable development of species and ecosystems. This agenda, characterised by a utilitarian view of science and ecology²⁸⁷ has been applied to Sustainable Development in general and to the WCS in particular²⁸⁸. Sustainable Development appears to be rooted much more in western environmentalism than development discourse and for this reason, it lacks engagement with development theory²⁸⁹ and this marks them²⁹⁰ out from the normal discourse of development²⁹¹.

There are several trajectories that underpin mainstream environmentalism, which tend to favour the technocentric, instrumental²⁹² and reformist positions. These include:

- Resource conservation²⁹³
- The international conservation movement²⁹⁴
- The preservation movement²⁹⁵ and
- possibly human welfare ecology²⁹⁶.

Resource conservation²⁹⁷, the international conservation movement, and the preservation movement²⁹⁸ have led to unrealistic and contradictory tenets in our natural resource policies. Resource conservation appears to be permeated with an acceptance of destructive practices, generated from a belief that Lockean mitigating measures can halt or reverse environmental depletion and degradation. International conservation appears to be part of the global hegemony of western culture that tend to ignore local people and are strongly biased by elitist

286 IUCN 1980

287 Deeply embedded in colonial discourse imperial rule and western global cultural hegemony (Adams 1995, Dasmann 1979, Locke 1690).

288 Adams 1993, 1995, Bhabha 1991, World Bank 1989, 1990, 1991, 1992, 1993

289 Adams 1990

290 Sustainable development and Environmentalism.

291 Crush 1995, Gare 1995

292 No nonhuman being can have value in itself, it can only have value as a means for humans (Habermas 1971).

293 Devall 1979, Drengson and Taylor 1997

294 Adams 1990

295 Thoreau 1858, Turner 1996

296 Eckersley 1992

297 The scientific capacity available to harness and manage nature the way we see fit.

298 The perceived pristine state of wilderness areas.

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urban perceptions of the environment and issues of the urban world²⁹⁹. Preservation appears to be predicated on a resource-management policy based on the belief that setting aside so called pristine tracts of land will automatically preserve their biological integrity. None of the above takes into consideration the possibilities for natural-resource management that might arise from learning from alternative paradigms in a co-development approach with scientific information and management³⁰⁰.

Researchers wanting to go beyond the rhetoric of 'sustainable development' have identified four "dimensions"³⁰¹ of sustainable development namely; economics, politics, culture and epistemology. The last two are evidently particularly germane for the purpose of this study and will be explored below.

3.3.2 Environmental Discourse

Environmental discourse has its roots in industrial society, and many of the competing ideologies of industrial society³⁰² from an environmental perspective are committed to 'industrialism'³⁰³. This commonality might surprise its adherents, who are far more conscious of their ideological differences than of their industrial commonalities. All these ideologies ignored environmental concerns and environmental issues were only considered in terms of inputs to industrial processes³⁰⁴. Environmental discourse has attempted to develop disparate trajectories that appear to represent a departure from industrialism. These departures can be categorized a number of different ways. Dobson³⁰⁵ makes a threefold distinction between old-fashioned conservation, reform environmentalism and radical ecologism, Eckersley³⁰⁶ thinks that the key difference is between anthropocentric and ecocentric perspectives and Dryzek³⁰⁷ recognizes four discourses :- problem solving, survivalism, sustainability and green radicalism. Mere reformist tinkering with environmental trajectories does not appear to go far enough, if sustainable resource stewardship is a valid objective, a fundamentally different

299 Gomez-Pompa and Kaus 1992

300 Gomez-Pompa and Kaus 1992

301 Adams 1993 page 395, 1995, Redclift 1992

302 Namely liberalism, conservatism, socialism, marxism and fascism.

303 Dryzek 1997

304 For example the US conservation movement's attempts to ensure natural resources are not squandered so there is always plenty to support a growing industrial economy.

305 1990

306 1992

307 1997

approach is required. The worldwide crisis in resource management appears to be caused mostly by Lockean materialism and the epistemological and cognitive frameworks of knowledge dominating ecological science. This has led to interpretive error or "information flow pathologies"³⁰⁸, a deepening of the ecological crisis and an inability to prescribe sustainable outcomes³⁰⁹. Characteristically many of ecological difficulties tend to be systems related, and they are non-linear in nature, cross-scale in time and space and have an evolutionary character. As a result interdisciplinary and integrated modes of inquiry predicated on social and ecological systems are required for understanding and for policy formulation³¹⁰.

3.3.3 Nature Discourse

In discussing 'nature' we are dealing with a very complex Western concept that has a complicated repertoire of meanings³¹¹. On the basis of complex Greek and Latin roots, it has been moulded into a single multifaceted concept which finds a variety of uses and is still in a process of change. Recurring intervals of romanticism have given it much of its flavour. If we investigate 'nature' or 'landscape' they refer not only to physical aspects of earth, but abstract space containing a variety of ideas and principles, defying easy definition³¹². We differentiate nature by means of accurate definitions, classes and systems, including shapes and colours, but attribute to it meanings and emotions. Accordingly concepts like nature may be seen as anthropocentric and subjective tools of the mind in the pursuit of order among apparent chaos. The central constructions of nature within mainstream Western and Eastern environmental practice reflect an engagement with post-Brundtland³¹³ discourses of 'sustainable development' which have eroded previous discourses of sustainability³¹⁴. On the basis of this very ambiguous discourse it has been possible to reinvent nature as environmental 'capital' that may be maintained³¹⁵ and to paste over any conflicts between economics and the environment³¹⁶. Much of the current literature engaging with the concept of nature views it as

308 McGovern et al 1988 page 245

309 Holling et al 1998, Lee 1992

310 Holling et al 1998

311 Lewis 1960

312 Williams 1976

313 Brundtland 1987

314 Dryzek 1997

315 O'Connor 1994

316 Adams 1995, Escobar 1996, Redclift 1992

Chapter 3 Western knowledge systems a contested social construction³¹⁷ where struggles over meaning are as important as livelihood struggles³¹⁸. Since the late sixties nature has become a pressing issue, especially in the light of politico-economic restructuring and an ecological and cultural crisis³¹⁹. There is increasing recognition that many people living in the west are participating in a culture of denial about nature and that education reinforces unsustainable values and practices³²⁰. The recognition that nature is no longer everywhere, limitless and externally available to capitalist actors has led to a shift whereby nature has become an accumulation strategy for capital³²¹. Within this strategy nature is no longer separate from social and cultural processes³²² cannot be separated off into its own ontological space³²³ and should be studied as part of politico-economic and technological changes. The process of normalisation/resistance can be observed on a micro-scale³²⁴ in the context of development conflicts where nature is constructed to justify alternative positions³²⁵. It can be viewed as a form of cultural politics with different groups locked into a struggle over the meaning and values of plants, animals and landscapes threatened by development³²⁶.

Mainstream developmental and environmental approaches are not only being challenged discursively but are being contested by eco-spiritual, holistic-organic and post-modern approaches.

3.3.4 Eco-spiritual and Holistic-organic Paradigms

The 1960's were not only countercultural; they were also anti-capitalist, anti-colonial, anti-imperialist and anti-western. In these turbulent years criticism of western religion, science and technology, in combination with an interest in native American and oriental religions became

317 Darier 1999, Escobar 1996

318 Gramsci 1971

319 Castree and Braun 1998

320 Bowers 1999, Sterling 2001

321 Katz 1998

322 Macnaughten and Urry 1998

323 Castree and Braun 1998

324 Haraway 1991

325 The James Bay Cree were able to use discursive strategies, including the 'trans-cultural' metaphor of a garden, to oppose dominant institutions, preventing a major hydro-electric project, and mobilize public opinion in support of Cree land and lives (Feit 2001). The Chipko movement was able to draw on discourses predicated on ideology and religio-cultural idiom (tree hugging, fasting, pilgrimage, scripture reading) to prevent the exploitation of their forests and ensure a green felling ban in the Indian Himalaya (Guha 2000, Routledge 1993).

326 Burgess 1992

part of the political confrontation between the west and its critics. Against this background religious and ecological ideas found their way to the 'majority world'³²⁷ where they echoed a growing political and cultural self-consciousness. Consequently, during the last twenty years we have not only witnessed the 'greening of religion'³²⁸ but native Americans, Australian Aborigines, Hindus, Buddhists, Muslims and many others have presented their religious traditions as authentically ecological and conservationist.

In the west an incomplete reading of White's seminal essay³²⁹ convinced a generation of environmentalists that religion was the problem, and led many environmental organizations to shun religious communities in their work, and ignore the mission of religion in preserving nature. While it is true that White did decry the dominance of a particular anthropocentric tradition in Christianity, he also acknowledges a competing, more ecological, tradition. He concludes his essay by proposing St Francis as patron saint for ecologists³³⁰. Since the mid 1990's there has been a convergence between religious and environmental groups³³¹. It is anticipated that with the growth of religious environmental stewardship groups³³² they will dramatically transform the conservation movement in 21st century. Mainstream religions groups, however, known more for their support of the status quo, should not neglect their prophetic calling³³³.

Religions are major drivers of societal and individual behaviour change³³⁴ including the natural environment³³⁵. Recent examples include the role of the church and liberation theology in the Nicaraguan Revolution³³⁶ the US Civil Rights Movement, the Shi'ite Iranian Revolution, the democracy/ independence movement in the Eastern Bloc³³⁷ the boycott of Nestle

327 representing 83% of the worlds population not part of the "North Atlantic System" (Elworthy and Rogers 2001 page 3).

328 Jensen 1999

329 White 1967

330 Pope 1997

331 Tucker and Grim 2001

332 Environmental Stewardship Commission <http://www.env-steward.com/links.htm> accessed 5th July 2005.

333 Rohr 2002

334 Berry 1999

335 Gardner and Stern 1996

336 Gutierrez 1973

337 Greenwald 1990, Rogers 1990

products³³⁸ for launching Jubilee 2000 for debt reduction³³⁹ and in blocking attempts in the US Congress to weaken the Endangered Species Act³⁴⁰.

Religion brings at least five assets to societal and environmental change:

- They provide meaning by shaping worldview³⁴¹
- The capacity to inspire and the wielding of moral authority³⁴²
- Sheer numbers of followers³⁴³
- Substantial physical and financial resources³⁴⁴
- A particular capacity to generate 'social capital'³⁴⁵

All of these assets can be used to help build a socially just and environmentally sustainable world³⁴⁶. Today the 'religious environmentalist'³⁴⁷ or the 'ecological spirituality' paradigm³⁴⁸ has a well established position in global environmentalist discussion³⁴⁹ which may have profound percussions on the way individuals and their societies perceive the environment, leading to more sustainable earth care³⁵⁰.

From a sociological perspective, religious traditions represent and construct the collective values and systems of meaning of human societies. As such, religious traditions influence the way their adherents interpret their experience of the world and, consequently, influence their actions upon it. Religious ideologies, however, are themselves *always in medias res*³⁵¹ and even though their adherents may uphold an eternal vision of archaic principles handed down over generations, in actuality this vision is continuously renegotiated and reconstructed in conversation with the changing demands of historical and cultural context. Quite apart from

338 Broad and Cavanagh 1998

339 www.jubilee2000uk.org accessed 12th July 2004.

340 Gardner 2002

341 Anderson 1996, Chapple and Tucker 2000

342 Bernstein and Politi 1996, Schwartz 1994

343 Barrett and Johnson 2001, Grim 2001

344 Gardner 2002

345 This is a contested term (See Baron et al 2004, Leung 2002, Stolle and Lewis undated).

346 Dasgupta and Serageldin 2000, Gardner 2002

347 Pedersen 1995

348 Kinsley 1995

349 Atisha 1991, Dwivedi and Tiwari 1987, Swain 1991

350 Kinsley 1995, Posey 1999

351 Literally 'in the very midst of things' - while stories usually begin at the chronological beginning narratives that begin in the 'thick of things' and fill in the background later are described as *in media res*.

any contribution that religion may bring to a perception of nature, in the western world, there is a growing awareness of the inadequacies of the Cartesian worldview, in which an intensified dichotomy of reality, separated subject from object, culture from nature, and cultural sciences from natural sciences. More precisely, both sciences and popular ideologies have come to question the division between 'science for people and science for nature'. With the challenged western paradigms, an entirely new ecological paradigm is frequently called for, a paradigm where 'humankind' and 'environment' no longer are seen as separate and opposite entities but where 'organisms and environment form part of one another'³⁵².

Scientists and laypeople have searched for new inspiration from outside western traditions. A large body of literature offers alternative worldviews to the prevailing western ones: usually depicting humankind as an integral part of nature instead of being separated from it and trying to dominate it. They portray humankind and environment as a harmonious unity of mutual respect, complementarity and symbiosis, their views are holistic-organic rather than atomistic-mechanistic as in the industrial west³⁵³.

The perception of nature found among indigenous peoples and tribal societies have provided us with a range of alternative paradigms that appear to include examples of explicit environmental protection³⁵⁴. There are dangers however of over-romanticization of their traditions, which will be addressed in the next chapter, and of 'ideological capture'. In the latter case indigenous phenomena have been marketed for ideological ends and thus become entangled with a continuing critique of western culture. Native American beliefs, for instance, greatly inspired the founders of Greenpeace, who saw themselves as rainbow warriors, who according to Cree tradition 'would teach the white man reverence for the earth'³⁵⁵. Thus far few of the mainstream approaches, with the exception of the eco-spiritual-environmental paradigm have much goodness-of-fit with the values and worldviews of indigenous people, but there are two trajectories of the post-modern that appear to be germane that will be examined in the next section.

352 Catton and Dunlap 1978, 1980, Dickens 1992

353 Callicott and Ames 1989

354 Seeland 1986

355 Brown and May 1991

3.3.5 Post-modern Approaches

The only post-modern trajectories that are seemingly apposite include systems and people-centred approaches. The systems approach is based on adaptive management and abduction³⁵⁶, with an emphasis on linkages and feedback controls³⁵⁷. Unlike traditional science, this approach is integrative and interdisciplinary, it includes the interactions of social systems with natural systems, and it is predicated on a relational, participatory and organic worldview. Its approach is both synthetic and holistic in the sense that it focuses upon studying the patterns of relationship between the parts, rather than the parts themselves³⁵⁸. The most articulate statement of this new methodology is provided by Bateson³⁵⁹ who uses the concept of 'abduction'³⁶⁰ to understand patterns of relationship with one another, and their degree of symmetry.

Adaptive management predicated both on abduction and a synthetic and relational approach offers the prospect of embracing surprise, and of redefining, resource management, human institutions, and techniques and values on the basis of the patterns of the larger system of which they are part. Indigenous resource management is similar in some ways to adaptive management. These traditional systems proceed in an adaptive fashion by mutual feedback mechanisms and co-evolution. They parallel adaptive management in their reliance on learning-by-doing and the use of feedback from the environment to provide corrections for management practice. They differ from formal systems generally by the absence of testable hypotheses and generalization theories and by the integration of moral and religious belief systems with management³⁶¹.

The people-orientated approach focuses on the resource user and their knowledge, institutions and rights. Tools for this approach however are poorly developed, and the importance of a social and cognitive science of resource management is not well recognized. Some researchers however have attempted to address this gap and they include studies on various dimensions of

356 The process of inference to the best explanation.

357 Holling 1978, Walters 1986

358 Holling et al 1998

359 Bateson 1972a, 1972b, 1988

360 As apposed to induction or deduction.

361 Gadgil et al 1993

Chapter 3 Western knowledge systems sustainability, institutions and collective action, property rights, community-based resource management, and institutional learning and resource management³⁶².

In this chapter we have concluded that with a few exceptions³⁶³ most of the mainstream trajectories of development and environmentalism are fatally flawed, in terms of their own objectives. Environmental and neo-populist rhetoric continue to be saturated with the culturally constructed myths of ethnocentric Western hegemony. We have noted the demise of modernity with World War II, Auschwitz and Stalin, and the apparent sea change offered by postmodernism. Its development trajectories, however, continue to be predicated on western ethnocentrism and an epistemology that has little to offer those seeking a holistic interconnected worldview. It does not make room for: reality outside of language; a basis for human identity or a collective identity; a basis for ethics; any form of interconnection between nature, humankind and the sacred; progress beyond individualistic selfish consumerism; a platform to judge or evaluate; any historical reference points; a basis for political unity or social cohesion; any views and values not based on an Occidental binary framework.

We noted further that while mainstream environmentalism and sustainable development, appear to have adopted the 'politically correct' rhetoric of concern for the poor, the environment and sustainability, they continue to be predicated on the legacies of imperial and colonial discourse. Their view of nature continues to be utilitarian and they remain blind to diversity outside of economics. They do not offer any sort of challenge to capitalist growth, and they are patently resistant to ecocentrism. They are plainly blind to the culturally constructed myths upon which they are predicated and they have failed to address the cultural politics or the indigenous 'systems' of non-western stake-holders.

Although attempts are being made to recognise and integrate western and non-western 'knowledge', the integration continues to be privileged on western worldviews, science, values, definitions of progress and neoliberal economics. Few attempts are being made; to deconstruct

362 Berkes and Folke 1998

363 Religious environmental and holistic-organic paradigms, multiple dimensions of sustainability, adaptive management and people-centred approaches.

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western myths, western worldviews or paradigms, to extrapolate from vernacular knowledge systems, or to address synergy among knowledge systems.

This study will argue in the following chapters that in order to address sustainable development not only do we need to deconstruct western myths, but we need the cultural and epistemological competency to understand the reality of sustainability from non-western and indigenous perspectives.

CHAPTER 4 NON-'WESTERN' KNOWLEDGE

4.1 INTRODUCTION

In the last chapter I concluded that with a few exceptions most of the mainstream trajectories of development and environmentalism are fatally flawed, in terms of their own objectives and either do not constitute paradigms or continue to be saturated with the culturally constructed myths of ethnocentric western hegemony. In this chapter, given the prevailing knowledge systems of Asia and China, in general, and Eastern Kham, in particular, I will examine non-western knowledge systems and indigenous knowledge.

We need to consider non-western 'classical knowledge' systems because they often survive among the 'elite classes'³⁶⁴ of populations where indigenous peoples are found, often 'overlay' indigenous knowledge systems, are being re-examined as the basis for more holistic paradigms³⁶⁵, and appear to provide some sort of resources in support of environmental conservation and protection.

4.2 EASTERN CLASSICAL KNOWLEDGE SYSTEMS

The following classical knowledge systems provide a back-drop to our study area:- Hinduism, Buddhism, The Tibetan Bon religion, Tai Chi, Confucianism, and Daoism, and although a very extensive literature exists³⁶⁶ we are mostly interested in their view of the natural world, which will be explored in more depth in Chapter 7.

364 e.g. Elite educated lamas in Tibet have adopted Tibetan Buddhism while nomads and farmers have primarily adopted animism.

365 Gardner 2002

366 **Hinduism** - Buck 1973, Edgerton 1972, Jackson and Killingley 1988, Kantikar 1989, Kinsley 1993, Koller 1982, Lipner 1994

Buddhism - Douglas and White 1976, Humphreys 1989, Lester 1987, Ling 1972, Lobzang Lhalungpa 1977, Lu 1971, Morgan 1987, Pabongka Rinboche 1994, Paltrul 1994, Powell 1989, Rahula 1990, Robinson and Johnson 1982, Snellgrove 1987, Snelling 1987, Karma Thinley 1978, Thondup 1987, Chogay Trichen 1983, Tucci 1980, Wangu 1993, Williams 1989, Willis 1995

Tibetan Bon - Abbotts 1987, Batchelor 1987, Chan 1994, Crook and Osmaston 1994, Gyurme Dorje 1996, Karmay 1972, Samuel 1993a, 1993b, Snellgrove and Richardson 1968, Snellgrove 1981, Stein 1972, Waddell 1967

Tai chi - Chen Man Ching et al 1985, Waysun Liao 1990, 1995, Wile 1995

Confucianism - Chen 1986, Ching 1978, Chuang-Tzu 1981, Confucius 1987, 1998, Crampton 1996, Hoobler and Hoobler 1993, Moore 1996

Daoism - Chuang-Tzu 1981, Cleary 1991, Cooper 1990a, Laozi 1993, 1998, Needham 1954, 1956, 1982, Schipper 1993, Wleeh et al 1979

One of the most common and enduring western stereotypes in environmental literature is the idea that classical eastern knowledge systems promote a sense of harmony and respect between humankind and nature. On the other side of the stereotype stand the knowledge systems of the 'west' which; are morally inferior, environmentally insensitive, promote the separation of human beings and nature, and encourage acts of domination, exploitation and control³⁶⁷. There are good reasons to think, however, that this is not the whole picture. In a remarkable article, Kellert³⁶⁸ has given clear statistical shape to the suspicion that Eastern cultures are just as capable of showing disrespect for nature³⁶⁹ as their Western counterparts. In contrast to highly positive Eastern attitudes toward nature, modern Japan and China, for example, have been cited for their poor conservation record; including widespread temperate and tropical deforestation, excessive exploitation of wildlife products, indiscriminate and damaging fishing practices, and widespread pollution. In a UNEP survey³⁷⁰ Japan ranked 'lowest in environmental concern and awareness' of the fourteen countries surveyed. Although several Asian Countries³⁷¹ may have adopted western- style economic development it appears to be too overly simplistic to attribute this contradiction merely to the influence of the West. With the development of Confucianism and Chinese Buddhism and 'Religious Daoism' although we find explicit conservation injunctions there appears to be less congruency between belief and practice, a re-interpretation of traditional spiritual concepts, and a reduction of nature to symbolism and representation.

Most Chinese knowledge systems include the concept of *yin/yang*. Drawing on these two opposite concepts Tuan³⁷² has identified two environmental paradigms; a terrestrial and a celestial one. The 'terrestrial naturalistic paradigm' finds expression in; philosophy, nature

367 Soule 1995

368 Kellert 1995

369 'Nature' is a purely western concept, however some near Chinese equivalents include 'wild' (野 *ye3* is pronounced in the 3rd tone), which is not liked, 'the spontaneous' (自然 *zi4 ran2* : *zi* is pronounced in the 4th tone and *ran* in the 2nd tone), 'what we are born with and have inside' (性 *xing4* is pronounced in the 4th tone), 'everything' (万物 *wan4 wu4* : both *wan* and *wu* are pronounced in the 4th tone), concepts of plants, animals and mountains, and *The Dao* in some Daoist usage (personal communication Anderson 25/1/2000 weblog). Some near Tibetan equivalents include nature (རང་བཞིན་གྱི་ཁམས། *rang-bzhin-gyi-khams*) and environment/nature (ཐོན་ཡུལ། *khor-yug*) (personal communication Gyurme Dorje 21/3/2000).

370 Eckel 1997

371 e.g. China and Japan.

372 Tuan 1968

poetry, the refined sentiments of Daoism and Confucianism, enlightened conservation memorials, and a 'cosmic celestial paradigm' of geometric order, geomancy, *fengshui*, agricultural almanacs, and formal gardens. While the former appears to support environmental conservation the latter appears to have 'legitimized' a social hierarchy and authoritarian control over nature and humankind, and often resulted in deforested mountains, erosion, clogged streams and totalitarianism.

Confucianism appears to have used the concept of yin/yang to develop its hierarchical social code and cosmology³⁷³, which legitimized the domination, subjugation and control of China's people, minority races, women and nature. Although Confucius appears to have regarded the natural world as a model for aesthetic pleasure and ethical virtues, Confucianism has never directly concerned itself with environmental issues and thus cannot pretend to have the answer to the earth's ecological problems, however it appears to provide, some philosophical and spiritual 'resources'³⁷⁴.

Chinese, Japanese and Tibetan Buddhism are rooted in Hinduism and Indian Buddhism and it is necessary to interrogate these traditions to fully understand the apparent paradoxes in environmental treatment. It appears though that 'nature' in the Indian tradition is a world to be transcended, and in Japan and China it has taken on the capacity to symbolize transcendence itself, and that the worlds of 'health, harmony and well-being' represented by nature (created or wild) are only an ideal setting for 'enlightenment' to take place or to worship a divinity³⁷⁵. This appeared to be the case among the Tibetan Buddhists of Eastern Kham³⁷⁶.

In China and Japan the contribution of Buddhism, to a collective perception about nature, and an explanation for contact with the environment was the concept of 'Buddha-nature'. This perception however, appears to be predicated not on nature in its raw form, but on the cultural transformation of nature, where natural elements are refined and abstracted so that they can serve as symbols of harmony, order, or balance³⁷⁷.

373 Emperor/subjects, husband/wife, heaven /earth, Han /Barbarians etc.

374 Tucker and Berthong 1998

375 Stott 1978

376 Studley et al 1999

377 Kellert 1991, 1995

Tibetan Buddhism³⁷⁸ and Bon³⁷⁹ are not insensitive to the claims of the natural world, but there is more of an emphasis on the purification of the mind, and the doctrine of emptiness³⁸⁰ as a pre-requisite for even considering an ethical response to the natural world³⁸¹. The stereotype vision of Tibet as the land of non-violence, meditation and 'green values' appears to be a construct predicated mostly on the "western romance and idealization of affluent, disenchanted Europeans and Americans"³⁸². Western romantic notions of Tibetans have become so pervasive that Tibetans in exile have started to adopt the Westerner's idealizations and to re-fashion the image of Tibetan culture³⁸³

The Daoist ideal of living with the natural world, in 'harmony with the spontaneous self' does appear to provide some sort of 'ethic' that values more organic and less damaged environments and 'The *Dao*', in some Daoist usage comes close to some meanings of 'nature' in English. This will be explored further in chapter 7 section 7.1.3 although there is little concrete conservationist or ecological lore embedded in Daoism³⁸⁴. Both Buddhism and Confucianism had an increasing influence on Daoism and as a result its view of the natural world moved from one of intrinsic value to symbolism and representation.

It is evident that most Eastern classical knowledge systems do appear to offer some resources that support the conservation of nature. Their view of the natural world, however is often symbolic or secondary, lacking explicit protection or 'bonds of affection' and at best only represents a deity or its divine aspect³⁸⁵. As a result these systems can just as easily provide the basis for the domination, exploitation and control of nature and humankind.

378 Tibetan Buddhism (See Stein 1972, Tucci 1980) as a whole is a complex but coherent body of Mahayana doctrines and esoteric practices and comprises four major religious orders : Sakyapa, Kagyupa, Nyimepe, and Gelugpa.

379 To all intents and purposes the modern Bon-po are followers of a Buddhist religious tradition with certain differences of vocabulary from the other four major traditions of Tibetan Buddhism, but no major difference in content. For more on Bon and its three phases (See Samuel 1993a, and 1993b).

380 शून्यत *Sunyatā* is Sanskrit for void or emptiness

381 Eckel 1997

382 Kearney 1998, personal communication Ramble 2000 weblog

383 Korom 1997, Lopez 1998

384 personal communication Anderson 24/12000 weblog

385 Seeland 1993

Indigenous peoples, however appear to have ecological cosmologies and environmental ethics embedded in their worldviews. For many animistic/shamanistic peoples, one aspect of natural resources actually is the deity, and they exhibit 'bonds of affection' for the natural world.

Explicit environmental protection is embedded in their worldviews, because they hold the natural world as sacred. This is evident in the complex reciprocal obligations surrounding life-taking and resource-gathering which characterize a community's relations with the local bioregion. The religious paradigms that constitute indigenous life are predicated on: respect for the sources of food clothing and shelter that nature provides, a sense of gratitude to the creator and to the spiritual forces in creation, ritual calendars coordinated with the sound of returning birds, the blooming of certain plants or the movement of the planets³⁸⁶.

Given the apparent flaws in the mainstream trajectories of development and environmentalism and the failure of eastern classical knowledge systems to provide models of explicit protection we will examine primal and indigenous knowledge systems for potential platforms for apposite ethno-forestry paradigms.

4.3 INDIGENOUS PEOPLES AND SOCIETIES

On the basis of spoken languages all the world's people belong to 6,000 cultures; and of these 4,000 to 5,000 are indigenous. This means that indigenous peoples make up between 70 and 80 percent of the world's cultural diversity³⁸⁷. This comprises at least 200 million people and up to 600 million people if we include ethnic nations that lack political autonomy such as the Tibetans, Kurds and Zulus³⁸⁸. They tend to inhabit areas of the world with the highest biological diversity seemingly providing an 'inextricable link' between biological and cultural diversity. In fact 10 out of 12 'megadiversity countries'³⁸⁹ also figure among the top 25 countries of highest endemic linguistic diversity, and while there are exceptions³⁹⁰ and no diagnostic measure accounts for such a complex phenomenon the overall correlation between linguistic and biological diversity is striking³⁹¹.

386 Posey 1999

387 Posey and Dutfield 1997 page 30

388 Beauclerk et al 1989

389 IUCN

390 e.g. Papua New Guinea.

391 Durning 1992, Maffi 1999a+b, McNeely et al 1990

Indigenous peoples live in extremely varied environments, generally harsh and remote, such as tundras, drylands and rainforests, from which they satisfy all their needs. Their livelihood strategies are as varied as their environment; they may practice fishing, hunting, gathering, pastoral nomadism, cultivation, or a range of these in combination. Economic activities are a part of traditional life and are controlled through social institutions such as marriage, kinship, age groups, clans and public rituals. Traditional societies gain great strength from the integration of economic, social, religious and political affairs³⁹². Many indigenous peoples can no longer meet their subsistence needs from their own resources, and engage in other income-generating activities. All too often, this means casual wage labour, often migrant contracted on very unfavourable terms. They may accept this as the only way of keeping their culture alive and there is obviously a continuum from truly subsistence indigenous societies to those with a substantial engagement with the national economy³⁹³.

Despite the variety among indigenous peoples around the world, it is possible to make some generalizations about them and their 'homelands':

- The economies of indigenous peoples are closely adapted to their natural resources of which they reveal a high degree of knowledge based on observation and long practice.
- A particular feature of the technologies developed by indigenous peoples for subsistence is their emphasis on the sustainable use of their resources.
- Indigenous peoples practising traditional subsistence often include exemplars of ecological balance with their surroundings³⁹⁴. This balance does not mean that indigenous people do not modify their environment, but there is a stability underlying their natural resource use in most cases.
- Mobility is often a key factor with pastoral nomads, for example, often moving 3 or 4 times a year to take advantage of irregular supplies of water and grazing³⁹⁵.
- Indigenous peoples generally regard ownership of land as communal, vested in all the members of a particular group, or perhaps a clan or subgroup.

392 Nesti 1999

393 Beauclerk et al 1988

394 Posey 1999

395 Bahuchet 1979, Beauclerk et al 1988, Goldstein and Beall 1990, Posey and Dutfield 1997

- Traditionally, purchase plays no part in rights to land. The resource-holding group may own a territory, or a group of religious sites, or a water hole; in rare cases there may be no group asserting ownership of resources.
- Access to the group may be by inheritance, or by place of birth, or by admission by the group.
- The relationship of the people to their territories is rarely just economic; normally it is closely identified with their spiritual beliefs.
- Pastoral groups may share land or water with other groups, often using it at different times but still depending on it for survival; their rights may be of access to water rather than land³⁹⁶.
- By their very nature, many rangelands and forest reserves have no physical marks identifying them, and may thus be labelled 'unoccupied' by the state.
- Foragers or hunter-gatherers, are an extreme case as the means of production are collectively owned; everyone has access to the making of tools, and rights of reciprocal access to the resources of others are common³⁹⁷.

The economies of indigenous peoples are also comparatively undifferentiated, with the principal divisions of labour established on lines of gender and age. The minimum production unit is an essentially self-sufficient group of families or clan. Within the indigenous economy there is often little opportunity for individual accumulation of wealth; people tend to maintain social cohesion by encouraging generosity. Indeed there are frequently social mechanisms that govern the redistribution of wealth within the group. Generosity may be an adaptation to sporadic supply, or may be an independent ethos, but equitable sharing is a common outcome. These are not societies without problems, but the problems derive their particular character from their relations of production. For instance, foraging peoples usually value sharing, reciprocity, hard work and even temper; individuals who wish to hoard, to be lazy, to dominate others, to isolate themselves or be quick to argue and fight, face ridicule, misfortune and social isolation³⁹⁸.

396 Barfield 1984, 1989, 1993

397 Beauclerk et al 1988, World Bank 2004

398 Beauclerk et al 1988, Burger 1990

Every indigenous group has a distinct way of organising its own society and there are always collective structures governing the behaviour of individuals in every aspect of life. The strength of indigenous peoples ultimately rests on the kinship groups and the way these groups individually or collectively conduct their political, economic and religious affairs. Among most indigenous peoples, groups enjoy considerable local autonomy in the exercise of authority and only a shared threat will bring a large number of groups together for a common enterprise such as defence of land. Kinship structures provide individuals with security and give them an established role within the group as a whole. A common language, culture and system of religious beliefs may reinforce identification of the individual within the group. On the other hand, conflicts between and within groups may exist and in some cases may be resolved by violence. Many of these rivalries and antagonisms are ritualised and limited by tradition, though outside influence may disrupt this³⁹⁹.

The very characteristics that have equipped indigenous people to survive in harsh environments and develop viable and satisfying social and economic systems can make them vulnerable when contacts are made with members of national societies. Most countries with indigenous populations within their boundaries have highly centralised political, legal and economic systems with complex division of labour. Without cultural adjustment, indigenous peoples cannot express their collective interests at national level. Kinship and reciprocity can easily break down when monetary relations are established. Traditional land ownership is no defence against the concept of private property or land nationalisation. Population densities may be low, livelihoods may be based on mobility and no taxable surplus may be produced; governments may see these as justification for dispossessing indigenous peoples. Ecologically sound subsistence systems may not be regarded as a benefit to the country, but rather as a waste of resources. Indigenous peoples who seek to defend their territories and their autonomy find it difficult to adapt sufficiently without losing their identity⁴⁰⁰.

399 Beauclerk et al 1988, Grim 2001, Nesti 1999

400 Beauclerk et al 1988, Nesti 1999, UN 2000

<http://www.unhchr.ch/huricane/hurricane.nsf/0/783013FAB6C4F1A4C125697D002FB7AF?opendocument>
accessed 12th Feb 2003

Although there is some international recognition of the role of indigenous peoples in biodiversity conservation and sustainable development, and for the protection of their 'cultural landscapes'⁴⁰¹ this is by no means universal. Some governments, and even non-governmental organizations, still have policies of removing local people from protected 'cultural landscapes'. Others include local people only as token 'participants' or 'consultants' and little attempt is made to treat local communities as expert collaborators with their own criteria, methods and priorities.

4.4 INDIGENOUS KNOWLEDGE (IK) DISCOURSE

Before we can explore 'indigenous knowledge' and compare it with alternative knowledge systems, it is important to understand its pedigree and the discursive space it currently occupies.

In the context of late Western colonial science indigenous knowledge was evident but mute, however with the inexorable rise of modernity it became a kind of ignorance⁴⁰². Tradition was something to be overcome rather than encouraged and several generations of 'top-down' development experts and organisations engaged in resource extraction and management in the 'majority world' have either deliberately avoided it on the grounds that their own knowledge systems were superior or simply never realised that it might be a resource to be 'tapped'. The dominant model of development has for some fifty years or more been based on 'useful knowledge' generated in laboratories, research stations and universities, and only then transferred to 'ignorant' peoples⁴⁰³. Not only was indigenous knowledge grossly undervalued in terms of its potential practical applications, it was insufficiently valid to merit any legal status or protection from the patents or copyrights which give value and ownership to western knowledge and expertise. Even when the knowledge was clearly being utilized, it was often re-described in ways that eliminated any credit to those who had brought it to the attention of science in the first place⁴⁰⁴. The inherent ethnocentrism and elitism of late twentieth century science, therefore, has made it difficult for scientists to accept that traditional people have any

401 Convention on Biological Diversity 1992, Rio Declaration 1992, UNESCO convention 1972

402 Hunn 1993

403 Chambers and Richards 1995

404 Dutfield 1999, Harris 1996

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knowledge of worth⁴⁰⁵. This view was reinforced by perceptions that traditional peoples often adopted wasteful, even delinquent patterns of resource extraction, as classically exemplified in the literature on shifting cultivation and that when subsistence practices were evidently damaging it was a matter of preference rather than an outcome of poverty⁴⁰⁶. Since the mid 1960's, the process of marginalising indigenous knowledge has been put into reverse, for both romantic and practical reasons. The romantic reasons have their immediate political renaissance in the counter-culture⁴⁰⁷ of the 1960's with the notion that traditional, indigenous or primitive peoples are in some kind of idyllic harmony with nature. Such a view was initially prompted by a crisis in the perception of science and technology, in terms of the increasing remoteness and arcane character of science, its perceived arrogance and negative technological outcomes, and its inability to explain much about the world that ordinary people sought explanations for. It often involved the selective re-modelling of Asian and other exotic traditions to suit the needs of Western environmentalist rhetoric drawn from an intellectual pedigree that favoured idealized native images⁴⁰⁸. In this vision, indigenous peoples are given central focus because of, rather than in spite of, their cultural differences. This perception and consequent alliance between indigenous peoples and science is a fragile one, based upon assumed ideals of (indigenous) realities, which contrasts with the realities of the local people themselves. Such assumptions are in danger of leading to cross-cultural misperceptions and strategic misrepresentations.

The re-constitution in an Asian context has often involved both the 'great traditions' and the 'little traditions'⁴⁰⁹ often failing to distinguish between the two and confusing ideal symbolic representations with hard-headed empirical practice. It is not altogether surprising, therefore, that this muddle has reinforced scientific prejudice and a backlash expressed in phrases such as 'the environmental myth'⁴¹⁰. Nevertheless, with the discarding of the more fanciful portrayals of the wisdom of traditional peoples, several alternative approaches have emerged. One distinct approach has been encouraged by advocates of IK and some technocrats, who

405 Johannes 1987

406 Dove 1983

407 Ellen 1986

408 Conklin and Graham 1995

409 Scholarly and indigenous.

410 Diamond 1987, Johannes 1987

Chapter 4 Non-western knowledge systems have been described by as 'neo-indigenistas'⁴¹¹. The dissemination of this approach has been part of a rhetoric praising the virtues of 'participation', 'empowerment', 'bottom-up', and 'farmer-first'⁴¹². Some measure of the institutionalization of this version of IK⁴¹³ is the number of networking organisations and research units⁴¹⁴. One of the difficulties, however with the 'neo-indigenistas' approach, in common with modernization theorists, is the danger of leaving intact the dichotomy of western knowledge and indigenous knowledge as homogenous and exclusive entities⁴¹⁵.

The dangers of this dichotomy need to be highlighted, before we consider IK in depth, and they include the following:

- Monocultural myopia which masks the plurality of actors, the multiple identities they have, and the multitudinous relations they have⁴¹⁶.
- The uncritical placement of local knowledge within a dichotomy, the decontextualization of IK is necessarily implied and the unique and important knowledge of specific groups becomes subject to the same limitations and criticisms as Western science and development theories⁴¹⁷.
- Attempts to separate and fix in time and space two knowledge systems are bound to fail unless the two systems have two totally separated historical sequences of change. Contact and exchange, for example, between Asia and the Americas has taken place for thousands of years and western and indigenous knowledge systems have had intimate interaction and co-evolved since the 15th century⁴¹⁸.
- IK is generated in the immediate context of the livelihoods of people, and it is a dynamic entity that undergoes constant modification as the needs of the communities change. It is impossible for IK to maintain its vitality or vigour if it is isolated in an

411 Agrawal 1995a+b

412 Chambers 1983

413 Indigenous knowledge.

414 Warren et al 1995

415 Agrawal 1995b, Berman 1988, Umans 1998

416 Umans 1998

417 Banuri and Marglin 1993

418 Eckholm 1980, Levi-Strauss 1955

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archive, frozen in time and space, in knowledge centres privileged on western science
and bureaucratic procedure and strangled by central control and management⁴¹⁹.

- When IK becomes subject to the limited parameters of Western science and development theories which rely upon an ordered conceptual framework and finite elements from which, and in which to work, it is bound to fail. Both systems have specific histories, particular burdens from the past and distinctive patterns of change and heterogeneity between elements⁴²⁰.
- The tendency to define IK in relation to Western knowledge is problematic in that it raises Western science to a level of reference, ignoring the fact that all systems are culture-bound and thereby excluding Western knowledge itself from the analysis. This limits the analysis of indigenous systems by narrowing the parameters of understanding through the imposition of Western categories. Paradoxically, although many 'neo-indigenistas' mock science, they use it and unconsciously assign it to a higher pedestal than indigenous knowledge. Their practice and methods are often based on scientific methods and they subject IK to a scientific criteria of validity before it is recognized as 'usable' knowledge⁴²¹.
- There is a tendency to isolate knowledge sub-sets which mirror ethno-discipline sets for the purpose of analysis and documentation⁴²². Examining local knowledge in this way can lead to the construction of certain aspects of knowledge as important, while excluding or ignoring other areas or possibilities of knowledge which do not fall within the selective criteria of Western scientific parameters.
- IK as a compartmentalized vision has become a major concept within development discourse, and a convenient abstraction which consists of bite-sized chunks of information that can be slotted into Western paradigms, fragmented and decontextualized; a kind of quick fix, if not a panacea. Such approaches are in danger of repeating the same problems of simplification, over-generalisation, and universalism that we find in development theory⁴²³.

419 Agrawal 1995a

420 Macabe 1988

421 Brockensha and Riley 1980, Massaquoi 1993, Rajan and Sethuramm 1993, Richards 1980

422 Fairhead and Leach 1994

423 Harris 1996, Hobart 1993, Richards 1985

- There is a largely unappreciated gap between the neat rationalities of development agencies' representations which imagine the world as ordered and manageable and the actualities of situated social practices⁴²⁴. As a consequence, we end up with a theory that misrepresents the context in which indigenous knowledge occurs and is experienced.
- In the hands of NGOs and within the 'universalizing discourse' of environmentalism IK has become further reified and gained a more positive image. Once, however, IK is slotted into the Western scientific paradigm it is difficult to know where to draw the boundary between IK and 'science'. Changing the boundaries is often sufficient to re-define something as 'science', as what defines it is to a considerable extent determined by who practices it, and in what institutional context the practices are taking place. The danger of turning local knowledge into global knowledge is at the empirical level, all IK is relative and parochial, no two societies perceive or act upon the environment in the same ways. Science by comparison, is a system of knowledge in rapid flux that seeks universal rather than local understanding. It is precisely the local embeddedness of IK that has made it successful.
- The 'neo-indigenistas' undermine their own arguments because while championing IK they insist on a dichotomy between western and indigenous knowledge and they fail to recognize the link between knowledge and power.

The appropriate response for those generally interested in preserving knowledge systems and in particular indigenous knowledge might lie in attempting to reorientate and reverse state policies and market forces to permit members of threatened populations to determine their own future and attempt, thus to facilitate in situ preservation of IK. In situ preservation cannot succeed without indigenous populations gaining control over the use of the lands in which they dwell and the resources on which they rely. Those who are seen to possess knowledge must also possess the right to decide on how to save it and who shall use it.

The mechanics of in situ conservation of IK are little understood, and will perhaps pose significant political and ethical dilemmas. Such an objection cannot, however, be an excuse for side-lining what appears to be in the best interest of those most threatened.

424 Hobart 1993

'Neo-indigenistas' must begin to grapple with such problems if they are to make their programme and their epistemic foundations more acceptable to the populations whose knowledge they wish to highlight and appropriate for the common good.

A beginning in this direction would be to recognize the multiplicity of logics and practices that underlie the creation and maintenance of different knowledge systems within a knowledge network. By building on new views of science⁴²⁵ that insist on "multiplicity, patchiness and heterogeneity of the space in which scientists work" and go beyond rationalism and reductive representation⁴²⁶ neo-indigenistas are offered the prospect of developing new epistemic foundations for addressing and building bridges between knowledge within a network. The network is constituted by multiple actors, who possess resources and form relations through their interacting. Each actor invests resources of different kinds and amounts, including financial, social, cultural and symbolic capital, which are valued differently depending on the project. It is important that each actor understands the knowledge-related processes that are at play within a project, especially the construction of knowledge, the attribution of meaning, the exercise of power, and the emergence of synergy or 'subjects'⁴²⁷.

This should provide a better basis not only for in situ conservation of IK and resource management but to safeguard the interests of those most disadvantaged.

4.5 PRIMAL OR INDIGENOUS KNOWLEDGE SYSTEMS

Usually 'primal' or indigenous knowledge systems emanate from a spiritual base, and are often predicated on 'animism' and 'shamanism'. From this view all creation⁴²⁸ is regarded as sacred, and spirits seemingly "indwell" ⁴²⁹ natural objects and phenomena⁴³⁰. Within this system there are often cultural experts⁴³¹ who are particularly aware of nature's organizing principles, sometimes described as entities, spirits or natural law. Thus knowledge of the environment

425 Pickering 1992 page 8

426 Agrawal 1995a

427 Subjects in this meaning are multiple actors who together have the capacity to bring forward a project (Umans 1998).

428 Living and non living.

429 To exist as an inner activating spirit, force, or principle <http://www.wordreference.com/definition/indwell> accessed 12th June 2005.

430 Keesing 1981 page 330, and 507

431 Often known as shamans.

Chapter 4 Non-western knowledge systems depends not only on the relationship between humans and nature, but also between the visible world and the invisible spirit world⁴³². These views result in an ordering of relationships between humankind and the environment at a physical and spiritual level rooted in a quest for harmony and equilibrium between man, the spirit world, nature and society. Indigenous knowledge also embraces information about location, movements and other factors explaining spatial patterns and timing in the ecosystem, including sequences of events, cycles and trends. Direct links with the land are fundamental, and obligations to maintain those connections form the core of individual and group identity⁴³³.

Given the failings of Western knowledge systems there can be little surprise that indigenous, traditional and local communities are hostile not only to the rhetoric of 'partnerships' and 'sustainable development' but the tenets of 'biodiversity', 'nature conservation' and 'environmental ethics'. The western terms 'nature' and 'biological diversity' are alien to most indigenous people, because they⁴³⁴ separate the phenomenon of non-human diversity from their knowledge and livelihood.

Biological diversity is taken for granted as part of everyday existence embedded within a holistic integrated system. Indigenous people may in practice respect and enhance biodiversity, but resist the conservation of 'wilderness', which ignores humankind and dispossesses them of territory⁴³⁵. Indigenous cultural practices define politics and ethics as existing in the realm of ecosystems and would argue that it makes no sense to limit the notion of politics and ethics only to human beings. This is illustrated in the way that natural objects and living beings are included as members of indigenous communities and in indigenous clan names, totems and covenants⁴³⁶.

Fortunately there are an increasing number of examples where indigenous peoples have combined their existing knowledge with new information and are filling a very significant gap

432 Posey 1999

433 Posey 1999

434 Nature and biological diversity.

435 Colchester 1994a

436 Deloria 1990, Pierotti and Wildcat 1999

Chapter 4 Non-western knowledge systems in facilitation of new approaches to IK and natural resource management. While many of these studies still suffer from their commitment to an indigenous/ scientific dichotomy, they still offer the beginnings of an endogenous approach⁴³⁷.

Dominant knowledge systems assume that traditional communities must change to meet 'modern' standards, but indigenous and traditional peoples feel the opposite must occur: science and industry must begin to respect local diversity and the "sacred balance"⁴³⁸. If this is true this leaves us with the possibility that science and industry have lost their legitimate role as 'responsible' global leaders, and that many 'world' religions especially those that encourage "materialistic, dualistic, anthropocentric, utilitarian and representational concepts of and relations to nature have served to hasten the destruction of biological and cultural diversity"⁴³⁹. In earlier chapters (Chapter 3 section 3.3.1) we discovered that definitions of sustainability and sustainable development were ambiguous and that western-inspired development has often proved disastrous not only for the planet but many of the world's indigenous communities. Recognizing these failures, there is now an urgent need to look to these communities for guidance on how to use the world's biological resources in a sustainable manner. Reference can be made to an extensive literature⁴⁴⁰ on indigenous worldview, indigenous society and indigenous knowledge discourse to provide the reader with a framework to better understand indigenous knowledge and its conservation and its protection.

4.5.1 The Nature and Character of Indigenous Knowledge Systems

Indigenous knowledge systems are the concrete expressions of 'world views' which do not regard human society as something apart from 'environment', and emphasize the unity and symbiosis of humankind and the natural world. IK is generated, stored and transmitted by its

437 Agrawal 1995a

438 Posey 1999 page 6

439 Edwards and Palmer 1997, Jensen 1999, Posey 1999 page 6

440 Worldview :- Alison 1984, Berreman 1963, Burnett 1988, Firth 1975, Frazer 1993 Geertz 1985, Hiebert a + b 1982, 1983, Malinowski 1955, Marriott 1955, Mendelbaum 1964, Redfield 1955, Samuel and Sugden 1982, Sine 1987, Turner 1974, Tylor 1871, Wimber 1985, Woodberry 1989

Indigenous society :- Beauclerk et al 1989, Durning 1992, Maffi 1999a, McNeely et al 1990, Nietschmann 1992b, Posey and Dutfield 1997

Indigenous knowledge discourse :- Chambers and Richards 1995, Conklin and Graham 1995, Diamond 1987, Dove 1983, Dutfield 1999, Ellen 1986, Fairhead and Leach 1994, Harris 1996, Hobart 1993, Hunn 1993, Johannes 1987, Richards 1985, Warren et al 1995

Chapter 4 Non-western knowledge systems users through an oral tradition. In the oral tradition learning takes place by observation and through doing, and often through the art of story-telling. Classical western science, as we have already learned is an artefact of Western society and is embedded in the literacy and numeracy of western tradition and education, wherein teaching and learning are abstracted from their applied context, and are didactic in form and substance. Western science, to reiterate from chapter 3, has adopted a set of assumptions on which scientific knowledge generation is based and by which it is tested for validity. The assumptions⁴⁴¹ include Lockean reductionism⁴⁴² objectivism⁴⁴³, and positivism⁴⁴⁴. The scientific mode deliberately breaks down data presented to the senses and reassembles it in different ways. IK systems are more concrete and rely on evidence presented directly to the senses by users of the knowledge. IK appears to be holistic, rather than reductionist, subjective rather than objective, and experiential rather than positivist. It appears to correspond poorly with western intellectual ideals of 'truth'. The norms of intellectual development are rigidly institutionalised. Guided by these norms IK is generally rejected by scientists as anecdotal, non-quantitative and immethodical⁴⁴⁵. IK and western classical science not only differ in their dominant mode of communication but in the speed of data creation, as systems of prediction and explanation, and as systems of classification. Although science appears to be superior in terms of the speed of accumulation, prediction and explanation it is highly selective whereas the data generated by IK is more inclusive. The rapid data accumulation of Western science, while generally productive of useful short-term prediction, does not necessarily result in strong long-term prediction. IK systems may not be better able to predict long term changes, but often have superiority in recognising the onset of changes and accommodating to them⁴⁴⁶. Science employs methods of hypothesis generation, testing and verification or rejection, and the establishment of theories and general laws as its explanatory basis.

441 Harman 1989

442 That understanding of a whole and complex phenomenon can be achieved in terms of more elemental events

443 That the observer must deliberately separate his or her self from that being observed, and learn about it through various replicated probes.

444 That what is measurable is scientifically real, and what is scientifically real is measurable.

445 Nakashima 1990

446 Howes and Chambers 1980

Spiritual explanations are inevitably a significant component of indigenous systems. In western science, plant and animal taxonomists classify all living organisms into groups which are hierarchically organized according to 'evolutionary', or genetic, relatedness. In contrast indigenous taxonomies reveal the primacy of ecological thought according to their worldview and 'mythology'⁴⁴⁷. Western scientific classification is highly differentiated, compared to indigenous classification which tends to encompass inclusive categories. IK, however, does differentiate between a large numbers of distinctions within categories⁴⁴⁸ and IK systems are 'high context' designed to incorporate a very high level of contextual information specific to a given locale⁴⁴⁹. In these locales indigenous groups employ a range of strategies⁴⁵⁰.

There is no single native science or knowledge system and each group has a system specific to their locale. There are, nevertheless, general elements which guide and shape the generation of IK. These include:

- Its cosmic view⁴⁵¹
- Its animistic and shamanic view⁴⁵²
- The occurrence of shamanic accounting and knowledge of biodiversity⁴⁵³
- Its integration and holism⁴⁵⁴
- The reciprocal nurture of all relationships⁴⁵⁵
- Its emphasis on harmony and equilibrium⁴⁵⁶

4.5.2 Indigenous Conservation and Resource Management

The value of indigenous knowledge and its use in the conservation and resource management of 'cultural landscapes' is being increasingly recognized. There are, however dangers of

447 Nakashima 1990

448 Denny 1988

449 Brown 1973, Colorado 1988, Denny 1988

450 For example the Iroquois combine sedentary living in semi-permanent settlements and agriculture with hunting and gathering, while the Indians of the boreal forest and Inuit of the tundra maintain a high degree of seasonal mobility.

451 Booth and Jacobs 1990

452 Deloria 1973, Posey and Dutfield 1997, Reichel 1992, Toelken 1976, Young et al 1989

453 Shepard 1999

454 Brown 1973

455 Booth and Jacobs 1990, Momaday 1976 a + b, Murdoch 1988

456 Colorado 1988, Posey and Dutfield 1997

Chapter 4 Non-western knowledge systems assuming that local people are always the best managers or that long-term tenure guarantees a benign attitude toward biodiversity or natural resources. As indigenous peoples are integrated into the growth and consumption mainstream it is risky to assume that they are always the best stewards of their environment. It is necessary to consider each indigenous people group on a case by case basis, some provide excellent paradigms of conservation, sustainability and environmental enhancement and other do not⁴⁵⁷.

While there are dangers of over-romanticizing indigenous peoples' wisdom and intrinsic harmony with the earth, there may be graver dangers of underestimating the distinctive character and resiliency of indigenous cultures and the ways in which their core values and local knowledge so often continue, even despite some degree of assimilation into outside cultures, economies and political systems. Awareness of the possible limitations of indigenous peoples' conservation practices must not, however, undermine recognition of their considerable potential. Indigenous people can play a vital role in the conservation of biodiversity⁴⁵⁸.

4.5.3 Protection of Indigenous Knowledge

In spite of some recognition⁴⁵⁹ for indigenous people there is inadequate legal protection for indigenous people and their knowledge. Although outsiders have collected IK and biological resources from traditional people for centuries, 'bioprospecting' has intensified in recent years⁴⁶⁰. These interests have thus far been seeking free access to what they consider to

457 Clad 1994, Soule 1995

458 Posey and Dutfield 1997

459 Chandler 1993, Downes 1995, Simpson 1997, UN 1994

- Rio declaration on Environment and Development (Principal 22), Agenda 21 (Chapter 26), the Convention on Biological Diversity (CBD), the Forest Principles (Grubb et al 1993, Keating 1993)
- The UN draft declaration on the human rights of indigenous peoples (Posey and Dutfield 1997, UN 1993)
- The draft declaration on human rights and the environment (Article 14), and the draft international covenant on environment and development (Article 11.4, 12.6, 43.2 and 44.1) (IUCN/ICEL 1995)
- The charter of the indigenous tribal peoples of the tropical forests 1992, the Mataatua declaration on cultural and intellectual property 1993 (UNEP/CBD 1996)
- The treaty for a life forms patent-free Pacific and related protocols (Peteru 1995)
- The 'heart of the peoples' declaration (1997)
http://www.ipcb.org/resolutions/htmls/dec_heartopeoples.html accessed 5th July 2005.

460 Posey 1995, Posey and Dutfield 1996

be public domain knowledge of plant resources and their uses, and modifying this public property superficially and transferring it into the private domain of intellectual property rights. This is particularly the case regarding the patenting of life forms and the recognition of plant breeders' rights⁴⁶¹.

Indigenous peoples widely regard life in all its forms as sacred, and life therefore cannot be 'owned'. They appear to welcome interest in their knowledge as long as this results in greater respect for their rights as holders of this knowledge. But they condemn the expropriation of their knowledge by commercial concerns and scientists who do not respect their rights, ensure that benefits flow back to their communities, or help to stem the erosion of their cultures. Intellectual property rights are seen as a serious threat because they appear to encourage and legitimize 'biopiracy'⁴⁶² and the patenting of living material derived from IK and resources are not only exploitative in the economic sense but also violate spiritual and cultural values⁴⁶³.

Opposition to the patenting of natural genetic material is widely expressed among indigenous people. Patent systems assign the monopoly rights either to the first to 'invent' or file, not the providers of the biological raw material or lead information, who may be forbidden to use the 'invention' without the permission of the patent owner. The fact that traditional communities have their own property and resource allocation systems essential to maintaining the link between a people and its environment is ignored, misunderstood, or hampered by ethnocentric assumptions that ignore the social and ethical dimensions of traditional property systems⁴⁶⁴.

There are similarities between seizing territories and resources purportedly 'for the benefit of humankind' or 'for the greater ecological good' or 'to facilitate scientific management' and taking IK in the public domain and patenting 'inventions' based on this knowledge. In each case, territories, ecosystems, plant varieties and IK are treated as if they are *res nullius*⁴⁶⁵ before their 'discovery' by explorers, scientists, governments, corporations and conservation

461 Blakeney 1999

462 The alienation and unauthorized commercial exploitation of knowledge and biological resources.

463 Mead 1994

464 Monbiot 1994, Vira 1999, Wiener 1999

465 The property of nobody

Chapter 4 Non-western knowledge systems organisations⁴⁶⁶. Since the Rio Earth Summit in 1992, worldwide concern has been expressed over the exploitation of the knowledge of indigenous communities particularly by commercial interests. There are evidently several inchoate⁴⁶⁷ concerns which have led to international proposals for the protection of indigenous knowledge. These include; a concern for the authentication of IK in the face of the economic, psychological and cultural threat from alien sources, the expropriation of physical documentary and photographic records of indigenous societies, issues of compensation and cultural harm, and issues of nurture or cultural health⁴⁶⁸.

4.5.4 Threats to Indigenous People and Knowledge

To trace the history of the subjugation of indigenous people (and their knowledge) is to replay the history of the rise of the world's dominant cultures: the spread of Han Chinese into Central and Southeast Asia, the ascent of Aryan empires on the Indian subcontinent, the southward advance of Bantu cultures across Africa, and the creation of a world economy first through European colonialism and then through industrial development. Surviving indigenous cultures are often but tattered remains of their predecessors' societies. Indigenous peoples whose cultures are besieged frequently end up at the bottom of the national economy⁴⁶⁹.

Worldwide, virtually no indigenous peoples remain entirely isolated from national societies. Many peoples that have survived as distinct entities inhabit remote lands which formerly had no value for others. But material aspirations and technical advance have driven states to exploit resources previously regarded as marginal and uneconomic. The search for exports, the expanding populations, the spread of modern communications, the discovery of minerals and oil and the need to establish the frontiers of the nation state have reduced the isolation of many

466 Bryant 1998, Dutfield 1999, Guha 2000

467 Not completed, or recently begun <http://www.investorwords.com/2398/inchoate.html> accessed 5th July 2005.

468 Blakeney 1999

469 They are often the first sent to war for the state, as in Namibia and the Philippines, and the last to go to work (unemployment in Canadian Indian communities averages 50 percent). They are over represented among migrant labourers in India, beggars in Mexico, and uranium miners in the United States. They are often drawn into the shadow economy; they grow drug crops in northern Thailand, run gambling casinos in the United States, and sell their daughters into prostitution in Taiwan. Everywhere, racism against them is rampant. India's adivasis or tribal people, endure hardships comparable to those of the harijan 'untouchables'. Irrespective of the indicator of human welfare used indigenous people rank at the bottom among races; Australian Aborigines life expectancy is 18 years shorter than other Australians, Guatemalan Indians per capita income is a tenth of the national average. India's tribal peoples have a literacy rate one-third of India's average, and Siberia's indigenous people have rates of infant mortality and tuberculosis twice the Russian norm (Beach 1988, Denevan 1992, Durning 1992, Wolf 1982).

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groups. As a result indigenous groups face many pressures. They find their land threatened by agriculture, irrigation projects, dams, highways, hydro-electric facilities, mines, agribusiness and timber extraction. These activities are often associated with national development projects in which indigenous people and their welfare are not a high priority. Even when indigenous people are targeted for 'development', the pace of environmental transformation is often so rapid that no allowance is made for adjustment to the new conditions. This alone may cause many indigenous people to oppose change designed for and by others. Indigenous peoples' resources are often appropriated without compensation. Their reluctance to sacrifice lands and culture to projects from which they will not benefit exposes them to further pressure. This is frequently manifested in national prejudices which may find expression in repressive legal codes. In extreme cases the incorporation of indigenous people into national society has been accompanied by violence, amounting on occasions to systematic physical abuse. This can happen even when indigenous groups have not resorted to violence themselves. Even where the law or the constitution appears to favour indigenous people, its application is often at fault. When strong national interests oppose those of ethnic minorities, as in most disputes over land and water, the laws protecting the weaker ethnic group are often flouted by the powerful. In some industrialised countries, notably Canada and Australia, there have recently been some different outcomes. Court decisions have gone in favour of indigenous people despite the efforts of the powerful business interests arrayed against them⁴⁷⁰. There has also been a resurgence of traditional subsistence activities⁴⁷¹, which has reduced numbers on welfare. The struggle for valuable land and rights appears to be positive and have significance for indigenous people around the world.

In poor countries, where essential services such as education and health are generally inadequate, low-status indigenous groups are often denied access to these services altogether, especially if their labour is not essential to the national economy. Those who do receive some basic provision frequently find it inappropriate to their society and culture. Official education

470 The Dene of Canada's Northwest Territories appear to have fought big business to a standstill, and the Aboriginal groups of Australia's Northern Territory can now veto mineral prospecting <http://66.59.133.172/index.cfm?PgNm=TCEandParams=A1ARTA0002221> accessed 5th July 2005.

471 Some Aboriginal groups in central Australia and the James Bay Cree in Canada, are doing more foraging today than ten years ago. Canada has discovered it is much cheaper to service a family at a trapping camp than keep them on welfare at a main settlement.

Chapter 4 Non-western knowledge systems programmes, for instance, may be used by governments as a tool for assimilation, to displace indigenous languages and cultures and to promote the national culture. Children may still be taken forcibly from their parents in the name of education.

The threats to indigenous people can be categorized under:- intervention from the state, the global market economy, non-government organisations and the domination of western knowledge.

Threats as a result of state intervention

Threats from state intervention often result from:- enforced isolation⁴⁷², genocide⁴⁷³, frontier aggression⁴⁷⁴, land policies⁴⁷⁵, ethnocide⁴⁷⁶, language loss⁴⁷⁷, conservation management⁴⁷⁸, tourism⁴⁷⁹, economic development⁴⁸⁰, resettlement of indigenous people⁴⁸¹, colonisation⁴⁸², sedentarization⁴⁸³, technical change⁴⁸⁴, biopiracy and bioprospecting⁴⁸⁵, inappropriate services⁴⁸⁶, and the exclusion of most indigenous natural resource values⁴⁸⁷. The consequences of loss of linguistic and cultural diversity has implications not only in terms of ethics, social

472 Beauclerk et al 1989, McLaren 1998

473 Beauclerk et al 1989, Durning 1992, Ternon 1989,

474 Beauclerk et al 1989

475 Arvelo-Jimenez 1997, Fisher 1997

476 Abou 1981, Beach 1988, Brunner and Meisner 1982, Burger 1987a+b, Fonval 1989, Heberer 1989, Hitchcock 1992, Posey and Dutfield 1997, Thierry 1989, Yong Kang Zhen 1981

477 Bernard 1992, Grimes 1992, Krauss 1992, Maffi 1999a+b, Muhlhausler 1995, Pattanayak 1988, Reid and Miller 1993, Shiva 1993,

478 Lynge 1997, Posey and Dutfield 1997

479 Li and Sofield 1994, McLaren 1998, Norberg-Hodge 1992, Posey and Dutfield 1997

480 Beauclerk et al 1989

481 Posey and Dutfield 1997, Wolfe et al 1992

482 Nietschmann 1988, Posey and Dufield 1997

483 Turnbull 1972

484 Beauclerk et al 1989

485 Darshan Shankar 1999, Posey 1999

486 Beauclerk et al 1989, Colorado 1988, Hardin 1968, Johannes 1989, Norberg-Hodge 1992, 1995, Wolfe et al 1992

487 Studley et al 2005

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justice, heritage⁴⁸⁸, and the viability of humanity⁴⁸⁹ but the earth's biodiversity⁴⁹⁰. Compelling research⁴⁹¹ has suggested a correlation with language loss and biodiversity loss⁴⁹².

Global threats

The impact of integration into the global market economy on indigenous societies and cultures has been uniformly disruptive and devastating, causing loss of indigenous social control, displacement, marginalization, dependency, deprivation, impoverishment, disease and malnutrition. Often efforts are made to induce technological change and consumer values in indigenous communities in order to extract tribal resources, labour and taxes, raise tribal consumption levels, and replace traditional, self-sufficient economic systems with activities geared to the outside market⁴⁹³.

In the global economy, labour and land are commodities. This conception is completely alien to indigenous societies, and the introduction of commercial relationships in these spheres may threaten their whole society. Fragile environments have been disturbed and their inhabitants eventually impoverished by the assumption that systems of production directed towards local needs are inefficient and must be intensified or transformed. From the perspective of indigenous societies the more urgent need is to develop means of defending their lands and the traditional use of them⁴⁹⁴. Market-orientated agriculture, promoted at the expense of subsistence production often does not guarantee sufficient income to purchase food, so nutrition may be severely reduced. As more land is dedicated to cash crops or cattle ranching, consumer crops become scarce and their prices are inflated; once plentiful sources of protein in forests and rivers disappear⁴⁹⁵. Wage labour may similarly take essential time from subsistence production⁴⁹⁶ without enabling people to buy the goods foregone⁴⁹⁷.

488 Thieberger 1990

489 Bernard 1992

490 Reid and Miller 1993

491 Zent for example measured ethnobotanical knowledge among the Piaroa Indians of Venezuela and discovered a negative correlation with age, bilingualism and schooling (Zent 1999).

492 Atran 1993, 1996, 2001, Atran and Medin 1997, Thomas 1983, Wolf and Medin 2000, Zent 1999

493 Posey and Dutfield 1997

494 Beauclerk et al 1988

495 Market demand leads to over fishing.

496 Often to the detriment of women's and children's nutrition.

497 Beauclerk et al 1988

The viability of subsistence economies may be undermined by governments that only allow land rights to indigenous peoples on condition that they increase productivity⁴⁹⁸. Many indigenous groups have marked sexual division of labour and roles vary greatly between groups. It is usually women who cultivate subsistence crops, gather wild fruits and insects carry heavy loads and are responsible for domestic duties; and often it is men and boys who hunt or herd large animals, or clear land for cultivation. In most societies women do more work, but the complementarity of men's and women's roles make each sex dependent on the other. Gender roles are culturally prescribed and often remain unquestioned by either sex until external circumstances upset the balance⁴⁹⁹. At present, all national societies are patriarchal; whatever their own gender roles and relations, indigenous peoples must relate to a wider society in which women lack power and in which their work is unrecognized⁵⁰⁰. Commercial and other contracts then tend to disrupt the indigenous gender roles and relations, to the disadvantage of the whole society, but often particularly of the women⁵⁰¹.

Disruption of the subsistence base can bear heavily on women. In hunting, herding and horticultural societies, men may contribute a significant part of the animal protein. This may be lost by loss of lands or by the diversion of men into migrant labour, casual employment or cash cropping. Whatever the circumstances, the onus of subsistence falls increasingly on the women. In nomadic and semi-nomadic African societies men often move away in search of work when animals die in a drought. In Amazonia, the family must be fed entirely from the garden which the women usually maintains alone; poultry and livestock introduced to compensate for lack of game will also be her responsibility. Worldwide, if the man is cash-cropping he may require the women to help him, and will probably use the best land for new crops rather than for a subsistence garden. Women's traditional land rights may disappear⁵⁰².

498 Presented with the choice of losing their lands to settlers or converting the forest to commercial agriculture, the Shuar of Ecuador have become large-scale cattle breeders. Many Shuar communities now face hunger since the conversion of forest to pasture has made slash and burn agriculture impossible and game has disappeared with the forest.

499 Beauclerk et al 1988

500 Merchant 1996

501 Buckingham 2000, Jacobson 1992, Shiva 1989

502 Buckingham 2000, Jacobson 1992, Shiva 1989

Contact with the national society may make women dependent agricultural workers; they may still do the greater part of the work, but have little or no control over how the cash earned is spent. The status of women suffers, for instance, when their subsistence horticulture loses place to market agriculture in which men make decisions, if only because this is the rule in the national society. When cash is injected into traditional societies, some foods and drinks produced by women lose prestige. Women may give up making these things, and they may gradually be replaced by purchased manufactured items. At first, the amount of women's work may seemingly be reduced when they need no longer weave clothing, make clay pots and other utensils, but women may be losing control over productive areas of their lives⁵⁰³.

Threats from 'voluntary' acculturation

Acculturation involves processes of change in artefacts, customs, and beliefs that result from the contact of societies with different cultural traditions. Two major types of acculturation may be distinguished based on two classes of conditions under which changes take place.

Either the free borrowing of cultural elements or by directed change through forced assimilation by a dominant power. The free borrowing⁵⁰⁴ and subsequent modification of cultural elements between cultures takes place more or less voluntarily without the exercise of military or political domination of one group by the other. These new elements may be integrated into the existing culture in a process called incorporation, such as among the Navajo or American immigrants⁵⁰⁵.

Even when assimilation is not forced our world is becoming saturated with cultural images from dominant cultures. The 'McDonaldization' of culture⁵⁰⁶ is one example, where eating has

503 Visvanathan et al 2002

504 Or reciprocal exchange.

505 Examples include the unconquered Navajo Indians, who in frequent and varied contact with Spanish colonists in the 18th century, selected elements of Spanish culture such as clothing and metalworking techniques that were integrated into their own culture. In the USA under the rubric of 'Americanization' a process of assimilation has been achieved. This was largely a result of the unusual opportunities for social and economic mobility in the USA and of the fact that for the European ethnic groups, in contrast to racial minorities, residence in the US was a matter of individual or familial choice, not conquest or slavery. But both public policy and public opinion also contributed to American assimilation.

506 Ritzer 1993

Chapter 4 Non-western knowledge systems become more about cultural identification than cuisine. Similarly for most indigenous people even where there is no forced assimilation there are psychological or social pressure from the dominant society or nation state, such as the process of "Sanskritisation" taking place among among some ethnic groups in Nepal. Sanskritisation encompasses the adoption by non-Hindus (e.g. Tibeto-Burman peoples) not only of vegetarianism and teetotalism, but also the Hindu rituals and their pantheon of gods⁵⁰⁷.

In this chapter we have reviewed indigenous knowledge systems and concluded that in spite of the threats posed to it and the dangers of romanticism there are aspects that are unique and more germane to bio-cultural sustainability than 'Western' or 'Eastern classical' knowledge-systems. Although IK is being increasingly co-opted into mainstream development rhetoric, attempts are often made either to integrate it into superior formal systems of knowledge or to insist on a dichotomy between western and indigenous knowledge. Consequently one purpose of this study is to identify indigenous mental maps⁵⁰⁸ as a means of bridging the dichotomy between 'formal' and indigenous forestry knowledge, and as a

507 The assimilation of local folk religion and the identification of local deities with Hindu gods generally leads to a redefinition of animistic deities and partly to syncretism. On some occasions there is a delegation of ritual performances to a Brahman priest and sometimes a shaman takes over the role of a Brahman priest. This means a loss of the immediate contact with nature in which a particular natural resource was worshipped as a part of the whole, paying respect to it directly without making use of an intermediate salvation specialist and his exclusive claim of knowledge. For an animist, one aspect of the natural resource actually is the deity, whereas in the process of Sanskritisation it only represents the deity or its divine aspects. Inferiority/superiority patterns based on ritual purity are essential in the Hindu social system to legitimize social and political power. The relations between high caste Hindus and the Tibeto-Burmans reflect these patterns and are established in a hierarchical patron-client relationship. As a result social cohesion and ancestor worship among Tibeto-Burman groups deteriorates in the process of establishing socio-economic relations with Hindu castes. The acquisition of the national language, which is linked with political rights, is another element of assimilation. The increasing loss of indigenous rituals, language, diet and dress indicate cultural assimilation. From the moment an ethnic group's nexus with the supernatural is dominated by religious practices and language other than their traditional ones, it runs the risk of becoming alienated from its traditional spiritual foundations. Sanskritisation in the religious sense, as a ritual assimilation of alien gods is an aspect that matters less at the social level than it does for the perception of the environment, according to respective cultural backgrounds. One very important aspect is the interaction of many Tibeto-Burmans with their environment. They have felt an affection and exhibited a pious attitude towards the forest for hundreds of years. In this sense their close ecological relationship with the forest is not only an economic, hygienic and social one, but also emotional, through the sense of strong traditional value orientation. In contrast to many Tibeto-Burman groups, the forest is not vital to most Hindus, as they subsist on paddy cultivation. The Hindu attitude toward the forest is quite different, although they value the forest, they only value its economic benefit for such products as firewood. The environment is used in very different ways by both groups and is therefore differently perceived (Jones 1976, Kawakita 1984a, Messerschmidt 1976a+b, Srinivas 1952).

508 Gould and White 1986

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prerequisite for discovering ethno-forestry paradigms. With this aim in mind I will examine
alternative forestry paradigms in the next chapter.

CHAPTER 5 FORESTRY

I would like to begin this chapter with my 'forestry journey' because it parallels the changes that have occurred in international forestry since the mid 1970's and the paradigm shifts I have gone through. Although my UK forestry career began in the early 1970s with prescriptive silviculture⁵⁰⁹ in Scotland my interest lay much more in forestry's role in poverty alleviation, in the 'majority world'. In the late 1970s and early 1980s forestry appeared to go through a sea change, and there was more of an emphasis within FAO and the World Bank on community or social forestry. Foresters were encouraged to know as much about rural peoples as trees and to acquire the requisite skills⁵¹⁰. Prior to moving to Nepal in 1984 as a 'community forester' I made some attempt to acquire these skills, but due to an academic time lag I had to wait until 1987 when the Oxford Forestry Institute developed a 'Social and Community Forestry' course. The inadequacies of a 'Scientific Forestry', which are explained below, became apparent almost immediately I arrived in Nepal and tried to introduce a range of forestry intervention among the animistic/shamanistic mountain peoples. This was highlighted in 1985 when I led a team of foresters to India, and met with Chipko activists Vandana Shiva and Sunderlal Bahugana who explained the nature of forest protest (Chipko) and the colonial legacy, were scathing in their critique of 'Scientific forestry' and modernity, and argued in favour of indigenous approaches. I was fortunate that Nepal was at the forefront of community forestry and that the government was pragmatic enough to realise that large-scale industrial plantations did not have much place in the Himalaya. In spite of the community forestry emphasis few foresters appeared to realise that community forestry constituted an alternative paradigm. It took the Nepal-Australia Forestry project more than ten years to articulate the importance of 'community forestry paradigms'⁵¹¹. Because I was familiar with paradigm theory⁵¹², had lived in Nepal for nearly 7 years, had adopted an endogenous approach and lived with animist/shamanistic peoples, this approach immediately resonated with my experience. I found similar resonance with Banuri and Margin's work (1993) on systems-of- knowledge during MA studies. In spite of these works and others many foresters involved with community forestry, social forestry and joint forest management seemingly have difficulty embracing the new

509 In Scotland

510 Sociology, rural development, anthropology, linguistics, psychology, politics etc.

511 Gilmour and Fisher 1991

512 As a platform for understanding animism/shamanism.

paradigm and operate within the same paradigm and discursive space as mainstream forestry. I managed to effect a paradigm shift 'automatically' by living biculturally in NW Nepal but I began to consider if there were tools, mental maps and conceptual models to assist foresters 'fast-track' what had taken me 7 years to achieve. I had to wait until 1995 to build on these seed thoughts when I was asked to conduct a feasibility study of a major forestry programme in Eastern Tibet. The team involved very rapidly realised that no research had been done, at all, on the role and importance of trees and forests to the Tibetan peoples, which was seen as a prerequisite for programme prosecution. It was suggested that a PhD based on ethnoforestry would not only address the role and importance of trees and forests⁵¹³ to the Tibetan peoples but would reach a much larger audience than an NGO feasibility study.

The importance and rationale for ethnoforestry paradigms and my own journey from forester through ethnoforester cannot be fully understood without a review of alternative forestry paradigms, 'scripts', discourses and the social idiom of forest protest which will be the subjects of this chapter. Given the paucity⁵¹⁴ of forestry literature on Tibet this chapter will be illustrated with examples from India and Europe which have well documented histories of scientific forestry, customary practices and forest protest.

5.1 INTRODUCTION

This study recognises that 'forestry' represents a very broad range of evolving paradigms and management approaches, but for the purpose of this work we will limit our analysis to a critique of 'scientific forestry', 'neo-populist' approaches and an introduction to post-Rio paradigms and approaches that are germane to this study.

5.2 THE SCIENTIFIC FORESTRY PARADIGM

Ideas about scientific forestry were first developed in Germany at the beginning of the eighteenth century when 'forest science' was relatively holistic and comprehensive⁵¹⁵.

Enderlin extended silviculture from observation to a more scientific foundation and Heyer

513 Lexicologically 'Forest values' and 'ethno-forestry' were not common currency at this time.

514 When this study began the author could not find any Chinese institution that was conducting forestry research among Tibetans although recently both the Centre for Biodiversity and Indigenous knowledge (Kunming) and the Tibetan government in exile has conducted a little.

515 Toumey 1947

developed a theory of shade tolerance⁵¹⁶. Others applied biology, chemistry and physics to silvicultural theory⁵¹⁷ and Ebermayer suggested establishing forest experiment stations⁵¹⁸. As forests came under management, however, vast plantations of a few uniform species replaced the primeval woodland of myth and legend, until by the 1930's most of the German forest was managed plantations. British, French and American forestry was founded on this model. Industrial forestry was quick to take advantage of the scientific understanding of forests and trees and by the 1980's scientific research had resulted in technological applications for growing, genetically improving, harvesting, and processing woody material on an unprecedented, vast and unconsidered scale. From the start these ideas were based on the belief that the state should be responsible for forest management, since the long time period required for rational management of forests was thought to be consistent only with control by governments or perpetual corporations. 'Rational' forest management included the separation of forestry and agriculture from each other, the enactment of forest legislation, the establishment of a forest administration and the introduction of police control. The essential idea was that of a sustained yield forestry, whereby the forest area would remain unchanged through replacement of felled trees, for purposes of industrial mobilisation of wood.

Beginning in the 1940's, it became evident globally that the plantation system, with single species even-aged trees, was susceptible to catastrophic change⁵¹⁹ in a way that natural forests were not and that the 'forestry machine was out of control'⁵²⁰. Because of ecological as well as aesthetic problems, this paradigm has faced a great deal of criticism, particularly from those with more organic views of the forest. In spite of the criticism it has continued to provide the basis for collective forest management in Europe as well as North America post World War 2. Some major differences between tropical and temperate forest ecosystems seriously impaired the success of scientific forestry, even on its own terms, in the tropics. These differences include the fact:

- That tropical forests typically have a multitude of species, of which only a few are commercially valuable;

516 Drengson and Taylor 1997

517 Mayr, Duesberg, Dittmar

518 Drengson and Taylor 1997

519 wind, pollution, or insects.

520 Wittbecker 1997

- They have a far greater complexity of forest-soil-water relationships
- A correspondingly greater fragility of the ecosystem, which cannot withstand the radical modifications introduced by commercial forestry without going into irreversible decline.

Because of these and other factors, scientific forestry has in practice often failed to conform even to its ideals of sustained yield harvesting, however deficient these ideals may be on other grounds. This failure can be attributed to three factors⁵²¹:

- Inadequate knowledge of the complex ecological interlinkages or an inadequate statistical base to update the knowledge;
- Slow response of the government and scientists to commercial and industrial interests;
- Sheer mismanagement

5.3 FORESTRY AND MODERNITY

Scientific forestry is based on an anthropocentric paradigm of our relation with nature, namely that humankind exists, apart from, and outside of nature, and it accepts a utilitarian value system. In the Lockean expansionist paradigm⁵²² nature is regarded essentially as a storehouse of resources to be utilized for the meeting of ever-increasing material needs by an ever-increasing human population. Even when western systems of knowledge work well they are fraught with danger and difficulty, but more often they do not work well. Scientific forestry, predicated as it is on a Western knowledge system has three types of problem.

- First, in its ideal form which is supposed to take a long view of the situation, scientific forestry is harmful because its claim to privileged status for its mode of knowing legitimises colonisation and exploitation of the object of its knowledge. It is a problem inherent in an instrumental view of the world.
- Second, in practice the label 'scientific' is used to justify short-horizon commercial practices rather than the pursuit of genuinely long-run interests⁵²³

The problems identified above can be exacerbated if there is corruption, inefficiency and waste. In spite of the problems those who argue for a Lockean scientific/industrial position claim that

521 Banuri and Marglin 1993

522 Merchant 1997

523 As for example, in the use of the terms 'valuable', 'desirable', 'inferior'.

new approaches⁵²⁴ can be relied upon to increase global standards of living, harness renewable and more environmentally friendly sources of energy, and increase food production and the availability of other biological products through breakthroughs in biotechnology. In turn, more efficient technologies are seen to be able to solve the problems created by previous technologies, to create substitutes for depleted resources and to replace damaged ecosystems⁵²⁵. Scientific forestry has been rearticulated through 'scripts' and discourses.

5.4 SCIENTIFIC FORESTRY SCRIPTS AND HEGEMONIC DISCOURSES

The linkages between the scientific disciplines and policy have worked to simplify and homogenise forestry knowledge, and to deter conservation agencies further from addressing complex, unexpected social and ecological dynamics. When translated into policy documents, the detailed conclusions from field-based studies tend to be simplified into what Roe⁵²⁶ has termed development narratives: 'stories' which encode and stabilise the assumptions about a situation in such a way as to facilitate decision-making. Narratives concerning forest change, or the effects of farming, or population-environment relations, all suggest particular types of solution. They provide "cultural scripts for action"⁵²⁷ which enable donor and government agencies to raise funds and act, despite the uncertainties and complexities actually surrounding social and ecological change⁵²⁸. They have become a characteristic of the research-policy interface⁵²⁹. It would appear that similar processes are occurring between scientific disciplines, particularly between social and natural sciences⁵³⁰. Analysts from one particular discipline may employ very detailed perspectives of their own work, but may rely on simplifications from other disciplines to frame their broader research questions and trajectories. Fairhead and Leach⁵³¹ suggest that, for example, west African history and anthropology to date may have been shaped by erroneous vegetation history analysis which had its roots in colonial domination. This, they suggest highlights the need to take a more critical view of the production of knowledge and its application to the environment, forestry and development

524 Combined with humankind's ingenuity and technical optimism.

525 Merchant 1997

526 Roe 1991

527 Fairhead and Leach 1998 page 190

528 Hoben 1995, Leach and Mearns 1996

529 Hirschmann 1968

530 Fairhead and Leach 1998

531 Fairhead and Leach 1998

and the need for a thorough analysis based on post-modern development discourse⁵³² liberation ecology⁵³³ and political ecology⁵³⁴.

Political and economic elites have invariably sought to explain landscape history and to justify specific usually highly unequal patterns of human use of the environment on the basis of elite landscape 'readings' and claims. The clash between elite readings and local readings of the forest was not merely economic, but rested on fundamentally different notions of the forest and on radically different systems of meaning and landscape reading. The 'truth' about the 'savannisation' of some African forest-savannah landscape⁵³⁵ was produced and diffused through science and its methods, deduction, and language needed to be considered in relation to its political economy; originally within the colonial regime, but not now restricted to it. As such, the conviction of forest-savannah degradation, in much of Africa, and its power in excluding alternative landscape readings, may be considered as 'a discourse' in the Foucauldian sense⁵³⁶. Furthermore given the stable and absolute conviction in degradation among powerful state and global institutions, and given its proven capacity to silence and subjugate local views within policy and scientific circles, this landscape reading and its scientific elaboration can only be regarded as a hegemonic or totalising discourse⁵³⁷.

The introduction of 'scientific forestry' in India, for example, was based on elite colonial scientific claims. This German system of forest management was introduced first in British-ruled Burma and India and Dutch-ruled Java before being exported to other colonial territories in the late nineteenth and early twentieth centuries⁵³⁸. The main purpose of scientific forestry was the promotion of long-term commercial timber production, especially key species such as cedar⁵³⁹ and teak⁵⁴⁰ central to the imperial economies. But for this system to succeed, a major transformation in local social and ecological conditions was required. Hence at the same time as imperial foresters sought to eliminate competitor species to favoured tree species,

532 Slater 1992a+b

533 Peet and Watts 1996

534 Bryant 1992

535 Fairhead and Leach 1996

536 Foucault 1972, 1980

537 Peet and Watts 1996

538 Bryant 1997, Guha 1985

539 *Cedrus deodara*

540 *Tectona grandis*

they also attempted to restrict alternative indigenous forest practices⁵⁴¹ that might threaten official timber extraction and regeneration operations⁵⁴². Colonial officials justified the policing associated with forestry on the grounds that it was a 'scientific system' that was introduced 'in the public interest'. These officials further contrasted this 'ecologically good' system with 'ecologically bad' practices of the indigenous forest users, namely shifting cultivators. A discourse of forestry as progress was developed in which appropriate forest use was defined largely in terms of commercial forestry which was asserted to be both ecologically sound and financially remunerative to the state while indigenous practices⁵⁴³ were denigrated, marginalized and even criminalized⁵⁴⁴. In India scientific forestry struck at the very root of traditional social and economic organization. Moreover, it operated on radically different principles from the customary use of forests by local people. This underlying conflict manifest itself in a variety of forms of social protest, the most well known being the Chipko movement, but fundamentally they were aimed at the restrictions on customary patterns of forest use⁵⁴⁵.

5.5 FORESTRY AND PROTEST

The social idiom of protest in India bears a striking resemblance to the conflicts over forest rights and the enclosure of forest 'commons' that were an important feature of the transition to industrial capitalism in Europe⁵⁴⁶. The slow but steady growth of state forestry in Western Europe and the enclosure of communal forests by large landowners also introduced a uniform and rationalized system of forest administration in place of a flexible and informal system of customary use. As in India the transition in France, Germany and UK was neither smooth nor harmonious, with peasants and yeomanry protesting at the deprivation of their traditional rights of access and use⁵⁴⁷. In much of Western Europe the battle for the forest was a central feature of the larger confrontation between an advancing capitalism, the state and the local community. As in India, the peasant and yeomen protest in Europe was informed by alternative conceptions of property and use. What is common to the resistance to scientific forestry in nineteenth-century Europe and twentieth century India is that in both cases it represented a

541 eg Shifting cultivation, hunting, grazing, non-timber forest products etc.

542 Bryant 1994, Gadgil and Guha 1992

543 Shifting cultivation, non-timber forest products.

544 Bryant 1996

545 Guha 2000, Routledge 1993, Shiva and Bandyopadhyay 1986

546 Laveleye 1878, Leslie 1871, Thompson 1975, Travis 2000

547 Hay and Rogers 1997, Marx 1976

defence of a traditional economic and social system, which afforded both yeoman and peasant some measure of independence and self-sufficiency against the forces of a rising and expansionist capitalism.

In both India and UK elite ideologies of 'scientific forestry' or Lockean 'proto-utilitarian waste' proclaimed that expropriation of copyhold, commons and customary rights by state or merchant farmer was a logical corollary of the lack of 'moral and legal rights' or 'scientific' or 'commercially' exploitative practices observed among the human population using 'commons'⁵⁴⁸. Historical evidence reveals in India and the UK, that rather than the use of 'commons' representing a "tragedy...bringing ruin to all" as Hardin suggests⁵⁴⁹ they often represent highly sophisticated systems of resource stewardship predicated on customary rules and institutions that appear to provide 'order without law' which often worked better than legal regimes⁵⁵⁰. In India the most visible form of customary stewardship was the designation of large areas of forest as 'sacred' area which no villager was allowed to injure⁵⁵¹. As a traditional form of forest preservation, sacred groves testified to the role played by folk religious beliefs in the conservation of nature. Simultaneously, informal management practices, both between and within village communities, carefully regulated the utilization of forest produce, limiting the amount of fuel, fodder and other forest produce available to each family⁵⁵². Although the history of agrarian protest has some common characteristics in the UK⁵⁵³, Europe and India it also has unique features.

In England expropriation of commons eventually led to the extinction of most yeomen farmers, who were forced from their properties into wage labour, into town and back to serfdom, while in much of Europe the 'rural bourgeoisie' were increasing in numbers and influence. This course of events makes England, in spite of its claims of 'liberty and civilization' one of the few

548 Guha 1985, Stebbing 1922-27

549 Hardin 1968 page 1244

550 Thompson 1991

551 Bor 1953, Brandis 1906, Gadgil 1985, Guha 1993

552 Guha 1985

553 While the author acknowledges that agrarian protest occurred in Scotland, Wales and Northern Ireland space only permits an examination of England (Armstrong 2003, Donnelly 1983, Sanders nd).

where property was taken from the hands of those who cultivated it, who capitulated in a 'revolution' that passed almost unnoticed⁵⁵⁴.

In India, through a mix of religion, folklore and tradition the rural peoples draw a protective ring around the forest. As with other forest dwelling communities, the continuity of their world rests upon a continuity in their relationship with the forest⁵⁵⁵. Scientific forestry threatened to rupture this continuity, first by denying villagers physical access, but perhaps more significantly by imposing an alien paradigm of management on the forest. Marginalized groups in India have challenged the emergence of scientific forestry wherever it is introduced. The social idiom of agrarian protest strongly reflects the threat to traditional cultural and communal values that scientific forestry represents. Most strikingly, there is a close association of protest with folk religion; an association that is at once formal and informal, organisational and symbolic. The religious milieu of everyday peasant existence influences forms of resistance taken by the peasants in two distinct ways. First protesters seek a moral-religious sanction for their acts. This is accomplished either by involving priests or in more institutional form by using religious networks as means of communication. Thus, both temples and fairs frequently served as loci at which support is canvassed or from which activities were coordinated. Second, the ideology of peasant protest is heavily overlaid with religious symbolism⁵⁵⁶. In addition to priests, community leaders are also prominent in the communal resistance to forest management. Religious and community leaders uphold their symbolic status as representative of social continuity. The use of a religious idiom and of primordial networks of community solidarity suggests a culture of resistance that is both instrumental and symbolic. Scientific forestry represented a threat to the economic as well as cultural survival of the village communities; opposition to its workings has necessarily to invoke an alternative system of use, meaning and knowledge⁵⁵⁷. Most recently, since the 1970's and 1980's Indian resistance to expropriation has been re-articulated, through the 'Chipko'⁵⁵⁸ movement, which we will re-visit later. Chipko is a village-based, grass roots, nonelitist movement appealing to rural people that has developed powerful international links

554 Laveleye 1878, Leslie 1871, Price 1803, Rogers 1866

555 Elwin 2002

556 In the Kumaun movement in 1921, for example, peasants invoked symbols from the Hindu epics characterising the colonial government as evil and demonic (Guha 1993).

557 Banuri and Marglin 1993

558 Tree hugging.

with like minded people⁵⁵⁹. It is politically non-aligned and self-determined, and has emerged as a peasant movement in defence of traditional forest rights, and resistance to state encroachment. The movement uses non-violent tactics, including tree hugging, *padyatras*⁵⁶⁰, fasts, tying *rakhis*⁵⁶¹ around wounded trees, and uprooting environmentally non-friendly species⁵⁶² in government nurseries. A feature of this movement is the active participation of all social groups, and especially women's groups⁵⁶³, and their involvement in endogenous re-forestation. Chipko protesters believe, that justice is on their side and that they have moral-religious sanction, which they express in readings from the Bhagavad Gita⁵⁶⁴. The cultural idiom of Chipko can be understood in terms of the moral economy of the peasants, who respond when confronted by forest destruction, degradation, environmental threat and infringement of rights and access⁵⁶⁵. As a result of Chipko activity the Indian government was forced to respond, by introducing a green felling ban in the Himalaya, and other areas where Chipko are active. By successfully bringing commercial forestry to a standstill Chipko marks the end of an epoch for the people and landscape of the Indian Himalaya⁵⁶⁶. There are three environmental philosophies within the Chipko movement⁵⁶⁷ but for the purpose of this study, the perspectives of Sunderlal Bahuguna⁵⁶⁸ are the best known and most germane. Bahuguna holds that commercial forestry is responsible for the deteriorating Himalaya environment, but is symptomatic of a deeper malaise, the anthropocentric view of nature intrinsic to modern industrial civilization. Thus the ecological crisis in the Himalaya is not an isolated event. It has its roots in the modern materialistic civilization, which makes humankind the 'butcher of Earth'. Bahuguna believes that religious beliefs determine human attitudes toward nature, and that 'desacralized' science and technology emphasise mastery over nature. He contrasts this

559 Guha 2000, Routledge 1993

560 Foot marches

561 Sacred threads

562 eg *Eucalyptus spp*

563 Women are active leaders and participants in Chipko and their songs are inspirational. Women's special knowledge of the environment and their intimate relationship with nature moved them to join Chipko in such large numbers and to oppose state and industrial interests fearlessly. As an ecofeminist movement, Chipko offers an indigenous alternative to western colonialism and masculinist forestry.

564 This Hindu text reflects the relationship between self, society and nature.

565 Guha 1993, Rawat 1982

566 Guha 2000

567 Guha 2000

568 Internationally the most well known spokesperson.

ethos with the value systems of so-called primitive societies , which view ecosystems in totality thereby ensuring rational and sustainable resource use⁵⁶⁹.

5.6 FORESTRY AND THE COLONIAL LEGACY

Research has shown⁵⁷⁰ that many governments continue to accumulate wealth and power based on tenure arrangements and management practices bequeathed to them by the departing colonial authorities. In countries as politically, economically and culturally diverse as India, Burma and Indonesia, there has been a comparable tendency to affirm, the supremacy of the state-organized system of scientific forestry that has served the political and economic interests of colonial and postcolonial regimes alike⁵⁷¹. If anything, resource extraction has intensified in these and other majority world countries as a postcolonial quest for rapid national modernization has been joined to concerns for individual or group enrichment and political ascendancy⁵⁷².

5.7 NEO-POPULIST FORESTRY

In the 1950's and 60's many post-colonial nations followed a development policy which translated into a form of 'scientific' or 'industrial forestry', supported by FAO and the World Bank. By the late 70's, however there was increasing realization that the industrial and economic model being followed led to environmental problems and made the poor worse off⁵⁷³. In response to these problems new concepts of development began to emerge. These new approaches included a 'development from below' paradigm⁵⁷⁴, which defined development in terms of the extent to which the basic needs of the population were met. When international attention began to focus on basic needs it was recognized that in addition to its industrial role, forestry had an equally important role in terms of enhancing the livelihoods and subsistence requirements of local people. Two streams developed to address the latter, a

569 Guha 2000

570 Bryant 1998, Bryant et al 1993

571 Bryant 1997

572 Bryant and Bailey 1997

573 Westoby 1987

574 Chambers 1983

neo-populist stream⁵⁷⁵ and a 'post-modern' stream⁵⁷⁶. The concept crystallized in the context of a number of conferences and landmark publications⁵⁷⁷ and led to increased funding⁵⁷⁸.

5.7.1 Social Forestry

Social Forestry was introduced in India, with prompting from the World Bank, in the 1970's as a result of widespread protest, resulting from deforestation and the exclusion of local people from forests. Its original aim was to 'meet local need for firewood and other products with active local participation'. No provision however was made for indigenous knowledge and forestry was decoupled from social and cultural values. Far from defusing the protests, the takeover of communal land for commercial plantations, rather than village woodlots led to further protests. It mostly failed because the planners did not understand the needs of the local people, and it only 'succeeded' where rich farmers had surplus land to convert to industrial tree species⁵⁷⁹.

5.7.2 Joint Forest Management

The failure of social forestry prompted the Indian government to revise its forest policy and in the early 1990's it introduced Joint Forest Management (JFM). JFM was supposed to emphasise environmental and subsistence benefits over commercial interests, and include 'greater' participation by local people. The only significant 'success' took place in states where villagers had already established organizations to protect forest such as West Bengal and Orissa. Some states totally ignored the shift to JFM and only added 'participation' and 'poverty alleviation' to qualify for funding. As a result 'off-the-shelf' participatory plans, drawn up by UK forestry experts, were used to introduce JFM to the Western Ghats. The project goals were decided *ex situ* and local NGOs were only consulted on implementation. As a result the committees were dominated by the elite, women were marginalised, and the poor, and tribal people became worse off, because most of the Overseas Development Administration (ODA)

575 Social and Community Forestry and Joint Forest Management.

576 Based on ethno-forestry and indigenous forest values.

577 7th and 8th World Forestry Congress (in Argentina (1972) and Jakarta (1978), Forestry for Local Community Development (FAO 1978) Forestry Sector Policy Paper (World Bank 1978), World Conference on agrarian reform and rural development in Rome (1980).

578 Gregersen et al 1989

579 Hildyard et al 1998a

funded plantations were on village 'commons'⁵⁸⁰. For those States that do have forest councils and have adopted 'participation' in JFM (and devolution) it has resulted in a power shift that has empowered the local forest department, at the expense of local councils⁵⁸¹. This situation resonates with global representations of 'participation', which has become another tool for engineering consent to projects whose framework has been determined in advance. It is a means of top-down planning to be imposed from the bottom-up⁵⁸². In most Indian states JFM failed because⁵⁸³:

- Government policy hampered JFM and the legal and organisation frameworks are weak and controversial
- There is no built in mechanism to develop the capacity of JFM committees
- It pays insufficient attention to gender and caste issues, which undermines the goal of community empowerment
- Of problems with competition with other village based groups
- In many cases it reinforces existing power hierarchies both within and between local committees and the forest department
- It fails to sensitize all the project actors on issues of gender, caste and equity
- It fails to sensitize the forest department on partnership with local communities

Both 'social forestry' and JFM in India illustrate that 'participation' that fails to engage with the distribution and operation of power within local communities will offer little to marginalised groups. Many participatory projects rest on the dubious assumption that simply identifying different 'stakeholders' and getting them around the table will result in a 'fair' consensus. Participation requires wider processes of social transformation and structural change to the system of social relations through which inequalities are reproduced.

5.7.3 Community Forestry

Of the neo-populist alternatives 'community forestry' appears germane to this study, although as a 'paradigm' it has proved the most contentious, semantically and conceptually within the

580 Hildyard et al 1998a

581 Kaimowitz 21 June 2001, Sarin 2001

582 Hildyard et al 1998a

583 Sarin 2001

forestry community⁵⁸⁴. The credit for introducing paradigm to the forestry literature appears to belong to John Dargavel⁵⁸⁵ who drew on Foster-Carter⁵⁸⁶. Mary Hobley⁵⁸⁷ introduced Foster-Carter's paper to Nepal-Australian Forestry Project which led to the emergence of a 'community forestry paradigm'⁵⁸⁸. Foster-Carter⁵⁸⁹ defines a paradigm as "a set of domain assumptions which define a field of study" and Studley⁵⁹⁰ and Finlayson⁵⁹¹ as a "sub-set of a worldview". For some foresters, 'community forestry'⁵⁹² represented a 'new orthodoxy', which could not be accompanied by a conceptual framework derived from traditional industrial/scientific forestry. The new orthodoxy required a 'paradigm shift' from 'one set of domain assumptions to another' which did seemingly better explain the particular anomaly which led to the demise of an old paradigm and simultaneously re-interpret previous known phenomena⁵⁹³. Although the adoption of a 'community forestry' paradigm has led to new perceptions in Nepal⁵⁹⁴ and is reported⁵⁹⁵ to have met with some success in Pakistan, Bangladesh and Sri Lanka, it has failed to reduce global fears about the poor and the environment and governments are rarely willing to place forests in local control. Although community forestry in Nepal was considered by many to be a success story recent policy changes are currently undermining user control of forests⁵⁹⁶.

Although several neo-populist forestry trajectories (community, social and joint forest management) are evidently germane to our study because they mouth the rhetoric of socio-ecological concern, participation, IK integration, people-focus and endogenous development, in reality they have been institutionally co-opted and operate under much of the same constitution as professional forestry. More often than not they appear to have failed the

584 Danbury 1993

585 Dargavel et al 1985

586 Foster-Carter 1976

587 personal communication Hobley 1995

588 Gilmour et al 1989

589 Gilmour and Fisher 1991 page 17

590 Studley 1994 page 73

591 Finlayson 1994 page 143

592 The control and management of forest resources by rural people, who use them for their domestic purposes and as an integral part of subsistence and peasant farming systems (Gilmour and Fisher 1991).

593 Foster-Carter 1976 page 169

594 Gilmour 1988

595 Karki 2000

596 Shrestha 2001

intended beneficiaries⁵⁹⁷. The failures have been caused by lack of local support, lack of genuine participation, 'elite capture'⁵⁹⁸, an inability to respond to local needs, the continence of centralised planning, lack of political will and policy support to delegate management authority to local communities, failure to abolish old policy and laws, and the monocultural myopia of resource management professionals. 'Community' Foresters were encouraged, in the late 1970s, to acquire the necessary social and anthropological science skills, and effect a 'paradigm shift'. They appear, however to lack the mental maps that such a shift requires. Subsequently they have largely remained ignorant of the socio-cultural context within which much local forest-related phenomena occurs or knowledge is generated, and continue to privilege the 'scientific and rational' over native wisdom. Where foresters do address vernacular forestry they tend to disembed it from its normative context and integrate it into universal 'scientific forestry' knowledge.

5.8 POST-MODERN FORESTRY

Post-modern approaches to the forestry domain have come later than for most other domains⁵⁹⁹ and there are those who argue that consequently the studies are more energized⁶⁰⁰. The early literature⁶⁰¹ mostly focused on forestry discourse analysis that critiqued 'scientific, utilitarian, and colonial' forestry. This trajectory mainly emphasises deconstruction or analysis with little room for a constructive approach⁶⁰². Within the last decade however we have witnessed the 'dawning'⁶⁰³ of a post-modern paradigm⁶⁰⁴ that appears to have global application under the rubric of 'pluralism and sustainable forestry'⁶⁰⁵ and appears to address not only indigenous forest values but changes in forest values in the 'west'. It provides an emerging paradigm that allows foresters to move beyond the narrow confines of 'Utilitarian Forestry' and adopt a post-modern adaptive approach to forest stewardship⁶⁰⁶. McCay goes further than most

597 Shiva 1989

598 When the intended natural resource benefits of a development programme are captured by the elite instead of going to the poor or marginalised.

599 Health, gender, race etc.

600 Omohundro 1999

601 Bryant 1996, Dove 1992, Guha 2000, Shiva 1989,

602 Dunk 1994, Omohundro 1999, Satterfield 1997

603 Trouvalis 2000

604 Schelhas 2003

605 FAO 1997

606 Shindler et al 1999, Williams D 2002

authors to argue that a new post-modern natural resource management has emerged⁶⁰⁷. This paradigm according to Schelhas (2003) is predicated on:

- utilitarian and non-utilitarian values
- whole systems that are non-deterministic
- scientific uncertainty creating space for other sources of knowledge,
- adaptive management models
- the recognition of indigenous knowledge through bottom-up approaches,
- local people as active participants in the system⁶⁰⁸.

and he draws on research from the USA and Costa Rica to identify four 'paradigm shifts' that he believes are characteristic of post-modern trends:

- from simple to multiple interests in natural resources
- from simple ownership to bundles of rights
- from deterministic science to multiple knowledge systems
- from public interest to stakeholder groups

Post-modern forestry, from this perspective, appears to offer an alternative holistic paradigm to enhance the forests and the well-being of the people who depend upon them. It provides a platform to address :- multiple-aim forest management, sustainability, stakeholder needs, 'normative pluriformity'⁶⁰⁹, local and indigenous forest values, knowledge equity, and synergy between formal and customary forestry knowledge systems.

5.9 POST-RIO FORESTRY PARADIGMS

In spite of the introduction of a range of neo-populist forestry paradigms that were supposed to address the poor, the environment and sustainability, anxiety increased, eventually culminating in the earth summit in Rio in 1992. As a result, a new model of forestry emerged which stressed the need for a greater social role and increased participation by the poor, that was predicated on indigenous knowledge and characterised by a bottom-up approach. Leading on from this model a number of alternative paradigms have emerged namely, ethno-forestry⁶¹⁰

⁶⁰⁷ McCay 2000, Schelhas 2003

⁶⁰⁸ Schelhas 2003

⁶⁰⁹ Wiersum 1997

⁶¹⁰ Pandey 1998

and indigenous forestry⁶¹¹. It did not, however, take institutional forestry long to reinvent itself by co-opting the rhetoric of Rio. The Earth Summit agreements⁶¹² state that "Forest policies should support the identity, culture and rights of indigenous people and forest dwellers. Their knowledge of conservation and sustainable forest should be respected and **'used'**⁶¹³ in developing forestry programmes". Unfortunately 'used' is rather an ambiguous term and as a result mainstream forestry has mostly learned **about** the needs, knowledge and vernacular practices of indigenous people, as a commodity in a Lockean utilitarian sense, and not **from** them. The basis for learning has been mostly 'simple' ex situ and extractive rather than epistemic, and interpreted on the basis of mainstream forestry paradigms and/or a dichotomy of indigenous and scientific knowledge⁶¹⁴. As a result indigenous knowledge has been disembedded from its normative conceptual and epistemic frameworks, lost its vigour and vitality, been frozen in time and space, and 'strangled' by central control and management.

In 2000 some Forest researchers⁶¹⁵ studying forestry knowledge considered if the 'incorporation' of IK into formal forestry constituted a 'paradigm change' or a 'philosophic shift'?. From much of their debate it would appear that the incorporation was predicated on the conceptual frameworks and 'realities' of 'professional forestry' and 1960's and 70's definitions of paradigm. They failed to go beyond the reductive representations that views science 'as relative to culture or interests' and applied mostly to scientific experimentation and professional practice⁶¹⁶.

Few attempts are being made to learn from alternative forestry paradigms or address the synergy within a network of equitable forestry paradigms. There are dangers that vernacular forest knowledge will be disembedded from its normative context and 'integration' like 'participation' and 'co-management' will represent another tyranny rather than a paradigm shift⁶¹⁷. Although there are a number of post-Rio trajectories of forestry that recognise the

611 Umans 1992

612 Keating 1993 page 63

613 My emphasis.

614 Agrawal 1995b

615 Lawrence 2000

616 Kuhn 1962, Pickering 1992 Wiersum 2000,

617 Cooke 1996, Cooke and Kothari 2001, Hildyard et al 1998b, Sterling 2001

importance of IK, while they continued to be subject to 'corporate capture'⁶¹⁸ and are predicated on a mainstream/ indigenous dichotomy they will fail to safeguard IK or the disadvantaged. More attempt needs to be made to recognise the:

- Multiplicity of logics and practices that underlie knowledge systems (mainstream and indigenous forestry)
- Bridge the constructed chasm between mainstream and indigenous forestry
- Learn from the realities of indigenous conservation and forest sustainability
- To reinvent forestry, in ways similar to the more radical streams of environmental education as it seeks to address issues of sustainability⁶¹⁹
- Learn from indigenous knowledge or its metathoretical framework (i.e. paradigm) on the basis of its epistemic cognition.

There are two emerging trajectories , which attempt to build on the normative context of local people and protect IK. These include ethno-forestry approaches⁶²⁰ and forest values approaches⁶²¹. Although these approaches are new some attempt has been made to introduce them into forestry projects and for forest research⁶²².

5.9.1 The Ethno-forestry Approach

Although ethno-forestry has existed as a vernacular practice for hundreds of years it did not gain international recognition until the late 1990s when the term was coined⁶²³ and it was addressed at the 11th World Forestry conference in Ankara in 1997. It can be defined as local communities continual customary practices of creating, conserving, managing, and using

618 Which have been influenced by the policies and programmes made by bodies like the World Trade Organization, the World Bank and the International Monetary Fund (all key players of corporate globalization) and by corporate interests that have blatantly and insidiously crept into the UN (Indigenous Peoples' Caucus Statement at the WSSD, Johannesburg 4 September 2002) <http://www.iwgia.org/sw266.asp> accessed 5th July 2005.

619 Sterling 2001

620 Pandey 1998

621 Bengston and Xu 1995

622 Brown and Reed 2000, Studley 2004c..d, Studley et al 2005

623 Pandey 1998

forest resources and it resonates with ethno-development⁶²⁴. It differs from community and social forestry in that best practices are premised on racial and knowledge equity, ethnic inclusion, and synergy between knowledge systems. Ethnoforestry offers the possibility to build on the unique ethnic traditions of explicit nature conservation, epistemologies of nature, environmental education, topocosmic mediation, forest values, and sacred landscapes found among ethnic and local peoples rather than introducing scientific models of resource management that require training and alienate local people from their culture and landscape.

5.9.2 The Forest Values Approach

National forest management planning issues have traditionally been framed in terms of forest uses especially commodity uses, rather than forest values or perception⁶²⁵. Seeded, however by a post-modern paradigm shift⁶²⁶ former 'closet' forest values⁶²⁷ are being considered as a means of addressing multiple use forestry and incorporated into forest planning⁶²⁸. This approach has application both to indigenous people and non traditional communities. An incomplete understanding of local approaches to forest stewardship may actually reflect both individual and collective differences in held forest values. While forest values and perceptions are assumed to underlie preference for actual forest use, the relationship between preferences and attitudes toward forest stewardship is not well documented if understood.

Most forestry paradigms including neo-populist ones operate within the same discursive terrain as 'scientific' forestry and are therefore not germane to this study. The only exception are evidently ethno-forestry paradigms based on forest values.

Thus far in this thesis we have reached the following conclusions:

624 Ethnodevelopment as a concept refers to the participation of indigenous groups in the formation and implementation of development projects in accordance with their own needs and aspirations. Ethnodevelopment projects are designed **by** rather than **for** the people concerned, which implies the revaluation of their own culture as the basis upon which future development is to be constructed. Ethnodevelopment is thus opposed to ethnocidal development projects imposed upon local communities by dominant national elites (see Seymour-Smith 1986).

625 Rolstone and Coufal 1991

626 Omohundro 1999, Taubeneck 1992, Trouvalis 2000

627 personal communication Lee T 2003 weblog

628 McCay 2000, Schelhas 2003, Shindler and Cramer 1999, Williams 2002

Some planners are convinced that the failure of the new socio-ecologically sensitive strategies co-opted by 'professional' forestry could be better addressed by indigenous forestry. They believe that indigenous forestry might assist with the development of successful forestry projects that are ecologically sustainable and socio- politically equitable.

In spite of the current attention to Indigenous Knowledge in much of the world, the development ideologies of capitalism, socialism, and Marxism-Leninism, Cartesian Science, and formal technologies, government interventions, and the 'scientization of alternative knowledge systems', continue to colonize the consciousness of marginalized peoples.

Most mainstream developmental and environmental trajectories have no apparent fit with the forest values of indigenous peoples and with a few exceptions are fatally flawed, in terms of their own objectives.

We noted further that while mainstream environmentalism and sustainable development, appear to have adopted the 'politically correct' rhetoric of concern for the poor, the environment and sustainability, they continue to be predicated on the legacies of imperial and colonial discourse. Their view of nature continues to be utilitarian and they remain blind to diversity outside of economics. They do not offer any sort of challenge to capitalist growth, and they are manifestly resistant to ecocentrism. They are blind to the culturally constructed myths upon which they are predicated and they have failed to address the cultural politics or the indigenous 'systems' of the majority world.

Although attempts are being made to recognise and integrate western and non-western 'knowledge', the integration continues to be privileged on western worldviews, science, values, definitions of progress and neoliberal economics.

It is evident that most Eastern classical knowledge systems do appear to offer some resources that support the conservation of nature. Their view of the natural world, however is often symbolic or secondary, lacking explicit protection or 'bonds of affection' and at best only represents a deity or its divine aspect. As a result these systems can just as easily provide the basis for the domination, exploitation and control of nature and humankind.

In spite of the threats posed to indigenous knowledge systems and the dangers of romanticism there are aspects that are unique and more germane to bio-cultural sustainability than 'Western' or 'Eastern classical' knowledge-systems. Regrettably however IK is being increasingly co-opted into mainstream development rhetoric and attempts are often made either to integrate it into superior formal systems of knowledge or to insist on a dichotomy between western and indigenous knowledge.

Most forestry paradigms including neo-populist ones operate within the same discursive terrain as 'scientific' forestry and are therefore not germane to this study. The only exception appears to a post-modern approach based on ethno-forestry paradigms and forest values. These two approaches are unique in terms of forest practice in China but they present a major discursive challenge to China's national society⁶²⁹.

Before we can consider these approaches and the methodology adopted in this study we need to remind ourselves not only of the aims of this study but the wider contribution of the study referred to in chapter 1 section 1.4.

The primary aim of this study was to explore the interface between knowledge systems and resource stewardship with a view to finding suitable endogenous paradigms that will allow the indigenous peoples of Eastern Kham to perpetuate, protect, utilize and conserve their forest and trees on a sustainable basis without compromising their socio-cultural systems, cosmovision or well-being. In pursuance of the aim the research will contribute:

- to the broad theorization of knowledge
- to the indigenous knowledge debate
- by exploring the contribution of indigenous knowledge and forest values to sustainable resource stewardship and forestry outcomes
- by suggesting cross-cultural tools and methods for indigenous knowledge elicitation and analysis
- by suggesting methods of bridging between multiple knowledge systems

629 Semantic, cognitive, political, epistemological, economic and ontological

- by suggesting outcomes in China and Eastern Kham.

CHAPTER 6 METHODS AND METHODOLOGY

6.1 INTRODUCTION

This chapter explains the methodological basis for the analysis conducted in the ensuing chapters. The methodology chosen for meeting the objectives outlined in detail at the end of chapter 5 is multi-faceted in that it has both qualitative and quantitative components and draws upon historical as well as contemporary materials. The study is also earthed in the author's knowledge of the region gained from; community forestry in Nepal (1984-1991), consultancy in China (1993 -2005), secondary data⁶³⁰ sources, key informants and cultural specialists (i.e. *shamans*). The author's local knowledge especially from the contextual studies referred to below is particularly important because it supplements and contextualises the field research and fills in some of the gaps.

This chapter will begin with the rationale for the quantitative approach to field research before discussing the literature on forest values, critiquing:- multidimensional scaling, geostatistical and boundary analysis, and supportive technologies. It will conclude with contextual studies⁶³¹, field testing in UK and China, and a software evaluation.

There are three reasons why I selected a quantitative approach to field research although this may appear to be incongruent⁶³² with the worldview of indigenous people

Firstly in terms of forest management most foresters (oriental and occidental) are more convinced by 'hard facts' than qualitative narrative and one aim of this study is to provide tools for foresters to address the forest values and knowledge systems of indigenous clients.

Secondly given the sensitivity of research in Eastern Kham field forestry research predicated on a quantitative approach was less likely to attract attention than a qualitative approach addressing ideas, opinions and attitudes.

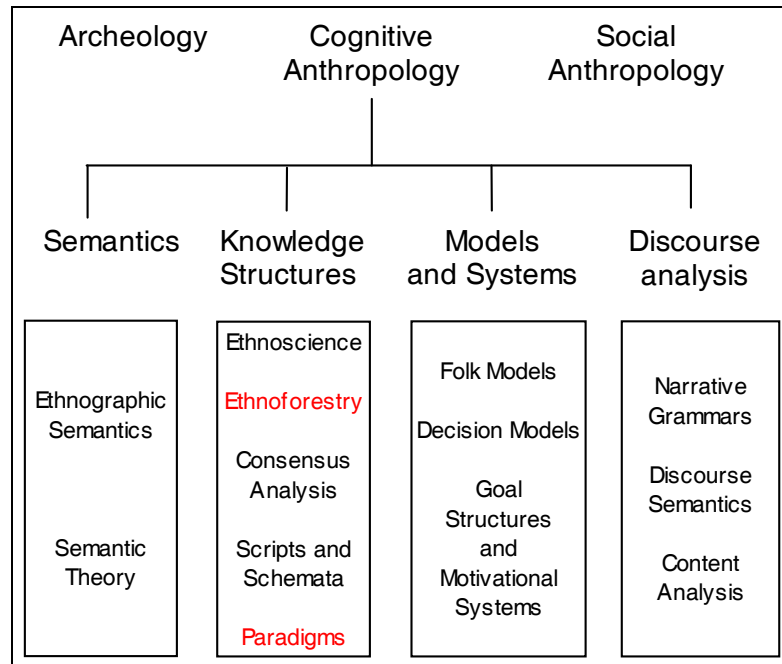
630 government documents, press clippings, news letters, RSS feeds, alerts, official statistics.

631 Project studies based on work experience in Nepal (1983-1991) and consultancy and feasibility studies conducted in China between 1993-2005 under the aegis of DFID, The Nature Conservancy (USA) Care and Share Foundation and Friends of China.

632 personal communication Gervais 2002 weblog

Thirdly when I first began to consider research methods that addressed knowledge structures, forest perception, ethno-forestry, paradigms and folk models the only methods that appeared to be germane with this study were from the fields of cognitive anthropology typified by Colby⁶³³ (See Figure 6-1) which mostly appeared to be based on quantitative data collection.

Figure 6-1 Cognitive anthropology (text in red by author)



Cognitive anthropologists study how people understand and organize the material objects, events, and experiences that make up their world as the people they study perceive it. It is an approach that stresses how people make sense of reality according to their own indigenous cognitive categories. Cognitive anthropologists stress systematic data collection and analysis in addressing issues of reliability and validity and, consequently, rely heavily on structured interviewing and statistical analyses. Their techniques⁶³⁴ can be divided into three groups that produce different sorts of data: (dis/similarity techniques, ordering techniques, and test performance techniques⁶³⁵). Dis/similarity methods (used for cognitive mapping) call for respondents to judge the likeness of particular items. Ordered methods (used in the Lugu Lake

633 Colby 1996 page 210

634 Weller and Romney 1988

635 not relevant to this study.

study discussion later in this chapter (section 6.5.3) and Map1-1, Map 8-1, Map 8-4) require the ranking of items along a conceptual scale. The specific methods used by cognitive anthropologists for data collection include free listing, frame elicitation, triad tests, pile sorts, paired comparisons, rank order, true and false tests, and cultural consensus tasks. Typically for data analysis they use Guttman scaling, Likert scaling, multidimensional scaling, correspondence analysis, singular value decomposition, hierarchical cluster analysis, measures of dis/similarity, cross-tabulation, hierarchical loglinear models, marginal normalization, symmetric decay endogamy model, consensus models, univariate statistics, matrix comparison, and property fitting⁶³⁶.

From these methods and approaches dissimilarity techniques based on paired comparisons (of forest values) were selected in this study for data collection and multidimensional scaling (MDS) and hierarchical cluster analysis (HCA)⁶³⁷ were selected for analysis. The suitability of these methods for forest perception was confirmed by research⁶³⁸ work conducted among the indigenous peoples of West Kalimantan⁶³⁹ and is discussed further below.

It was originally envisaged that MDS would provide the platform for cognitive mapping and that Mantel tests⁶⁴⁰ would provide correlation between sites. After field testing in China it was discovered that there was both spatial dependency and directional bias in the MDS mean data set. This offered the prospect of using both geostatistics and boundary analysis to spatially map and analyze forest perception in ways not possible with MDS alone.

Geostatistics, even⁶⁴¹ with a nonparametric⁶⁴² dissimilarity measures⁶⁴³, appeared to provide

636 Borgatti 1988, 1990

637 In this study hierarchical clustering was used to confirm MDS analysis..

638 Colfer et al 1996

639 Indonesia.

640 personal communication Anderson 25 and 26/6/2003 weblog

641 personal communication Old 2003 weblog

642 A class of statistical methods applicable to a large set of probability distributions used to test for correlation, location, independence. In most nonparametric statistical tests, the original scores or observations are replaced by another variable containing less information. http://www.biology-online.org/dictionary/statistics_nonparametric accessed 19th Feb 2004.

643 The function computes useful dissimilarity indices which are known to have a good rank-order relation with gradient separation and are thus efficient in community ordination with multidimensional scaling.

<http://finzi.psych.upenn.edu/R/library/mvpart/html/gdist.html> accessed 12/10/2004

a means for spatial analysis and for interpolation across the whole research area. Boundary analysis would provide a means of identifying the spatial pattern of the MDS data, any zones of rapid change and any correlation with coincidental changes in bio-physical or ethno-linguistic data. To the best of my knowledge⁶⁴⁴ this is the first research exploring forest perception based on MDS, geostatistics and boundary analysis. Each of these techniques will be explored in detail below.

6.2 FOREST VALUES

National forest management planning issues have traditionally been framed in terms of forest uses especially commodity uses, rather than forest values or perception⁶⁴⁵. Seeded, however by a post-modern paradigm shift⁶⁴⁶ former 'closet' forest values⁶⁴⁷ are being considered as a means of addressing multiple use forestry and incorporated into forest planning⁶⁴⁸. An incomplete understanding of local approaches to forest stewardship may actually reflect both individual and collective differences in held forest values. While forest values and perception are assumed to underlie preference for actual forest use, the relationship between preferences and attitudes toward forest stewardship is not well documented if understood.

Value has different meanings depending on the area of study and its measurement within each discipline is characterized by specific techniques and methodological concerns⁶⁴⁹. Forest values in common with nature values⁶⁵⁰ can be defined as an "enduring belief that a specific mode of conduct or end state of existence is preferable to others" and can be held or assigned⁶⁵¹. While held values are an individual's desirable values, assigned values refer to what one ascribes to such values. Assigned values can be measured either using market or non-market research tools. Values are organized hierarchically by an individual to achieve cognitive consistency but may still appear to conflict. If logging, for example is desirable⁶⁵² this may or may not conflict with a desired forest state⁶⁵³ of sustaining biological diversity. The use of a

644 personal communication Baur 2004 weblog

645 Rolstone and Coufal 1991

646 Taubeneck 1992, Trouvalis 2000

647 Blatt 1986, personal communication Lee 28/4/03

648 Schelhas 2003

649 Fischhoff 1991

650 Lockwood 1999

651 Rokeach 1973 page 5

652 as an instrumental value : **values** can refer to modes of conduct (**instrumental**).

653 as a terminal value : **values** can refer to end states (**terminal**).

finite quantitative forest value rating systems encourages study participants to make explicit their hierarchy of forest values, the paradigms that underpin them, and for comparison within and between communities. For the purpose of this study, however, the term 'forest value' has been adopted to describe, and to measure, proximity between , 'objects of value'⁶⁵⁴, 'local values'⁶⁵⁵, local actors⁶⁵⁶, external interventions⁶⁵⁷ and other⁶⁵⁸.

A number of different classification systems for defining forest values have been developed in the past⁶⁵⁹ and others have developed comparable schema for environmental or wilderness values⁶⁶⁰. Although there are some concerns⁶⁶¹ about universal typologies of forest values the typology adopted by Brown and Reed (2000) addresses better than most the multiple values of forests, with the exception of 'identity' and 'place'. They consider that "'identity' and 'place' cuts across all forest values" and so they were excluded, from their typology⁶⁶². These two values, however have been included in this study given their gaining importance for natural resource claims⁶⁶³ and for the Khamba Tibetans⁶⁶⁴.

6.3 METHODS

6.3.1 Method 1: Cognitive Mapping

Humankind does not react to the real world in real time, but to a cognised environment filtered through traditional expectations and worldviews. We depend on mental maps or cognitive models to understand our world and sociocultural factors influence the congruence of our maps with our actual environments⁶⁶⁵.

654 The things we care about.

655 Our reasons for caring.

656 Men, women, self

657 e.g. Industrial Forestation.

658 e.g. place

659 Brown and Reed 2000, Rolston and Coufal 1991

660 Satterfield 2001

661 personal communication Syden 2003 weblog

662 personal communication Brown 30/4 and 1/5/2003 weblog , personal communication Spencer 2002 weblog

663 personal communication Jorgensen 2002 weblog, Mackenzie 2002, personal communication Satterfield 2003 weblog ,Williams and Stewart 1998

664 Epstein and Peng Wenbin 1998

665 Kaplan and Kaplan 1982, McGovern et al 1988

The MDS 'Galileo' method⁶⁶⁶ was adopted as a means of studying indigenous perception, and cognition in order to better understand forestry-related beliefs and attitudes and response to alien interventions. It was selected from a range of anthropological methods⁶⁶⁷ because dozens or even hundreds of values can be viewed simultaneously in a single 'picture' which makes it possible to see the interrelationships among beliefs and attitudes. This in turn is important since changing one attitude or belief often changes others. .

This technique draws heavily on theory and research primarily from sociology, psychometrics, and physics as well as communications and is predicated on the work of Durkheim, Mead, Haller and Sewell⁶⁶⁸. The Galileo technique defines cognitive and cultural processes as changes in the relations among sets of cultural 'objects' or concepts (**or in this study forest values**). The interrelationship among these objects are measured by magnitude estimation pair comparison and the resulting dissimilarities matrices are entered into metric multidimensional scaling software programs. The result of this work is such that each of the cultural objects is represented as a point (See Figure 6-2 and Plot 6-1) in a multidimensional Riemann⁶⁶⁹ or Metric space. Cognitive and cultural processes may be defined within this framework as motions of these objects relative to the other objects within the space.

Figure 6-2 Riemann Space

A metric space is a set S with a global distance function (the metric g) that, for every two points x, y in S , gives the distance between them as a nonnegative real number $g(x, y)$. A metric space must also satisfy

1. $g(x, y) = 0$ iff $x = y$,
2. $g(x, y) = g(y, x)$,
3. The triangle inequality $g(x, y) + g(y, z) \geq g(x, z)$.

The 'Galileo' study began with a forest value study which was conducted as part of pre-testing, in order to identify locally appropriate forest values or themes. These values were obtained

666 Woelfel and Fink 1980

667 Borgatti 1988, 1990

668 Durkheim 1966, Mead 1982, Haller 1971, Sewell 1940

669 Munkres 1975, Woelfel and Barnett 1982

mostly by a text analysis of open ended interviews referred to in chapter 6 section 6.6.1 and 6.6.2 and from some themes⁶⁷⁰ I added in order to address attitudes, beliefs, objects of value and external interventions. These values/themes were then paired in a questionnaire format⁶⁷¹ in Chinese⁶⁷². Respondents were subsequently asked to use the distance⁶⁷³ between 'black' and 'white', as they saw it in their minds, as a measuring stick, in considering the perceptual proximity of values paired on the form⁶⁷⁴. The estimates obtained were averaged across all respondents resulting in a mean dissimilarities matrix⁶⁷⁵, which was input into multidimensional scaling (MDS) software⁶⁷⁶. This space or perceptual map provides a precise and holistic picture⁶⁷⁷ of the respondent's beliefs, attitudes and behaviour. Concepts which go together in this space are close, while those that don't go together are far apart.

Although I have not used this method before, and I recognize it has mostly been used for brand mapping and market analysis, it has been used for forestry. Researchers have used MDS to differentiate between US forest manager's ecological cognition, within and across different institutions. This contradicted previous research suggesting that managers in the same institutions became homogenized in their thoughts⁶⁷⁸. Cary (1995) contrasted MDS with a number of different methods of studying landscape perception among students from the University of Melbourne. The study has potential for resource management decision making, but was limited to a methods study⁶⁷⁹. Colfer et al (1996) seemingly go the furthest in establishing the suitability of MDS as a means of understanding forest perception, in a study among the peoples of West Kalimantan⁶⁸⁰ although it did identify a number of limitations. For cross site and cross cultural comparison there is an apparent need for threshold values, a core set of themes that are valid in all forests, theme contextualization along a continuum of

670 e.g. 'men', 'women', 'self'.

671 Find the survey form in Appendix 3.

672 Given that most respondents were illiterate the interviewer translated the values from Chinese into vernacular Tibetan. Only monks and recently educated Tibetans read Tibetan.

673 Find the explanation in Appendix 2a and 2b.

674 Originally a scale of 1-10 was used but this was changed to 1-5 with 1 being close and 5 being distant.

675 A matrix is a dissimilarity matrix if larger numbers indicate less similarity.

676 Woelfel and Barnett 1982

677 or at least as revealed by this technique.

678 Richardson et al 1996

679 Cary 1995

680 Indonesia

sustainable forest management, more diverse stakeholders, and a greater range of variation⁶⁸¹.

In spite of these weaknesses this technique has enabled researchers to identify key conservation concepts and strategies for conservation extension.

6.3.2 Method 2: Geostatistics

Geostatistical techniques were originally developed by Soviet scientists for meteorological data predictions. The first book, for example, with complete explanations about simple and ordinary kriging⁶⁸² and cokriging techniques was published in Leningrad in 1963⁶⁸³.

Geostatistical techniques were later successfully applied to mining and geosciences⁶⁸⁴ and more recently landscape ecology⁶⁸⁵. Unlike traditional, classical statistics which assumes that the data are unbiased, random, and uncorrelated, spatially-oriented geostatistics uses these relationships⁶⁸⁶ to characterize the behaviour observed within a data set.

Geostatistical methods were adopted in this study because they provided tools to analyze spatial data sets and detect and describe expressions of spatial dependency, correlation, or bias, which may then be used to build predictive models for much larger areas⁶⁸⁷. They were selected from a range of statistical methods because they could be used in conjunction with GIS and provided maps supporting ethno-forestry paradigm identification. Data was input from both the raw and mean data from the MDS study and the GPS coordinates of each site.

Researchers use Geostatistics to help fill in the blanks between the data supplied through field survey or secondary sources. Computer models are used to predict what's going on at an un-sampled location and provide a probability of values between the sampled locations. One of the key challenges in geostatistics research is heterogeneity or inherent variability. In real-life heterogeneity is not random, and it usually follows physical principles depending on

681 Colfer et al 1996

682 An interpolation technique for obtaining statistically unbiased estimates of spatial variation of known points such as surface elevations or yield measurements utilizing a set of control points.

www.agriculture.purdue.edu/ssmc/Frames/newglossery.htm accessed 19th Oct 2004.

683 Gandin 1963

684 Including: - soil science, forestry, fisheries, remote sensing, and cartography.

685 Johnson 1997, Passy 2001, Perry et al 2002

686 unbiased, random, and uncorrelated data.

687 By means of kriging (See Oliver and Webster 1990).

the phenomena being studied⁶⁸⁸, which geostatistics tries to mimic. While geostatistical models can do this much better than they used to, they still produce anomalies. The complexity and richness of natural heterogeneity remains a challenge. The other important concept addresses the precise measures of uncertainty. There are some evolving techniques for this, but they are far from being established principles.

In this study the following geostatistical tools were used to assist analysis:-

Anisotropic⁶⁸⁹ semivariance surface maps, variograms, kriging, correlograms, bearing analysis, windrose correlograms, bearing correlograms, and angular correlograms.

Anisotropic Semivariance Surface Maps provide a visual picture of semivariance in every compass direction. This allows one to identify the occurrence of directional trends and the appropriate principal axis for defining the anisotropic variogram model and for anisotropic kriging⁶⁹⁰.

*The variogram*⁶⁹¹ is the primary form of spatial analysis used in geostatistics⁶⁹² and both isotropic⁶⁹³ and anisotropic⁶⁹⁴ models were calculated. A variogram includes a two-point statistical function that describes the increasing difference or decreasing correlation, or continuity, between sample values as separation between them increases. It is similar to Geary's correlogram analysis and paired quadrant variance analysis⁶⁹⁵. The Residual Sums of Squares (RSS) provides an exact measure of how well the model fits the variogram data; the lower the reduced sums of squares, the better the model fits. GS+7⁶⁹⁶ uses RSS to choose parameters for each of the variogram models by determining the combination of parameter values that minimizes RSS for any given model.

Kriging is a form of statistical modelling that interpolates data from a known set of sample points to a continuous surface. It is based on isotropic or anisotropic variograms, or two-point

688 e.g. in reforestation run-off reduction, the physical properties of rocks and soils (Lukey et al 2000) or in geology, physical laws for porous media flow (Harter 1994).

689 meaning non-isotropic and is usually used to describe a directionally dependent phenomenon.

690 GS+ 1989-2004

691 often referred to as the variogram.

692 Isaaks and Srivastava 1989

693 means 'independent of direction'.

694 meaning non-isotropic and is usually used to describe a directionally dependent phenomenon.

695 Dale and Mah 1998, Geary 1954

696 Geostatistics for the Environmental Sciences, 1989-2004 GDS

statistical functions that describe the increasing difference or decreasing correlation between sample values as separation between them increases.

Correlograms are one of the most common forms of spatial autocorrelation in geography⁶⁹⁷. A correlogram consists of a series of estimated autocorrelation coefficients, calculated for different spatial relationships. The metric proposed by Moran⁶⁹⁸ is the most commonly used one for correlogram analysis.

Bearing analysis is a method of determining the direction of greatest correlation between data distances and geographic distance⁶⁹⁹. The correlation⁷⁰⁰ is computed for a series of set angles, from 0 deg (East) to 180 deg (West) using 36 fixed bearings.

Windrose Correlograms are directional correlograms that put pairs of points in classes/bins based on both distance and direction. A windrose appears quite different from an ordinary correlogram⁷⁰¹.

Bearing correlograms are similar to normal correlograms, except that the weights are scaled to indicate direction as well as distance⁷⁰².

Angular correlograms determine the degree of anisotropy in data. This method does not calculate average correlation for all forest value pairs. It does, however, calculate the distance between individual pair points projected onto a vector in a specified direction and the differences in the values associated with those two points⁷⁰³.

I have never used geostatistics to analyze forest values before and I believe this is one of the first studies of its kind to use them to aid the identification of ethno-forestry paradigms.

Geostatistics have, however been used to study 'place attachment' in the Alaskan state forest⁷⁰⁴, gene flow in Roble Oak⁷⁰⁵ *Quercus lobata*⁷⁰⁶, and for landscape ecology⁷⁰⁷ and there is no reason why they should not also be applied to forest values.

697 Cliff and Ord 1973

698 Moran 1950

699 Falsetti and Sokal 1993

700 in Passage (Rosenberg 2001)

701 Rosenberg 2000

702 Rosenberg 2000

703 Simon 1997

704 Brown et al 2002

705 also known as Valley Oak, White Oak, Swamp Oak, California White Oak.

706 Dutech et al 2005

707 Manel et al 2003

6.3.3 Method 3: Boundary Analysis

Geographic boundary analysis is best viewed as a technique for defining geographic boundaries on spatial fields, and for evaluating the statistical significance of boundary characteristics⁷⁰⁸. The six most common boundary detection methods include:-moving split windows, lattice delineation, triangulation delineation, categorical delineation, spatially constrained clustering and fuzzy set modelling. The first four are quite similar in that they are designed to locate difference boundaries, and require some estimate of spatial rate of change. Lattice, triangulation, and categorical delineation have in the literature been described as 'wombling'⁷⁰⁹. Spatially constrained clustering locates areas of relative homogeneity and the sixth approach detects and describes fuzzy boundaries. Other researchers have developed methods of applying Womble's methods to point, raster and polygon data, to create crisp or fuzzy boundaries and Barbujani et al⁷¹⁰ introduced a percentile consideration of significance.

These methods are used in this study to analyze and delineate boundaries in forest value data. They were selected because they could be used; in conjunction with GIS, to determine the presence of boundaries in forest value data between communities, and the correlation between forest value boundaries and biophysical, geopolitical, or ethnolinguistic boundaries. Additionally they were selected to inform the process of ethnoforestry paradigm identification. The data was input from the mean values of the MDS study as well as the GPS coordinates of each site.

In this study the following suite of boundary analysis tools were used:- spatially constrained clustering, wombling (irregular point, categorical, polygon), subboundary analysis, and overlap analysis

Spatially constrained clustering

This method locates the edges of homogeneous regions, resulting in closed areal boundaries. The software⁷¹¹ implements an adaptation of multivariate clustering that groups locations that

708 Jacquez et al 2000

709 Womble 1951

710 Barbujani et al 1989

711 BoundarySeer (Jacquez and Maruca 2001-2003)

are both similar and spatially adjacent. Adjacency occurs when clusters share an edge⁷¹² or neighbour with each other in a Delaunay triangulation⁷¹³. Similarity is determined by the selection of an appropriate dissimilarity metric⁷¹⁴ and the optimum cluster number for the data set determined by goodness of fit analysis.

Wombling (point, category and polygon)

Irregular Point Wombling was developed⁷¹⁵ for irregular spatial fields, in this case point data that is numeric but not regularly spaced. In this method Delaunay triangulation⁷¹⁶ is used to connect nearby sites to form triangles. A plane is fitted to the values of each Z variable at the vertices of each triangle, and the gradient of the plane is estimated at the triangles centroid⁷¹⁷. Boundaries are determined through applying Boundary Likelihood Values (BLV) thresholds and subboundary connections are made through gradient angle thresholds. Categorical Wombling cannot be determined on the basis of surface gradients so wombling procedures developed for numeric data do not apply. For this situation we can use categorical wombling developed by Oden et al (1993) as a refinement of Barbujani et al's (1990) genetic distance technique. Sample locations are connected using either a lattice or Delaunay triangulation and a measure of dissimilarity is calculated for all connected pairs. Appropriate dissimilarity measures are selected to reflect the nature of the variables and boundaries are defined using Voronoi edges. Subboundaries may also be defined. Polygon Wombling is a recent addition to the suite of boundary analysis tools developed by Jacquez and Maruca (2001). It is similar to categorical wombling, in that similarity metrics, rather than surface gradient magnitudes are used to identify BLVs. A dissimilarity value is calculated for each pair of adjacent polygons. Candidate boundary elements are the lines that separate the compared polygons.

712 raster and polygon data.

713 for point data in vector format.

714 Dissimilarity metrics address how close two sets of observations are in *variable space* - in other words, you can think of the variables for each location being plotted in a many-dimensional space, and then imagine estimating "distances" between these points. Both Euclidean distance and Manhattan distance can be used as metrics of dissimilarity as well as proximity, as can many other metrics. Dissimilarity metrics are closely related to similarity metrics; the range of values for both is often between 0 and 1. In many cases, you can convert between measure of similarity and one of dissimilarity by subtracting the first metric from 1 to get the other (e.g., $S = 1 - D$; $D = 1 - S$).

715 Barbujani et al 1989, 1990

716 Upton and Fingleton 1985

717 Jacquez et al 2000

Subboundary analysis

Subboundary statistics indicate subboundary contiguity for difference boundaries. There are two alternative hypotheses either large scale boundaries or fragmentation. A contiguous boundary would have few subboundaries, few singletons, high subboundary length, high subboundary diameter and low branchiness. Fragmented boundaries would have lots of singletons, low subboundary length, low diameter and high branchiness. Monte Carlo randomization is used to determine (p-values) whether the statistics are significantly high or low⁷¹⁸.

Overlap analysis

Overlap statistics developed by Jacquez (1995) examine whether difference boundaries for two or more variables coincide or overlap to a significant extent. There are two alternative hypotheses either boundary association or, boundary avoidance. For two variables G and H boundaries that overlap would have high OS low OG, OH and OGH and boundaries that avoid each other have low values of OS and high values of OG, OH and OGH.

OS = the number of boundary elements in both sets of boundaries

OG = directional overlap, association with G to H

OH = directional overlap, association H to G

OGH = simultaneous overlap, association between the boundaries

Monte Carlo randomization is used to determine (with p-values) if the overlap statistics are significantly high or low.

There are dangers, mostly addressed by BoundarySeer⁷¹⁹, that boundary analysis may not be error free if it fails to address the combined effects of sampling and non-random positions of sample sites in the landscape, resulting in apparent barriers where none existed. One method suggested⁷²⁰ to overcome this problem is to calculate the summed derivatives and apply a significance test based on the percentile method and a permutation test for null hypothesis of randomness.

718 Jacques and Maruca 2001

719 Jacquez, J; Maruca, S 2001-2003

720 Hurles 2004

I have never used this method before and, as with the geostatistics method, I believe it is one of the first studies to use boundary analysis to aid ethno-forestry paradigm identification. Boundary analysis, however, has been used for other spatial studies to examine genetic drift⁷²¹ the diffusion of democracy⁷²², electoral geography⁷²³, cancer spread⁷²⁴, and forest vegetation and bird distribution⁷²⁵ and there is no apparent reason why it should not be applicable to this study.

6.4 SUPPORTIVE TECHNOLOGIES

As we discovered in para 1.2 there is a growing realization that scientific knowledge has not contributed to the development of rural communities but led to the depletion of their social and natural resources⁷²⁶. Many authors have stressed the value of indigenous knowledge for development⁷²⁷, but have recognized its limitations⁷²⁸. Sustainable development may best be served by a system which includes both indigenous and scientific knowledge⁷²⁹. Geographic Information Systems (GIS) combined with Remote Sensing and Global Positioning Systems (GPS) offer the possibility for recording natural resource data, scientific land classification, indigenous knowledge, folk classification⁷³⁰, gendered resource mapping⁷³¹ and precisely representing the forest in all its complexity⁷³².

GIS and GPS technologies were adopted because they provided spatial tools to record, analyse, map and understand multiple visions and logics of forest use. They were selected because of the challenges of the research area terrain, the difficulties of securing detailed maps of a politically sensitive area, as a means of 'elevating' Tibetan forest values, and as a means of empowerment. Data was input from GPS and the MDS study and digital map data of Eastern Kham was collected from a wide range of sources including the World Conservation

721 Falsetti et al 1993

722 O'Loughlin 1997

723 O'Loughlin 2002

724 Jacquez et al 2003

725 Hall et al 2001

726 Murdock and Clark 1994, Ulluwishewa 1993

727 Warren 1992

728 Leach and Mearns 1988

729 Gurung 1994

730 Gonzalez and Hutchinson 1995, Tabor and Hutchinson 1994

731 Rocheleau et al 1995a

732 Omohundro 1999

Monitoring Centre⁷³³, the Global Mapping Institute⁷³⁴, the Tibet Map Institute⁷³⁵, and the Centre for International Earth Science Information Network⁷³⁶, and from online and paper maps that I digitised and georeferenced.

GIS can be defined as a suite of instruments for the collection, storage, retrieval, display and analysis of spatially referenced data⁷³⁷. GIS prepared maps, predicted on traditional resource use and knowledge give legitimacy to resource claims by threatened indigenous peoples. They also enable indigenous organizations to present proposals for the protection of their lands with the kind of technical sophistication demanded by governments and aid organisations⁷³⁸. GPS is revolutionizing mapping techniques allowing for updating existing maps, gathering new data⁷³⁹, 'self-mapping'⁷⁴⁰, wildlife recording or tracking, and 'ground truthing'⁷⁴¹ remotely sensed images. GPS technologies rely on a constellation of satellites, orbiting the earth, to give pinpoint positioning anywhere in the world.

It has been suggested, however that a dichotomy exists whereby GIS can act to both empower and marginalise communities simultaneously and that it is contradictory when used for grassroots or community forms of development⁷⁴². In spite of concerns raised by some social theorists⁷⁴³ about the negative impacts of GIS on society, others see liberating elements for indigenous societies.

I have used both GIS and GPS technologies in the context of indigenous peoples since the mid 1990s. Space does not me permit me to include my critique of GIS⁷⁴⁴ but on balance it has

733 <http://www.wcmc.org.uk/> accessed 5th July 2005

734 <http://www.gmi.org/research/websites.htm> accessed 5th July 2005

735 <http://www.tibetmap.com/> accessed 5th July 2005

736 <http://sedac.ciesin.org/china/geogmap/dcchina/dcchinadesc.html> accessed 5th July 2005

737 Aronoff 1989, Bonham-Carter 1994

738 Rocheleau et al 1995a

739 Features that have changed or have not been previously defined.

740 It has been used with considerable success for self-mapping the resources of; the Nez Perce Indians, the Ye'kuana (Meyers 1993, Posey and Dutfield 1997) and other indigenous peoples (Rocheleau et al 1995a).

741 The use of a ground survey to confirm the findings of an aerial survey or to calibrate quantitative aerial observations <http://www.for.gov.bc.ca/hfd/library/documents/glossary/G.htm> accessed 15th March 2005.

742 Harris et al 1995, Rundstrum 1995, Weiner et al 1995, Yapa 1991

743 Harris and Weiner 1996, 1998, Yapa 1991, 1989

744 Studley 2004h

been adopted, in this study, to present Tibetan forest knowledge and paradigms in a way that elite societies understand and as a tool of exogenous/endogenous forest stewardship.

6.5 CONTEXTUAL STUDIES

In order to ensure that this study has been effectively set in context reference has been made to a number of studies the author has conducted in the region, including a forest values study at Dengko⁷⁴⁵ (See Map 8-4) and two studies at Lugu Lake (See Map 1-1, Map 8-1 and Map 8-4) which will be considered further in Chapter 7 and 8.

6.5.1 Forestry Study in Dengko

A small study⁷⁴⁶ was conducted for the Care and Share Foundation (CSF) in 1995 in Dengko township predicated on participatory rural appraisal⁷⁴⁷ interviews with 8 respondents (Table 6-1)

Table 6-1 Forestry study in Dengko

Date	Total	Male	Female	Lhadza	Wuntu	Nomad Camp 1	Nomad Camp 2
4/9-11/9 1995	8	6	2	3	3	1	1

The purpose of the study was to assess the role and importance of trees and forests to local Tibetans and some of the findings are summarized below in Table 6-2.

The study⁷⁴⁸ confirmed the importance of trees and forests to rural Tibetan communities, of forest values and indigenous knowledge and provided a platform for exploring forest values and the ethno-forestry domain.

⁷⁴⁵ also spelt Dengke.

⁷⁴⁶ Studley et al 1995

⁷⁴⁷ See literature for more on this:- Bartalanffy 1976, Bennett 1976, Chambers 1993, 2002, Freudenthal and Narowe 1991, IIED 2003, Lazenbatt and McMurray 2004, Martin 1995, Messerschmidt 1991, Moris and Copestake 1993, Narayan and Srinivasan 1994

⁷⁴⁸ Studley et al 1995 and Table 6-2

Table 6-2 Forestry profile in Dengko

Location of village forest area	Each respondent identified a forest area their village used for collecting forest products (nomads used the nearest forest to their tents - usually moving three times a year)
Time taken for a return trip to village forest	5.5 hrs (sd 2.27 range 2-7)
Trips per year by family to forest	15 (sd 16.86 range 3-40)
Firewood collected from non -forest and forest areas	37.5% of respondents
Goods and services (other than firewood)	Timber (100%), Fungi (75%), Fruits and Nuts (62.5%), Fodder (0%), Medicinal herbs (87.5%), Wild vegetables (12.5%), Compost (0%), Forage (37.5%), Water conservation (12.5%)
Timber obtained from Dengko and TAR	18.75% of respondents
The most important tree/plant species	Bolo (100%), Shugpa (100%), Sasoo (12.5%) and Baysoo (12.5%)
Tree planting	50% of respondents (excluding nomads) had planted on average 15.6 trees (apples and willow)
Knowledge of special trees and/or groves and/or mountains, which were protected	87% of respondents
Knowledge of tree stories embedded in their culture	12.5% of respondents
Forest product collection	12.5% of respondents collected forest products all year round and 25% seasonally
Food shortages	37.5% of respondents reported food shortages during the year

6.5.2 Ethno-forestry Studies among the Poor - Lugu Lake

The purpose of this mission was to provide Yunnan Environmental Development Programme (YEDP)⁷⁴⁹ with information on indigenous knowledge and high altitude forestry, natural resource management, agriculture and ecotourism at Lugu Lake (See Map 1-1 and 8-1) and to investigate the impacts of the new forest policies, which are discussed in detail in Chapter 7 section 7.6.2 and 7.6.3), on poor ethnic groups. 19 poor people who lived in the Lugu Lake nature reserve were interviewed from 4 ethnic groups and nine villages (See Table 6-3).

This survey provided important insights, referred to in more detail in Chapter 8, into local epistemologies of nature, sacred landscape and the impact of nature conservation policy.

⁷⁴⁹ Funded by DFID.

Table 6-3 Lugu Lake ethno-forestry study

Date	Village	Ethnic group	Total	Male	Female
24/10/2003	Shan Kua	Mosuo	2	1	1
24/10/2003	Puluo	Han	1	1	
24/10/2003	Lang Fang	Pumi	1	1	
24/10/2003	Wanjawan	Yi	2	1	1
24/10/2003	Luwanja	Han	1	1	
25/10/2003	Laowuji	Yi	3	2	1
26/10/2003	Zhudi	Han	3	1	2
26/10/2003	Zhudi	Yi	1		1
26/10/2003	Zhudi	Mosuo	1		1
28/10/2003	Sanjiacun	Han	2	1	1
28/10/2003	Luoshi	Pumi	2	1	1

6.5.3 Forest Value Ranking - Lugu Lake

The purpose of this mission for YEDP was to gain a better understanding of forest value composition among poor and environmentally challenged communities at Lugu Lake with a view to incorporating these values into IRR⁷⁵⁰ calculations and broader provincial and state thinking. 7 groups of people, from four ethnic groups, were interviewed in four villages (See Table 6-4) and asked to rank forest values. Each group was asked to distribute 100 pins representing the sum total of the forests total economic value⁷⁵¹ across a set of 13 paper circles representing 13 forest values on the basis of the relative importance of each value to

Table 6-4 Lugu Lake forest value ranking study

Date	Village	Ethnic group	Total	Male	Female
15/1/05	Puluo	Han	16	11	5
16/1/05	Shan Kua	Mosuo	13	4	9
16/1/05	Wan Jia Wan	Yi	10	5	5
16/1/05	Lang Fang	Pumi	15	8-10	7

them. It would appear that a set of 13 forest values are recognized by most groups of people at Lugu Lake (See Table 6-5), but there are significant differences on the basis of ethnicity and gender. Commercial values which are often the only value recognized by economists

⁷⁵⁰ Internal rate of return.

⁷⁵¹ The sum of use and non-use values with due consideration of any trade-offs or mutually exclusive uses or functions of the resource/habitat in question. Source: Global Biodiversity Assessment GBA

http://europa.eu.int/comm/research/biosociety/library/glossarylist_en.cfm?Init=T accessed 15th Jul 2005.

represented 6% of total economic value and the most important mean values are evidently 'life sustaining', 'intrinsic' and 'subsistence'.

Table 6-5 Lugu Lake forest value ranking

Values	Han	Mosuo ♂	Mosuo ♀	Yi ♂	Yi ♀	Pumi ♂	Pumi ♀	Mean alloc	Mean rank
Aesthetic	10	10	6	12	10	8	10	9.43	4
Commercial	2	0	5	13	14	3	0	5.29	9
Recreational	3	3	6	0	0	5	7	3.43	13
Life sustaining	27	9	22	14	14	9	4	14.14	1
Learning	3	8	2	16	12	6	8	7.86	7
Biodiversity	11	13	6	3	5	5	4	6.71	8
Spiritual	0	0	4	0	6	13	8	4.43	10
Intrinsic	13	17	11	12	11	6	9	11.29	2
Historic	0	8	6	0	0	8	8	4.29	12
Future	4	9	10	11	9	6	14	9.00	6
Subsistence	21	11	9	11	7	7	7	10.43	3
Therapeutic	5	9	9	8	12	9	13	9.29	5
Cultural	1	3	4	0	0	15	8	4.43	10
TOTAL	100	100	100	100	100	100	100	100.00	
	11♂ 5♀	4	9	5	5	8 to 10	7		

The results of this study were not only useful to supplement the forest value analysis in Chapter 8 but to fill in the gaps where forest values had not been volunteered and were subsequently not part of the cognitive mapping study.

6.6 FIELD TESTING IN UK AND CHINA

It was necessary to field test the cognitive mapping methodology in the UK and China to assess its suitability for use in this study, because to my knowledge it had not been tried in the UK or China before. The aim of field testing was to identify 'universal' or unique domain elements and clusters of forest values, assess the ability of respondents to use 'scaling'⁷⁵² between pairs of forest values⁷⁵³, provide a comparison between UK and Chinese/Tibetan data, select the most apposite Chinese and Tibetan words for values, and to redefine and contextualize the methodology.

⁷⁵² Likert 1932

⁷⁵³ 1=close proximity and 5= distant proximity.

6.6.1 Fieldwork in UK

In the UK a forest value identification survey was conducted among 30 day visitors to the New Forest (Table 6-6) and the results were analyzed using text analysis software⁷⁵⁴ and

Table 6-6 Forest value identification in the New Forest, UK

	Date	Total	Male	Female
New Forest	3/4/1999	30	19	11

categorized resulting in 17 values. Respondents were able to describe why they valued forests in an interview that typically took 7 minutes to complete. A few respondents mentioned that they would never welcome being charged for entry⁷⁵⁵. Prior to cognitive mapping 5 values were added⁷⁵⁶ to those derived from the forest value survey and 2 were taken away⁷⁵⁷ resulting in 20 values (See Plot 6-1) which provided the basis for cognitive mapping conducted among ten day visitors in the New Forest, UK (Table 6-7).

Table 6-7 Cognitive mapping survey of forest values in the New Forest, UK

County/Site name	Latitude	Longitude	Km* from capital	Date	Total	Male	Female
Bolderwood , New Forest	50.873028	1.653246	127.74 (L)	17/4/99	10	5	5

Typically cognitive mapping took 20 minutes per person but 20% of respondents considered the interview was too long and about 30% of the respondents begin to lose "focus" after about 15 minutes. 10% of respondents considered that a scale of 10 was too much and that five would be adequate. Only 1% of respondents had difficulty deciding measures of proximity between values, or appeared to use personal likes and dislikes as the basis for scaling⁷⁵⁸ or attributed all theme pairs with a close proximity⁷⁵⁹.

754 Scott 1997

755 This information was volunteered.

756 Self, Men, Women, Conservation and Forest.

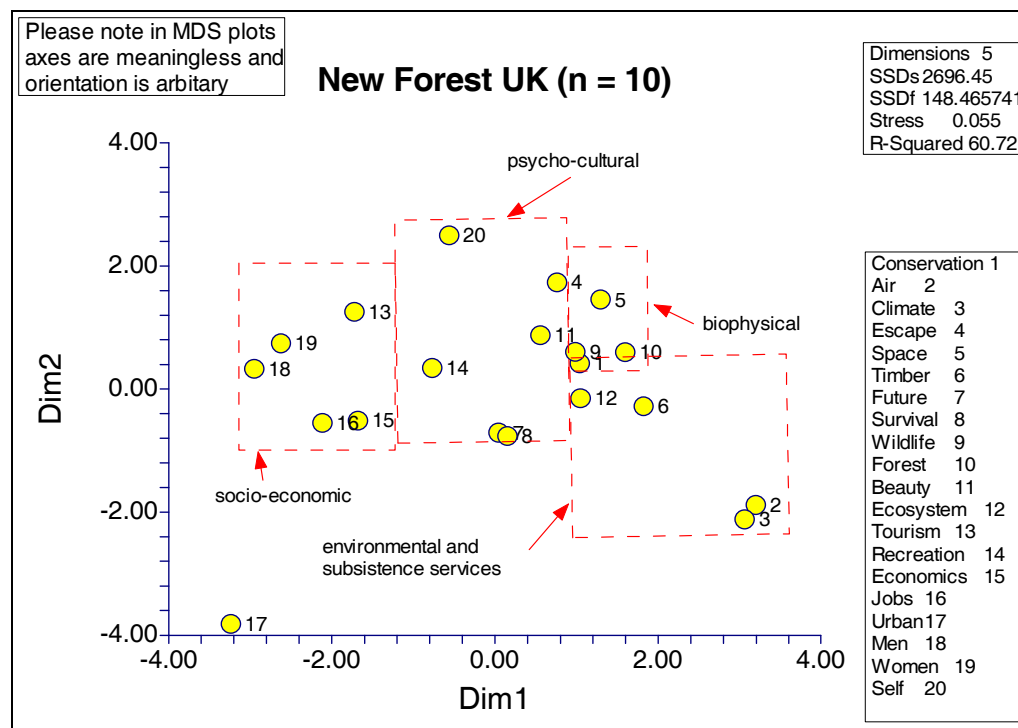
757 Intrinsic and therapeutic.

758 Often women.

759 Usually men.

The results of the cognitive mapping were plotted (See Plot 6-1) using multidimensional scaling software⁷⁶⁰ and analyzed on the basis of five dimensions⁷⁶¹ and 'fit' statistics (SSDs, SSDf Stress, and r^2)⁷⁶². There appears on the basis of the MDS plot and hierarchical cluster analysis⁷⁶³ to be four clusters and one singleton ('urban'). Given the small sample size, high stress (0.055) and low r^2 it was not easy to identify dimensions or a set of taxonomies, categories, domains, schemata or paradigmatic structures⁷⁶⁴. There is, however some evidence on the basis of cluster analysis and my subjective knowledge of 'socio-economic', 'psycho-cultural', 'biophysical' and 'environmental services' domains⁷⁶⁵ (or clusters) which are distributed along 'natural' and 'human' dimensions (Dimension 1 and 2).

Plot 6-1 of cognitive mapping in the New Forest, UK



760 NCSS 2000 (Hintze 1998, 2000), XLStat v 5.1 (Addinsoft 1995-2002)

761 A common way to decide how many dimensions to use is to plot the stress value against different numbers of dimensions. A stress value (r^2) below 0.05 is acceptable and a value below 0.01 is considered good.

762 Sum of Squared Dissimilarities and Sum of Squared Differences are used to determine the number of dimensions used, Stress indicated goodness-of-fit (0.05 and below is acceptable) and r^2 indicates what percentage of the sum of squared dissimilarities (corrected for the mean) is accounted for by this number of dimensions.

763 cluster analysis does not recognize dimensions and can only be used as a guide.

764 Robertson and Beasley undated

765 Domains are most typically introduced to circumscribe exclusive realms or sets -- i.e., they serve as categorization constructs for sorting out unities and phenomena. <http://www.imprint.co.uk/thesaurus/domain.htm> accessed 5th October 2005.

Other poles or partitions may also be possible and while the data may not be inconsistent with the identified groups, their existence is by no means equivocal. The recreational role of Forests has been recognized by the wider community for some time⁷⁶⁶ and the UK respondents in this study support this view both in the cognitive mapping (Plot 6-1) and forest theme survey⁷⁶⁷. Most of the UK respondents however did not identify 'self' with 'tourism' and located it in the 'socio-economic' domain (Plot 6-1). Although 'natural' conservation is recognized in the 'bio-physical' and 'environmental and subsistence services' domains respondents did not identify themselves or society with it. 33% of those interviewed included spiritual values in a conservation checklist⁷⁶⁸, but no one volunteered it as a forest value, with the exception of wilderness and therapeutic values⁷⁶⁹.

6.6.2 Fieldwork in China

The forest value survey in China was conducted in three villages in Deka Township (See Map 8-4) among eight villagers (Table 6-8) and the results were analyzed using text analysis software⁷⁷⁰ and categorized resulting in 10 values⁷⁷¹.

Table 6-8 Forest value identification in China

Date	Total	% ⁷⁷²	Honze	Beiyu	Razhi	Male	Female
31/7/99	8	19%	3	5	0	5	3

The people of Deka Township were able to describe why they valued forests, in interviews, which typically took one hour⁷⁷³. Prior to cognitive mapping and in order to address beliefs,

⁷⁶⁶ Collings and Grayson 1977, Lee 2001

⁷⁶⁷ Where the role of forests comprised: - recreation (23.3%) escape, freedom and stress relief (26.6%) space (16.6%) and "therapeutic" value (25%) were highlighted, especially for city dwellers.

⁷⁶⁸ part of the forest value survey.

⁷⁶⁹ Which do appear in some typologies as 'spiritual' values.

⁷⁷⁰ Scott 1998

⁷⁷¹ Wildlife habitat, forest products, environmental protection, to ensure blessing, link with Buddhism, water/climate regulation, income, beauty, agricultural support.

⁷⁷² % of families in Deka Township

⁷⁷³ Due to the novelty of being visited by a westerner and the questions and answers had to be double translated (English-Chinese-Tibetan).

attitudes, objects of value, and external interventions ten values were added⁷⁷⁴ to the forest value study and three values, that were only mentioned by a few respondents, were taken away⁷⁷⁵. The resulting 16 values provided the basis for cognitive mapping conducted among ten villagers (Table 6-9) in Deka Township. Later this was reduced to 15 values when few respondents appeared to be familiar with *bon chos*.

Table 6-9 Cognitive mapping survey in China

Date	Total	Male	Female	Honze	Baiyu	Razhi
1/8-2/8 1999	10	5	5	3	2	5

Typically, cognitive mapping took one hour and only 1% had difficulties assessing proximity⁷⁷⁶. On the basis of MDS (Plot 6-2) and hierarchical cluster analysis there appeared to be four clusters and one singleton ('hunting') but there is some need for caution given the small sample size, high stress (0.08), low r^2 , and anomalies with forest value translation. It did not prove possible on the basis of cluster analysis⁷⁷⁷ to identify a complete set of cognitive categories, domains⁷⁷⁸ or paradigmatic sections. There is, however some evidence based on cluster analysis and my subjective knowledge of the region of 'bio-physical', 'psycho-cultural' and 'socio-economic' and 'environmental and subsistence services' domains distributed along 'natural' and 'human' dimensions. Other poles or partitions may also be possible and while the data may not be inconsistent with the identified groups, their existence is by no means equivocal.

774 Men, women, self, forest, conservation, hunting, socialism, industrial forestation, 'mi-chos' and 'bon' were added

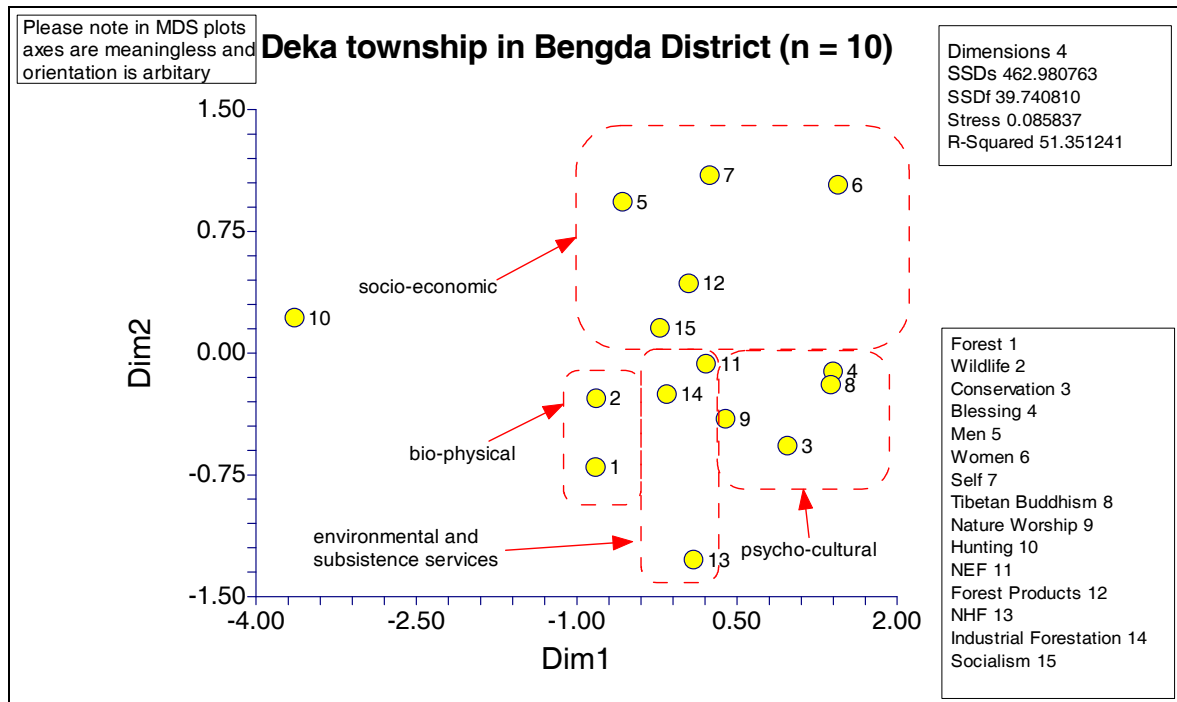
775 Income, beauty and agricultural support were taken away

776 either conceptually or the lack of a local translator.

777 cluster analysis does not consider dimensions and can only be used as a guide.

778 Domains are most typically introduced to circumscribe exclusive realms or sets -- i.e., they serve as categorization constructs for sorting out unities and phenomena. <http://www.imprint.co.uk/thesaurus/domain.htm> accessed 5th October 2005.

Plot 6-2 Cognitive mapping in Deka township



It would appear that respondents in Bengda identify with the 'socio-economic' domain rather than the 'psycho-cultural' domain and locate conservation in the 'psycho-cultural' domain. The results (Plot 6-2) did produce a number of semantic/worldview anomalies. Although the animistic link between forest and conservation was identified during forest value identification and the response of the local divinity to nature conservation expressed in 'blessing' it was difficult finding a word in local parlance that encapsulated animism. Initially '*mi-chos*'⁷⁷⁹ was chosen but it soon became evident that as a literary written term used by educated Tibetans it meant nothing to most of those surveyed⁷⁸⁰. This was replaced with '*rang byung yid rton*'⁷⁸¹ but the response was not consistent with local views expressed about animistic links with the environment. Eventually '*yul-lha*'⁷⁸² was identified because it best encapsulated the embodiment of local landscape. Environmental Services ('natural environmental function') were problematic in that respondents appeared to often scale 'self' close to them, when it was

779 མི་ཚོས། mi chos

780 personal communication Ramble 2003 weblog, personal communication Samuel 12/8/2002 weblog

781 རང་བྱུང་ཡིད་རྟོན། nature worship

782 ཡུལ་ལྗ། a *yul-lha* is a place god or territorial numina i.e a spirit or deity that presides over a place (Oxford compact dictionary http://www.askoxford.com/concise_oed/numen?view=uk accessed 30th October 2005.

to be assumed⁷⁸³ that many services were largely independent of human agency. To emphasize their independent nature they were prefixed with 'Natural' although it did not make much difference. It must be assumed that from the perspective of those surveyed they see every living and non-living thing in the world as being interrelated and interdependent and they typically embed nature in society. *bon chos*⁷⁸⁴ had been added initially to assess any differences between the three religious traditions found in Tibet, but it appeared to be very uncommon in Eastern Kham and was excluded from cognitive mapping. As a result of field testing the methodology, a scale of 5 was adopted and a set of 15 forest values⁷⁸⁵ with equivalent words in Chinese and Tibetan (See Appendix 3).

6.7 SOFTWARE EVALUATION

One of the purposes of field-testing was to obtain data in order to evaluate a range of software packages with a view to selecting the optimum packages for the analysis of the final results. It was envisaged that software would be required for data collection, text analysis, multidimensional scaling, geographic information systems, global position system mapping, spatial analysis, data interpolation, boundary analysis and presentation graphics. A candidate list of programmes (See Table 6-10) was identified and a criterion for selection/rejection was developed. In order to be selected software programmes had to satisfy as many of the following criteria as possible. The software should be

- 1) Freeware, less than £150, or available for evaluation,
- 2) be turnkey⁷⁸⁶,
- 3) include import/export filters for Excel and DBF⁷⁸⁷,
- 4) integrate with other software/GIS programmes,

783 Based on a Western mindset.

784 བོན་ཆོས། *bon-chos* (bon religion)- There are three phases of *bon*, although modern *bon* can be regarded as the fifth school of Tibetan Buddhism, with certain differences of vocabulary, but no major difference in content (Samuel 1993a).

785 Men, women, self, forest, forest products, conservation, hunting, wildlife, socialism, industrial forestation, yul-lha, blessing, Natural Hydrological Function (Natural Hydrological Function), Natural Environmental Function (Natural Environmental Function), Tibetan Buddhism.

786 A product or system that can be plugged in, turned on, and operated with little or no additional configuring. <http://www.9to5computer.com/What-is-JBOD-S-Z.htm#t> accessed 12th Aug 2005.

787 Database format .

- 5) be able to handle large data sets,
- 6) include routines for auto selection on the basis of goodness-of-fit,
- 7) include as many analytical tools as possible,
- 8) include good integration between modules.

The most difficult programmes to select were for multidimensional scaling (MDS) and boundary analysis. I could not find any Windows based programme that included all the MDS procedures⁷⁸⁸ from data input to plotted 3D maps. NCSS⁷⁸⁹ and XLSTAT⁷⁹⁰ both offered most of the procedures but required that the data be presented as a means matrix that could not be filtered. The only way round this was to create an Excel worksheet that created a means matrix from un/filtered data. Boundary analysis software proved even more of a challenge as the only turnkey software programme is BoundarySeer⁷⁹¹, which is very expensive. I was eventually able to secure a copy from TerraSeer by winning a post-graduate competition⁷⁹². For data, interpolation an evaluation version of GS+⁷⁹³ was the optimum choice because it auto selected a variogram model⁷⁹⁴ on the basis of goodness-of-fit. After the evaluation had ended, Surfer⁷⁹⁵ and Idrisi Kilimanjaro⁷⁹⁶ were used instead. Cartalinx⁷⁹⁷ included vector filtering and editing, Idrisi⁷⁹⁸ provided for vector and raster layer overlaying as well as geostatistical routines, Global Mapper⁷⁹⁹ included filters for importing administrative maps available on Chinese websites and Surfer⁸⁰⁰ provided krig and spatial dependency maps after the GS+⁸⁰¹ evaluation had ended.

788 1) Input data 2) Filter if required 3) Create dissimilarity means matrix 4) Create MDS plots 5) Create associated statistics 6) Create a 3D MDS plot.

789 Hintze 2000

790 Addinsoft 1995-2002

791 Jacquez J et al 2001-2003

792 <http://www.terraseer.com/services/community/2004/Tibet.html> accessed 5th July 2005

793 GDS 1989-2004

794 Exponential, spherical, Gaussian, linear.

795 GSI 2002

796 Eastman et al 1987-2004

797 Hagan et al 1998-1999

798 Eastman et al 1987-2004

799 GMSL 2004-2005

800 GSI 2002

801 GDS 1989-2004

In this chapter, I have introduced the methodology used in this study and summarized; the findings of contextual studies, field-testing, and any refinements made and concluded with an evaluation of the software used.

Before we can consider the results of the field work, however I need to place the study area, the contested region of Eastern Kham, against the backdrop of its dominant neighbours the 'dragon kingdom' of China and the 'snow lion kingdom' of Tibet and their 'totalizing discourses' of race, nature, religion and environment.

Table 6-10 Candidate software showing selected software in bold type and underlined

Software	Data Collection	Text Analysis	Stats Analysis	MDS	GIS	GPS Maps	Spatial Analysis	Data interpolation variograms	kriging	Boundary Analysis	Presentation Graphics
<u>GeoexplorerCE (Newman UD)</u>	√										
<u>Pocket Excel (MS UD)</u>	√										
<u>Wordsmith Tools (Scott 1998)</u>		√									
Tact (Lancashire et al 1995)		√									
Anthropac (Borgatti 1990)			√	√							
Galileo (Woelfel 2000b)				√							
<u>NCSS (Hintze 2000)</u>			√	√							
NewMDSX (Coxon et al, undated)				√							
Permap (Heady 1997)				√							
SPSS (1989-1999)			√	√							
<u>XLSTAT (Addinsoft 1995-2002)</u>			√	√							
<u>Cartalinx (Hagan et al 1998-1999)</u>					√	√					
<u>Global Mapper (GMSL)</u>					√	√					
<u>Idrisi (Eastman et al 1987-2004)</u>					√	√	√	√	√		
<u>Oziexplorer (Newman UD)</u>						√					
Ecosse (Clark et al, undated)								√	√		
GEOEAS (CSMOS 1989)								√	√		
<u>GS+7 (GDS 1989-2004)</u>								√	√		
<u>Passage (Rosenberg 1998-2004)</u>							√				
SADA (Stewart et al 2000-2002)								√	√		
<u>Surfer (GSI 2002)</u>					√			√	√		
Variowin (Pannatier 1996)								√			
Vesper (Minasny et al 2005)								√	√		
<u>BoundarySeer</u>										√	
<u>Graphis (KS 2003)</u>											√
<u>Smartdraw (2005)</u>											√
Thoughtview (Woelfel 2000a)											√

CHAPTER 7 CHINA AND TIBET

7.1 INTRODUCTION

It would be naive or romantic to attempt to understand Kham without reference to the Han Chinese or Lhasa Tibetans and the impact on, and responses of local people to four totalizing discourses of religion, nature, race and environment.

In this chapter we will address four discourses from five perspectives: that of the west, of the 'dragon kingdom' (China), the 'Chinese diaspora' (Taiwan and Hong Kong), the 'snow lion kingdom' (Tibet) with some reference to Kham which will be covered in more depth in the next chapter (section 8.1). The importance of including the diaspora is to gain some insight into the Chinese approach to environmentalism and democracy in countries and regions with a different political landscape to mainland China.

The author acknowledges the length of this chapter but stresses its necessity in order to properly interpret the forest values of the peoples of Eastern Kham against a detailed understanding of the wider regional and cultural context within which they are situated. As such, this chapter plays a bridging role between the broader focus of the first five chapters and the Kham-specific material.

China is the second largest country in the world, with the longest continuous culture on earth. It is a multinational state whose minority nationalities constitute 8 percent of the population and occupy 60 percent of the national territory, including its most sensitive border areas. The classification of 55 minorities indicates, however, that ethnic minorities are fragmented and that each is numerically insignificant vis-à-vis the one billion strong majority 'Han Chinese'. There is no uniform pattern of minorities, as each has its distinct history, culture, language and territorial association. Nor are ethnic minorities unified by any single religion. Tibetans and Mongols, for example are Buddhists, but they are geographically separated from one another, despite strong cultural affinity. It is possible to suggest however that most of the minorities in

southwest China are 'enclosed groups', with little irredentist⁸⁰² aspiration, whereas the Tibetans, Mongols, Uyghurs and Koreans are groups with external orientations. The nationalities differ, moreover, in their assimilation or distance from the dominant economic and cultural premises of the Han. Despite this seemingly hopeless situation of minority fragmentation, over much of its long imperial history China was ruled by non-Han peoples, namely the Mongols, Manchus and even for a few years the Tibetans. Not until early in the twentieth century was China reborn as a nation-state with the 'Han' claiming to be the guardian nationality while incorporating non-Han minorities in an ethnic hierarchy. In 1949, China proclaimed itself a people's republic, a multinational state, and promised autonomy for ethnic minorities. The basis for ethnic autonomy stemmed not only from Chinese Communist Party's (CCP) ideological commitment to equality but was the product of strategic alliances between CCP and ethnic groups in defeating the Chinese Nationalist Party⁸⁰³. The establishment of autonomous territorial institutions at the provincial level in Tibet, Xinjiang, Guangxi and Ningxia and at lower levels within Chinese provinces did not, however, represent ethnic safe havens. A nationality building project was launched that resulted in very mixed fortunes, which have become even more mixed since the introduction of the socialist market economy and the 'Great Western Development Project'⁸⁰⁴.

In spite of China's recent poor environmental record, there has been global interest over the last two decades in both oriental classical and indigenous knowledge systems as exemplars of harmonious environmental management. Although there are obviously resources in Daoism, *fengshui*, Tibetan Buddhism and Indigenous knowledge systems that support conservation there are obvious dangers in equating any of them in their entirety with explicit nature conservation. It appears that only in one subset of the oriental worldview, namely the 'sacred landscape' paradigm, there is some evidence of explicit conservation. This is more evident in Tibetan society than Han, although it may exist in a latent condition in the latter, but as it would be viewed as 'superstition' it would lack any validity on the basis a scientific socialist

802 People who wish to reclaim the lost territories of a state. The term derives from an Italian political party founded in about 1878 intending to incorporate Italian-speaking areas into the newly formed state.

<http://www.tiscali.co.uk/reference/encyclopaedia/hutchinson/m0019612.html> accessed 5th July 2005.

803 The National Party espoused and implemented a blatantly racist agenda directed towards creating a pure Han nation-state.

804 Bulag 1999

paradigm, in common with western knowledge as we discovered in chapters 2, 3 and 4 sections 2.3.1, 3.1.3 and 4.4.

There are dangers of drawing conclusions about environmental treatment from environmental perception or from word and practice. For the Chinese in particular the written tradition and everyday life are often worlds apart and their worldview allows for considerable tension between these disparate realities. The Chinese have an extensive literary tradition venerating nature, but we have few means of investigating how this was applied in practice. Chinese natural philosophy has not prevented deforestation and destruction of the environment through history. Chinese natural philosophy is a domain of thought in which the social metaphor is a constant subject (or even the object) for creation of meaning with an inherent discrepancy between word and practice⁸⁰⁵. Similarly, Tibetan discourses of peace, harmony and green ethics are not all they appear to be⁸⁰⁶.

Within both the Chinese and the Tibetan worldview there appears to be room for both sound environmental management and exploitation. The Tibetan worldview includes paradigms that lead to environmental destruction and paradigms that lead to the explicit conservation of sacred landscape. The merits of each worldview and paradigm need to be considered on its own merits, and on the basis of inter-paradigm synergy.

Although China appears to recognize, at the rhetorical level, the importance of indigenous knowledge in local development there are inherent ideological contradictions. The Chinese (Marxist-Leninist) model of development has one fundamental characteristic in common with the capitalist development project. There is fundamental agreement about the necessity and legitimacy of a major social engineering crusade⁸⁰⁷. In order to facilitate the ultimate transition to a 'new era' it is necessary to replace traditional cultural values, and practices and the knowledge systems that inform them with a singularly rational, scientific, and unquestionably superior cognitive system. It is only within the logics of these two ideologies of development that the diversity of cultural meanings of traditional society can be reduced to 'backward',

805 Bruun and Kalland 1995

806 Huber 1997

807 Howard 1994

'superstitious' or 'uncivilized' and social cohesion, solidarity, mutuality, sustainability and reciprocity to Lockean possessive individualism⁸⁰⁸ as we discussed in chapter 3 section 3.1.3.

Paradoxically, Imperial China appears throughout its history and culture to provide good examples of both environmental awareness and stewardship and catastrophic destruction⁸⁰⁹. Although the destruction appears to have got worse since 1950, as China sought to catch-up with the 'West', there is evidence of destruction throughout its history. Many of China's environmental issues such as climate change have global impact, they share commonalities with western environmental discourse and are just as subject to becoming globalized and subverted by the state. China's official environmental discourses have been elite and hegemonic, especially for China's minority peoples. There has not been room for counter or vernacular discourses but it would appear that if China were allowed to mimic Taiwan in terms of growth and material well-being the masses might be allowed to develop their environmental consciousness. Environmental discourse is increasingly being articulated publicly in a state-public debate⁸¹⁰ in the media and since the mid 1990's China's first environmental NGOs have become established⁸¹¹ and some environmental protests tolerated. China has responded in some cases to environmental protests and as China's emerging middle class are influenced by western socio-cultural-political ideas, the government might be forced into tolerating an environmental movement. Currently, however any form of environmental concern, expressed by China's minority peoples is viewed as 'reactionary' or even, post 11th September 2001, a 'terrorist' act.

Both China and Tibet have very long histories, and for much of the last 1500 years they have been enemies. Han Chinese culture, in contrast to much of Asia, has made very little impression on the Tibetan world, and to the chagrin of the Chinese, they had to pay excessive bribes to keep the warlike Tibetans at bay⁸¹². It was only with the advent of modern warfare and improved communications that the Chinese were in a position to occupy Tibet⁸¹³. In 1950

808 Euphemistically called 'commodity consciousness' in Chinese development discourse.

809 Edmonds 1994

810 Sayers 2000

811 Hao Bing 1998

812 Barfield 1989

813 Goldstein 1989

China invaded Tibet, but to this day many Tibetans, especially the Khambas continue to resist occupation, referred to in chapter 8 (section 8.1), and have developed coping strategies referred to in section 7.4.4 and 7.5.5 predicated on their identity, culture, symbols, religion, rituals and place attachment. It is estimated that at least 1.2 million Khambas lost their lives during the 'peaceful liberation' of Tibet, the 'Kanding' uprising and the guerrilla warfare that followed⁸¹⁴.

Soon after invasion, China initiated a massive programme of forest 'mining', which they continued until 1998. Forests were not managed sustainably, the amount felled exceeded yield by up to four times and for every 10 trees cut only one was planted, of which only 30% survived. As a result of 40 years of clear felling in both the Yangtze and Yellow river catchments China started to experience protracted flooding, which were an annual occurrence by the 1990's. In 1998, China experienced the worst flooding for 54 years, and had to respond. They introduced a felling ban in the headwaters of the Yangtze and Yellow Rivers, and introduced a very ambitious programme of reforestation, forest protection, nature conservation and 'ecotourism'⁸¹⁵. Although the target areas were peopled mostly by Khamba Tibetans, the authorities made no effort to discover the role and importance of trees or forests to the Tibetans or the impact of the proposed measures on them.

Although much of Kham's environment and wildlife, referred to in chapter 8 section 8.1.5, have been decimated, a few locations within the region are among the most diverse living assemblies in Asia, and recognized as bio-cultural diversity 'hotspots'. These anthropogenic landscapes and linguistic ecologies continue to provide society with at least some paradigms of sustainable earth care.

7.2 ECO-SPIRITUAL DISCOURSE

In chapter four section 4.5.2, we recognized the environmental potential of indigenous religious knowledge systems and in this section; we would like to explore this potential further with reference to some specific traditions and regions. We lack space, in this study, but in Thailand monks are tackling environmental issues using folk Buddhist rituals, Dhammic

814 Tsering Shakya 1999

815 Guang Zhao and Guofan Shao 2002

socialism and an ecological interpretation of Buddhist teachings⁸¹⁶ and in India Chipko activists⁸¹⁷ are drawing on a Bishnois Vaishnavite tradition. In China *fengshui*, Daoism and indigenous knowledge is being revived in a process of nativization, that is juxtaposed against a political landscape that encourages 'science' and 'economics' at the expense of 'superstition' and 'backward culture'.

Within China although it is possible to monitor changes in consciousness, rhetoric and the reinfusing of selected vernacular beliefs it is much harder to unearth examples of eco-spiritual activism. China's vernacular religious traditions⁸¹⁸ have been presented as exemplars of sound ecological practice. On closer examination, however they appear to have been reconstructed both in terms of the western and oriental environmental and religious discourses we discussed in chapter three section 3.3.2 and 3.3.4 and will discuss further in this section.

7.2.1 Daoism

Daoism and ecology are often invoked as natural partners in contemporary discussions of environmental issues in the west. When addressing the religious and intellectual resources provided by various 'world religions', it has therefore been a commonplace assumption that Daoism reveals an obvious and particularly compelling affinity with global ecological concerns⁸¹⁹. For most western commentators until recently, Daoism primarily referred to the 'mystic wisdom' found in several ancient 'classical' texts⁸²⁰ and was seen to be fundamentally in tune with heightened fears about the fractured relations between humanity and the natural world. We find affirmation of the ecological sensitivities of the ancient Chinese Daoists in contemporary western literature that ranges from pop-Daoism⁸²¹ through popular testimony which whimsically suggests that Pooh Bear and Piglet affirmed the profound ecological sensibility of the ancient Chinese Daoists.⁸²²

816 Bernbaum 1997a, Buddhadasa 1986, La Chapelle 1984, Darlington 1998, 2000, Hirsh 1990, Jackson 1988, Montree 1992, Taylor 1993, Stott 1978, 1991

817 Guha 2000, Routledge 1993, Wadley 1985

818 Daoism and *Fengshui*

819 Callicott 1994

820 Especially the 道德经 *dao4 de2 jing1* (*dao* is pronounced in the 4th tone, *de* in the 2nd tone and *jing* in the 1st tone) and 莊子 *zhuang1 zi3* (*zhuang* is pronounced in the 1st tone and *zi* in the 3rd tone).

821 Girardot et al 2001

822 Hoff 1982 1992

Unfortunately, there has been very little serious discussion of the interface between Daoism and ecology⁸²³. Too much is taken for granted about Daoism and the 'natural' confluence of Daoism and contemporary ecological concerns. Many western scholars in the last 25 years addressing the religious, ethical, and philosophical implications of the 'environmental crisis' have made passing allusions to Daoists ecological wisdom. This has often been associated with native American and other indigenous perspectives. There is, however no single work that is grounded in a scholarly understanding of the Daoists tradition that is devoted to a critical exploration of its potential for informing current ecological issues⁸²⁴.

Even in works generally well informed about the interface between religion and ecology there is a romantic infatuation with the classical purity and timelessness of Daoism that has shaped its application to the contemporary world. It is clear that many popular assumptions about Daoism say more about the domination of western scholarship and knowledge, referred to in Chapter 3 section 3.1.3 and chapter 4 section 4.5.4, than its contribution to ecological concerns⁸²⁵.

While many misconceptions exist concerning Daoism, similar difficulties can be found in contemporary western discussions of ecology, especially those predicated on an apocalyptic vision. The urge for a bio-spiritual reformation of life on earth to a certain extent represents a discursive artefact of an enlightenment agenda hidden within the authoritarian structures of western knowledge systems. There is, as a result, some talk of the spiritual 'gravitas'⁸²⁶ of Daoism and ecology, that surfaces in deep ecology, socio-ecology, ecofeminism and Gaia theory⁸²⁷.

Although government action to China's environmental issues might be at a low level which we will discuss in more depth in section 7.5, more encouraging is the emergence and growth of an environmental consciousness among the general public. In the past few decades, an increasing

823 personal communication Anderson 24/1/2000 weblog

824 Girardot et al 2001

825 Clarke 1997, 2000

826 Gravitas is a word that conveys a sense of substance or depth <http://en.wikipedia.org/wiki/Gravitas> accessed 5th July 2005.

827 Eckersley 1992, Naess 1975

number of journalists, writers, scholars, religious leaders, workers and farmers have started to speak out on the environmental situation. It has been in this grassroots context that modern Daoists have started in a small way to contribute to the protection and renewal of natural resources, especially to projects concerning reforestation. Thus, under the leadership of the abbot, Yang Chenquan, the Daoist priests of Mount Wudang temple⁸²⁸ have grown 1.73 million trees since 1982 and recultivated acres of grassland. Likewise, Fan Gaode, the abbot of Huanshiyan Daoist temple⁸²⁹ has made barren hills green again.

Although the environmental action of China's Daoists is noteworthy, it is only modest, and it is influenced by the western environmental movement referred to in chapter 3 section 3.3.4. If Daoism does include some special ecological wisdom, going back to the birth of China, why has there been such a woeful record of environmental concern throughout Chinese history, and why is the contemporary response so restricted and meagre. Some of the answers touch upon Chinese history and others may lie in the contradictions inherent in both the 'western' and 'eastern' worldview⁸³⁰. In terms of China's immediate problems, it must be asked how Daoism and other religions and philosophies can make a greater and more systematic contribution to the environmental situation.

There are dangers, however that in our efforts to acquire a global consciousness that we move from considering environmental issues in the particular to the universal. This could easily lead to the problems of reification or essentialism, in which a living complex of historical phenomena is abstracted into a doctrinaire set of principles that may conveniently be applied to a set of facts, an ethical problem, or practices.

The trenchant orientalist critique of 'eastern religion' has demonstrated how religious discourse rooted in western colonialism, has been complicit in imposing a central ideology and even an institutional apparatus upon eastern religious cultures. The modern construction of 'Hinduism',

828 Qinghai Province

829 Gansu Province

830 Kellert 1995, Tuan 1968, Vermander 2000

for example, has been profoundly influenced by western attempts to locate its essential doctrines in a narrow body of Sanskrit texts⁸³¹.

In China, the bureaucratic interests of the Chinese Communist Party have also served to authorize, and thereby control Daoism as a social doctrinal and institutional entity. Two branches of Daoism are now authorized as long as they fall within the bounds of the economic goals of the state authorities, and temples are recognized mostly as valuable tourist attractions⁸³².

The problem of relating 'Daoism' with global environmental phenomena⁸³³ is that it runs the risk of falling into the same paradigm of appropriation and control. The historic affinity of environmentalists for Daoist 'mystical philosophy' has all too frequently been predicated upon a version of Daoist philosophy that construes the existence of a benign natural force, 'the *Dao*⁸³⁴ that serves to harmonise and regulate the ecological order of things. Some authors have sought to find resonance between the *Dao* and the Egyptian *maat*⁸³⁵, the Indian *r.ta*⁸³⁶ and the Greek *nomos*⁸³⁷ or *dike*⁸³⁸, and have presented it as a holistic alternative to the reductionist scientism of the enlightenment worldview⁸³⁹. There are dangers that in so doing we engage in the same sort of reductionism that we find in 'scientism'. Additionally countries that have experienced western colonialism are often suspicious of being subjected to a new form of western hegemony in the form of global environmentalism⁸⁴⁰. The danger for global environmental problems is that the desire for the harmonious reintegration of human beings into the fabric of nature will lead to a reductive, even destructive, cultural colonialism. One example of this was the unintended, but no less real cultural consequences of the EU's ban on

831 King 1999

832 Silvers 2000

833 eg climate change, ethics etc

834 道 dao4 (pronounced in the 4th tone).

835 *maat* is Egyptian for 'that which is straight' and implies anything that is true, ordered, or balanced.

836 र.ता *r.ta* is Devanagari for the law, principle, or order of things. (Rig Veda 10.85.1).

837 νόμος *nomos* is Greek for law and order and rationalism.

838 *dike* (Greek for *justice*) was the goddess of moral justice. She ruled over human justice; her mother (Themis) ruled over divine justice. Dike was born a mortal and Zeus placed her on earth to keep mankind just. He quickly learned this was impossible and placed her next to him on Olympus.

839 Goldsmith 1996

840 Miller 2001

baby seal pelts. In the years following the ban, many of Canada's Inuit people were forced to collect unemployment cheques, and turned to alcohol, drugs, violence, and suicide⁸⁴¹.

The historic Daoist emphasis on the local and particular suggests that it could make a contribution to global environmental questions by always insisting on focusing on the small-scale effects of global activity. Environmental ethics and earth care must address the diversity of human cultures as much as biodiversity and predicate environmental practice on unity-in-diversity and the metaphor of the human body or a hypertext network⁸⁴².

7.2.2 Fengshui

*Fengshui*⁸⁴³ was adopted as oriental wisdom by subcultures in the west in the 1970's and credited with showing the way to a harmonious relation between humankind and the environment, while at the same time, it was banned as feudal superstition by the Chinese government. Before this happened however, it was subject to the impulsive interpretations of a few but influential western writers, who gradually infused it with new meaning, positively inspired by the cultural trends in their own society. This has not happened as a one-way process only and within the past few years' serious pollution and a rising environmental awareness in China have inspired young Chinese intellectuals to look for remedies in their own cultural tradition. Strikingly, the emergent reading of traditional Chinese cosmology includes the version of *fengshui* forged in the west. Thus fragments of western counter-culture, we referred to in Chapter 3 section 3.3.4, are contributing to a neo-traditionalist movement among young intellectuals in China⁸⁴⁴.

841 Liu Xiaogan 2001

842 Landow 1993, Miller 2001

843 The origins of *Fengshui* most likely spring from Chinese preoccupation with universal philosophical questions involving humankind's place in nature and its relation to all things in the universe. Proto-*fengshui* in the early dynastic period associated abstract ideas about order, chaos and change with solving more practical problems of hydraulic engineering, agricultural productivity and social control. Consolidation of *fengshui* (used during the sitings of temples, cities and imperial burials) was well underway by the end of the Han dynasty (AD 220) and it soon spread beyond the 'Middle Kingdom' to Korea, Vietnam and Japan. During the ensuing 'golden age' of Buddhism in East Asia, temples and pagodas were located according to *fengshui* principles. Later, during the Sung Dynasty, the Chu His school of neo-confucianism formulated its 'bureaucratization of nature', which tacitly endorsed *fengshui* logic within a new synthesis of classical Confucian ideas about society and government and Daoist and Buddhist ideas about nature and the universe. Chu His neo-confucianism subsequently became state cults in the Ming dynasty (1368-1644) and Ching dynasty (1644-1911) China and in Yi dynasty (1392-1910) Korea.

844 Bruun 2002

*Fengshui*⁸⁴⁵ is the Chinese vernacular term for a comprehensive body of theories and practices that have the superficial characteristics of a terrestrial asterism⁸⁴⁶ for divination or discovering hidden knowledge by using features of the earth⁸⁴⁷ as surrogates for celestial features, such as planets and stars⁸⁴⁸. Its purpose is to harness the natural forces around humankind in order to achieve optimum balance and harmony in the location and placement of buildings, homes, business's and graves. The ancient Chinese masters used *fengshui* to achieve harmony by observing landform, energy lines, by balancing *yin*⁸⁴⁹ and *yang*⁸⁵⁰ and the flow of beneficial *qi*⁸⁵¹, while deflecting harmful *qi*⁸⁵².

During the Qing dynasty, the majority of Western sinologists regarded *fengshui* as part of Chinese cosmology and religion without either explicitly or implicitly addressing the natural world⁸⁵³. It was not until after the Second World War that various disciplines laid the foundation for a new reading of Chinese cosmology. Needham⁸⁵⁴ concluded that *fengshui* belonged to a superstitious pseudo-science rather than early Chinese science. His views, however gained more significance than he intended, and led on to the creation of links between psyche and landscape, and a subcontextual message of an implicit reverence for the landscape attributed to *fengshui*⁸⁵⁵. From previously being seen as a collection of absurdities, it now re-emerged as a source of holistic truths with direct relevance for the individual in modern western society.

There was still no immediate link between the rising science of human ecology and oriental philosophy. In the early 1970's, however, some Berkeley anthropologists⁸⁵⁶ began to explicitly link *fengshui* to ecology, suggesting that it was based on 'sound ecological principles'⁸⁵⁷, that

845 Meaning wind and water.

846 Ancient zodiac.

847 Mountains, streams, forests.

848 Nemeth 1995

849 阴 yin1 (pronounced in pinyin using the 1st tone).

850 阳 yang2 (pronounced in pinyin using the 2nd tone).

851 气 qi4 (pronounced in pinyin using the 4th tone).

852 Hastings 1908

853 Eitel 1873, de Groot 1897

854 Needham 1962

855 Freedman 1969, Jung 1969, March 1968.

856 Possibly inspired by Glacken and Eberhard.

857 There was a subcontextual message that modern civilization had failed.

allowed the Chinese to preserve their environment in spite of their large population⁸⁵⁸.

Paradoxically, at this time the Chinese environment was degrading faster than ever due to human intervention⁸⁵⁹. Through the 1970's and 1980's⁸⁶⁰ more western writers praised Chinese 'natural philosophy'. The new 'vision' of *fengshui* appealed to large subcultures as, well as to the rising ecological science through the 1970's and 1980's. The environmental reading of *fengshui* took further shape with a number of works all affirming the myth of eastern harmony with nature in contrast to western dominance⁸⁶¹, referred to in chapter 3 section 3.1.3, and claiming *fengshui* to be 'an environmental science', 'supportive of ecology and conservation' and 'a means of harmonizing with nature'⁸⁶².

The resurgence of interest in *fengshui* in contemporary China is occurring at two levels. Firstly at the level of intellectual production, where old systems of thought are being revitalized and infused with new meaning, in some cases pushed by the Chinese State, and in other cases driven by young intellectuals inspired by/in competition with, the west. Secondly, at the level of rural society, *fengshui*-related beliefs and practices have had a tremendous revival since the launching of economic reforms around 1980. This level, however, is not linked to a growing concern for the environment⁸⁶³.

In recent years, a profound nativization of culture has begun to take place in China, along with national assuredness stemming from economic success. There has been a growing intellectual interest in indigenous cosmology, and medicine, since the 1990's. Authors have applied 'scientific' terminology to *fengshui* as a proto-science for the selection and handling of the environment. Intellectuals have, in the guise of modern science, suggested explicit links between *fengshui* and modern geography, human ecology, psychology and other sciences.

858 Anderson 1973, 1998

859 A significant part of all Chinese forest reserves were depleted during the few years of the 'Great Leap Forward', wild life was extinguished as a result of felling and hunting in a period of unprecedented famine, and in the search for easy political targets campaigns were directed against rats and sparrows.

860 When heavy pollution was conspicuous in China.

861 Kellert 1995, White 1967

862 Rossbach 1983, Skinner 1982

863 Bruun 1996

What is of particular significance is that young Chinese writers find considerable inspiration in western works on *fengshui*. Specifically it is the reading of *fengshui* that originated in the west in the 1960's and 1970's that appeals to Chinese scholars and resonates with the current intellectual climate in China. The few pages, of Needham's monumental work⁸⁶⁴, dealing with *fengshui* are quoted in countless Chinese publications as a reference to hard science in order to justify a renewed interest in a field conventionally classified as superstitious⁸⁶⁵.

Thus, in China as in the west fengshui has been infused with a range of new concepts relating to environmental ethics, nature, the environment, systems, harmonious relationships, and environmental management. Of the new vocabulary adopted in the west, particularly those concepts that resonate with Daoist or neo-Confucian cosmology have appealed to their Chinese counterparts. When western ecologists use concepts like 'living with nature' or architects speak of 'designing with nature', Chinese scholars will immediately draw parallels with Chinese cosmology⁸⁶⁶.

During the 1980's and 1990's the prevalent international discourse on sustainable development⁸⁶⁷ has inspired the adoption of ecological concepts as well as the redefinition of indigenous cultural values among countless nations across the world. New images of indigenous ecological-mindedness are constructed, drawing their explanatory power and credibility from the international vocabulary and political attention to the subject. Cooperation between Chinese and western scholars, along similar lines has frequently resulted in 'tunnel vision' where historical facts and fieldwork have been filtered out in order to reach popular conclusions⁸⁶⁸. Similarly, when Western philosophers view Asian traditions as a conceptual resource for environmental philosophy⁸⁶⁹ some Chinese scholars seize the opportunity to elevate the position of Chinese philosophy.

864 Needham 1962

865 Bruun 2002, Rack 2000

866 McHarg 1969

867 As well as the Western ecologists' search for indigenous knowledge in non-western cultures.

868 Ruddle and Zhong 1988, Wen and Pimental 1996

869 Callicott and Ames 1989

The renewed Chinese intellectual attention to *fengshui* has emerged simultaneously with the adoption of an ecological vocabulary. Although the renewed interest in indigenous cosmology in general, and the reinterpretation of its fundamental tenets in particular, reflect processes that have hardly started, there is some resonance with other significant currents of intellectual and political change in China. It was, in fact the Chinese party state that gave their blessing to Confucianism, in the late 1980's, as a means of fighting moral disintegration, due to the failure of Marxist and Maoist morality.

In anthropology, there has been an increasing awareness of the interaction between romantic descriptions of local people and the formation of their identity. Prominent examples include the depiction of common narratives shared between ethnographers and the American Indians, the Maoris, and the Tibetans⁸⁷⁰. There is an unwitting conspiracy that shapes both the description and the self-image of the groups in question. Another prominent example is that of indigenous peoples, in general terms, being described as 'custodians of nature', which has slowly worked its way into both local identities and the rhetoric of international organizations⁸⁷¹. This may however unwittingly result in strengthening the cultural identity of local and indigenous peoples⁸⁷².

Similar processes are evidently at work in the current resurgence of traditional cosmology in China, although the actors are more numerous and the story has more facets. In particular the interaction between practice and representation has been complicated by the fact that *fengshui* is no longer just practiced in China and interpreted in the west. As a spin-off from the intellectual debate among avant-garde theorists, subgroups have started applying the system to a modern Western setting. What is perhaps most striking is the fact that western intellectuals have had such a profound impact on other people's cosmologies, be it small indigenous peoples or large civilizations like the Chinese.

We discovered in this section that both Daoism and *fengshui* have been fashioned discursively and although both have resources that support nature conservation neither are exemplars of

870 Bruner 1986, Hanson 1989, Huber 1995

871 Bruun 2002

872 Pedersen 1995

explicit nature conservation which leads us to question if similar discursive treatment has taken place with the oriental concepts and perception of nature.

7.3 DISCOURSES OF NATURE

7.3.1 Asian Concepts of Nature

Asian concepts⁸⁷³ of nature are no less complex than their western counterparts, as we discovered in chapter 3 section 3.3.3, Chinese perception of what belongs to 'nature', however is not totally different from ours. When used in a pure, material sense⁸⁷⁴ it is understood in terms comparable with those of the west. Local and material concepts of nature⁸⁷⁵ appear to share at least one meaning with western use of the concept. The closer, however we get to the zone where nature and culture blend, the sharper the differences are in a cross-cultural perspective⁸⁷⁶.

7.3.2 Nature in Chinese Literature, Art and Reality

In China, the written tradition and everyday life are often worlds apart. The Chinese worldview allows for considerable tension between these disparate realities. The Chinese have an extensive literary tradition venerating nature, but we have few means of investigating how this was applied in practice. Chinese natural philosophy has not prevented deforestation and destruction of the environment through history⁸⁷⁷. Chinese natural philosophy is a domain of thought in which the social metaphor is a constant subject (or even the object) for creation of meaning with an inherent discrepancy between word and practice. It is moralizing agency stressing ideal culture rather than observed reality. Tension is obvious when, for example Confucianism stresses that "wealth and honour are from heaven"⁸⁷⁸ while ancestor belief; *fengshui* and folk belief provide the means of influencing heaven. The Chinese are known for anthropocentrism in their philosophy and sociocentrism in terms of pragmatic orientation. As

873 Han Chinese and Tibetan.

874 Like virgin landscape, wild animals, and hidden marine environments.

875 eg 自然 *zi4 ran2* and means 'that which comes of itself', stressing spontaneity in the natural surroundings (*zi* is pronounced in the 4th tone and *ran* in the 2nd tone).

876 Bruun and Kalland 1995

877 Bruun and Kalland 1995

878 富貴在天 Confucius 1998 book 12 Yen Yuan chap 5.3

such the greater part of the 'world that matters' is made up of humans and human society, which still holds true today.

China has a long tradition of writing symbols into nature, for instance in landscape painting⁸⁷⁹. A rich archive of symbols was depicted in art by means of interpreting natural forms, forces⁸⁸⁰ and constellations. A great number of word compounds⁸⁸¹, which all build on extensions of the yin-yang pair,⁸⁸² constitute a huge and rather poorly investigated semantic field⁸⁸³ yet natural symbolism has no immediate impact on the concrete activities of resource management and environmental practices in general. The force of material gain has been persistent, pervasive and pernicious in its effect on the Chinese environment for many centuries. Chinese peasants have long sought to improve their livelihoods by clearing wetlands, felling forests for fuel and arable fields, and destroying grasslands for wheat and millet. The noble cultural ideals of Daoism and *fengshui* had little restraining effect, especially since the population explosion of the eighteenth century⁸⁸⁴. A very similar view was held by some of China's most respected ecologists, who noted the historic exploitation of natural resources which had taken a heavy toll on China's environment, had largely gone unheeded until very recently⁸⁸⁵. Similar paradoxes occur between our understanding of the "ecological oriental"⁸⁸⁶ and Chinese behaviour.

7.3.3 The Ecological Oriental and their Care of Nature

As we have discovered above in popular literature on ecology, allusions to oriental philosophies of Daoism and *fengshui*⁸⁸⁷ as a remedy for environmental ills are widespread. While natural scientists have repeatedly pointed to parallels between the new physics and biology, which we discussed in chapter 2 section 2.3.1, and eastern philosophies, others with

879 Kinsley 1995

880 eg 气 qì is Chinese for cosmic meridians (pronounced in pinyin using the 4th tone).

881 eg 山 - 水 shān - shuǐ is Chinese for mountain-water (*shan* is pronounced using the 1st tone and *shui* the 3rd tone).

882 Mai-Mai Sze 1967

883 Bruun 2002

884 Perdue 1987

885 Li Wenhua and Zhao Xianying 1989

886 Bruun et al 1995 page 16

887 and Buddhism and Hinduism.

only a rudimentary understanding of oriental cultures, to the more sophisticated proponents of 'deep ecology' have incorporated eastern paradigms more or less uncritically into their worldviews. An underlying assumption in much of this work is that eastern cosmologies have made eastern peoples more successful than others in taking care of nature⁸⁸⁸. Many anthropologists, geographers, sociologists and others, however, doing fieldwork in the 'East' have noticed that eastern philosophies and cosmologies seem to have had little effect in preventing over-exploitation of soils, over-grazing, erosion, deforestation, water pollution and other environmental disasters, by which a number of Asian societies are acutely threatened. Nor can it be claimed that environmental degradation is a new phenomenon in the 'East'⁸⁸⁹. In general, terms, eastern perceptions of nature have not operated in prevention of massive pollution, destruction of natural resources and environmental disasters. The economies of the 'East' have with their formidable growth rates have simultaneously produced toxic wastes causing political problems at home and abroad. Both India and China have experienced massive erosion and flooding due to state exploitation of the forest. China's booming economy has driven the natural environment to the edge of disaster, the extent of which can only be concealed by a heavy state monopoly on information. Such reality does not resonate with notions of the "ecological oriental"⁸⁹⁰. This seeming paradox has been explained in various ways. Some want us to believe that environmental disasters are new to Asia and their environmental treatment can be attributed to; "the dominant western paradigm", or the "intellectual colonization of the East by the West", or expanding populations⁸⁹¹. This explanation, while appealing in many ways, strikes one as incomplete and simplistic. There is evidence of environmental disaster in China, long before the influence of any western paradigm⁸⁹². Realizing that environmental degradation is not a new phenomenon Hargrove⁸⁹³ suggests degradation might be "the result of empirical ignorance" and Kellert⁸⁹⁴ that contemporary views of nature have changed very little from traditional views and continue to "be highly abstract and idealized, typically involve little empirical understanding of ecological considerations of the natural world, rarely provide explicit support for nature conservation,

888 Bruun and Kalland 1995

889 Kellert 1995, Simmons 1989, Totman 1989

890 Bruun et al 1995 page 16

891 Callicott and Ames 1989 page 280, Watanbe 1975

892 Edmonds 1994, Smil 1984

893 Hargrove 1989 page xix

894 Kellert 1995 page 116

and often encourage passivity or fatalism towards a natural world depicted as all-powerful and beyond human capacity to conserve".

Tuan (1968) articulates the paradox between environmental ideal and reality by drawing on the concept of *ying/yang*. He identifies two opposite and some would argue contradictory environmental traditions, a terrestrial and celestial paradigm.

The terrestrial naturalistic paradigm (*ying*) finds expression in animistic belief, nature philosophy, poetry, the refined sentiments of Daoism and Confucianism, and enlightened conservation memorials⁸⁹⁵.

The cosmic celestial paradigm (*yang*) is predicated on geometric order, geomancy, *fengshui*, and agricultural almanacs, which are imposed on formal gardens, architecture, and social forms, because the earth lacks paradigms of perfect order.

While the former (terrestrial naturalistic paradigm (*ying*)) resulted in an adaptive attitude to nature the latter (cosmic celestial paradigm (*yang*)) inspired attitudes of order and hierarchy and underpinned a discourse that legitimized authoritarian instrumental control over earth and humankind and the political control of language and meaning (Vermander 2000).

7.3.4 The Re-ordering and Taming of Nature in Tibet

In common with both Chinese and Japanese Buddhism, referred to in Chapter 4 section 4.2, the Tibetan Buddhist perception of nature appears to be predicated not on nature in its raw form, but on the cultural transformation of nature, where natural elements are refined and abstracted so that they can serve as symbols of harmony, order, or balance. Fundamental to our understanding of sacred landscape in Tibet and in Kham, see chapter 8 section 8.2.4 and chapter 10 section 10.1.1, is the distinction between several overlapping landscape categories namely *neri*⁸⁹⁶ mountains and *yul lha* locales (which often include mountains) and the ritual placement of structures across the surface of the landscape.

⁸⁹⁵ This paradigm has some resonance with Shiva's "nature as feminine principle" (1989 page 38-42).

⁸⁹⁶ རྟེན་ལྗོངས་ *ne-ri*

neri mountains are those sites where the primary figure in the complex hierarchy of resident deities is a Buddhist one and that historically have been part of the Buddhization process. They are concerned with the transcendent, drawing on textual tradition and worshipped by circumbulation.

*yul lha*⁸⁹⁷ are associated with specific communities (Tibetan, Khamba and Qiangic) and locales and are part of an historic nonliterate tradition concerned with the immediate world, involving various rituals, that often take place on specific mountains. Although attempts have been made to tame these gods and to despise this tradition⁸⁹⁸ it is being revitalized today. Other widespread or popular Tibetan schemes for reordering and appropriating space or defining categories of place often utilized the strategic placement of a range of structures across the surface of the landscape. Examples of this ritual placement abound in Tibet and range from a network of ogress 'taming' temples⁸⁹⁹ the occurrence of shrines⁹⁰⁰ and the placement of coloured string and flags around sacred forest or mountains.

Historically many *neri* mountains were associated with *yul lha* rituals and their 'conversion'⁹⁰¹ can be viewed as one type of place creation during the last millennium of Tibetan history⁹⁰². It is one in which Tantric Buddhism⁹⁰³ was particularly instrumental by way of the agency of the lama, who provided sophisticated visionary representations of the world. The *neri* tradition redefined nature, the wild or uncultivated environment, in a compelling new manner without recourse to physically altering or constructing any actual edifice on the land. At the 'power places' actual ritual structures were preceded by the Tantric lama's visionary

897 ཡུལ་ལྗ་ a *yul-lha* is a place god or territorial numina i.e a spirit or deity that presides over a place (Oxford compact dictionary http://www.askoxford.com/concise_oed/numen?view=uk accessed 30th October 2005.

898 By Buddhism and Communism.

899 Gyurme Dorje 1996

900 མཆོད་རྟེན། *mchod rten* is Tibetan for chorten <http://www.silkroads.com/ritualobjects/chorten.html> accessed 29th October 2005.

901 Part of the 'power place' tradition.

902 Dowman 1991

903 Tantric Buddhism is often viewed as the third major school of Buddhism, alongside the Theravada and Mahayana schools http://en.wikipedia.org/wiki/Tantric_Buddhism accessed 5th July 2005.

Chapter 7 China and Tibet
representation and imaging of landscapes as a '*mandala*'⁹⁰⁴ which was later surpassed by large scale ritual movements⁹⁰⁵ of people across or around⁹⁰⁶ the power places⁹⁰⁷. One could argue that Tibet's *neri* mountains could never have been defined by the building of ritual architecture, because unlike China they were far more remote and not under imperial patronage, but other sociocultural factors appear to be involved.

One can distinguish two broadly different traditions of sacred geography in many societies, two ways to attach meaning to the natural environment. A vernacular tradition where people assume, rather than impose chthonic⁹⁰⁸ or telluric⁹⁰⁹ sacredness within the features of the natural landscape, such as mountains and lakes. The other is that of the imposition of meaning on the environment, the embodiment of historical discourse, mainly through building activity within the context of the centralized order of the state and organized salvation religions. These two different approaches to sacred place and space are often closely combined in pilgrimage cults that have been historically constituted through the introduction of universal religions into local contexts, as found, for example in the cults and shrines of Andean pilgrimage⁹¹⁰.

Tibetan societies also have aspects of both approaches sometimes referred to as shamanic versus clerical or ontic versus epistemic modes⁹¹¹. In terms of such a discussion, the *neri* as a category of sacred place or ritual space combines aspects of these two approaches or modes, while *yul-lha* is part of a shamanic tradition. Within the *neri* tradition although there are no significant buildings, there is a meaningful, albeit visionary architecture of landscape, generated and imposed on the natural environment of the earlier sacred mountain sites. Ritual and other forms of representation ensure this subtle and naturally embodied architecture is regularly redefined at *neri* sites. Alongside such clearly Indic or Chinese-derived notions of the sacred mountain as elaborate, sublime palace or mansion, many of the ideal conceptions of

904 མཎདལ། *mandala* comes from Sanskrit (मण्डल) for circle and is a microcosmic diagram, used as a power circle and object of contemplation in the rituals of Tantric Buddhism. Macdonald 1997. <http://hjem.get2net.dk/civet-cat/theravada-writings/wings-of-awakening/glossary.html> acces. 3rd July 2004

905 i.e. pilgrimage

906 རྟོག་ལྷོ་ཁ། *nekor* is Tibetan for circumambulation around sacred places.

907 Huber 1999 a + b

908 An adjective meaning "of the earth" and often referring to the gods of the underworld.

909 Of or relating to or inhabiting the land as opposed to the sea or air.

910 Sallnow 1987, personal communication Racoviteanu 2004 weblog

911 Epstein 1990, Epstein and Peng 1994, Samuel 1993a + b

space and place⁹¹² found in both textual sources and folk religion are still very evident in the *neri* cult, although often redefined and developed in a number of ways⁹¹³.

A new order of representation and utilization of space comes into being during the establishment of a *neri*. The view as suggested by some that this process marks a passage from 'nature to culture' a 'taming of nature' or a process of 'cultivation' or 'civilization' requires qualification⁹¹⁴. It may appear in some elite texts to be represented in these terms, but their main purpose appears to be the advancement of the moral and ritual supremacy of organized religion. 'Nature', however was never empty of meaning for Tibetan peoples, and any notions of a 'civilization' process are totalizing attempts to deny former social constructions of the environment that existed before Buddhist and Bonpo orthodoxy began their massive programs of culturally editing the Tibetan world⁹¹⁵. As traditionally represented by the elite, the *neri* do resemble perfect Buddhist or Bonpo *mandala* worlds, yet the frequent hostility of their actual environments gives rise to a graphic contradiction.

In the face of this contradiction, the brute forces of nature continue to be explained and related to by most pilgrims in terms of the personalities of the ambivalent local spirits inhabiting the world, just as they were before any Indic paradise came down to earth in Tibet. Just where 'civilization' and 'taming' of the environment fits in here, outside of certain idealized narrative schemes, is not readily apparent from the Tibetan point of view of actual experience. Moreover, the boundary between the wild and the civilized is not permanently established in Tibetan thought and cultural models, being merely provisional at a mythic level and thus requiring constant reconstitution and maintenance in the everyday order of ritual life⁹¹⁶.

yul-lha and other folk divinities are part of Tibet's and Khams animistic and shamanistic tradition and are discussed more in see chapter 8 section 8.2.4 and chapter 10 section 10.1,1. This is especially the case among Tibet's lay peoples who, continue to display leanings towards folk religion. The *yul-lha* and other 'gods of the past', theoretically 'tamed' by Buddhism are

912 e.g. Paired, gendered mountains and lakes, the linking of height with status, purity and divinity, vertical tripartite divisions etc.

913 Stein 1990

914 Aris 1990, Buffertille 1994, Ramble 1997

915 Huber 1999a + b

916 Macdonald 1997, Samuel 1993a page 196 and 217-222

closer to them in both geography, identity and in sensed presence⁹¹⁷. In the world of the lay Tibetan, many landscape features point back to the worship of ancient gods. They are not only conscious of the constant scrutiny of *yul-lha* when they go hunting⁹¹⁸, but engage in folk-religious rituals and place demands on their gods for protection, and success, in hunting, trading, travel, farming etc.

The Buddhist creed, developed in a grain-harvesting, fruit-gathering culture by those who wore cotton, has little place for the killing of animals for clothing or food. The farmer and nomad, however needs meat, yak hair and sheepskins to survive. The literature is unclear if this calculated taking of life represents a contradiction and any "flow of psychic participation" as a result of guilt eludes definition⁹¹⁹.

Neither Eastern nor Western societies are intrinsically inferior or superior in their perspectives of nature. Both conceptually and empirically, both cultural viewpoints reflect functional and dysfunctional attitudes toward the natural world. From a positive perspective, both cultural traditions have embedded within their conceptions of nature the seeds of a powerful ethic of appreciation, respect, and concern for the conservation of nature. From the East, we derive an enhanced compassion and appreciation for life, a profound intuition of nature's oneness, and the willingness to exist in harmony and balance with the natural world. From the West, we understand nature empirically; we have a tradition of environmental stewardship, and the belief in wisely managing and controlling the natural world. The urgency of achieving a more culturally positive relation to the natural world has become especially evident in recent years.

Several authors tend to agree on the need to tread cautiously when inducing care of nature from philosophical traditions. It is rather simplistic to assume that values and norms work directly on individuals. They should be regarded as rhetorical devices, which are utilized in order to achieve a specific goal or legitimize an action. We cannot, therefore take treatment of nature as evidence of specific values. Some have even argued that the notion of a connection between

917 personal communication Blondeau 2003 weblog (in French).

918 Nomads go hunting more frequently than other Tibetans.

919 Crook and Osmaston 1994, Ekvall 1968 page 82

people's perceptions of nature and the ways they manage the natural environment is a western one⁹²⁰, not necessarily shared by people in Asia⁹²¹. Although conflicts do occur between ideology and practice in Asian cultures seemingly they can be explained on the basis of contextualism⁹²². Contextualism implies not only that there are no clear-cut distinctions between nature and non-nature or between human and other life forms but also that people's approach to nature tends to be particularistic or pragmatic, rather than governed by absolute principles.

Infusing nature with spirits or using nature as a repertoire for metaphors is no assurance for the well-being of the environment, although the power of animistic spirit beliefs is commonly thought favourable to conservation.⁹²³ In the face of the western enterprise, the need for such beliefs may appear to diminish along with the forest although there is evidence that the erosion is reversible and that communities are reviving conservation practices⁹²⁴. Additionally by offering to the world traditional religious values, indigenous peoples gain cultural significance and express a truth of urgent relevance for the future of the Earth⁹²⁵. This is especially important in China based on their discourses of race and ethnic minorities.

7.4 RACIAL AND ETHNIC MINORITY DISCOURSE

Chinese culture remains deeply racist although for the most part, the Chinese are in denial of their own racism. This was exemplified most recently during Condoleezza Rice's visit to Beijing⁹²⁶ where 10% of website articles about her visit were racist, typically describing her as "black bitch", "black devil" and a "very low form of life"⁹²⁷. Han Chinese people commonly believe they are superior to those of darker skin and to 'Chinese' ethnic minorities, who are in need of 'civilizing'. The attitude towards whites is much more complex. They tend to acknowledge the historical achievements of the west, but at the same time resent western

920 Based on a western dichotomy between theory and practice.

921 Bruun and Kelland 1995

922 Berque 1986

923 Banuri and Marglin 1993, Colfer et al 1977, Davison and Sutlive 1991, Elwin 2002, Gadgil 1985, Guha 1993, 2000, Kemp 1993, Seeland 1986, Stevens 1993

924 Kothari nd

925 Pedersen 1995

926 March 2005

927 <http://www.guardian.co.uk/china/story/0,7369,1461260,00.html> accessed 31st October 2005

hegemony and despise aspects of western culture, many believing that at some point in the future the innate virtue of Chinese civilisation will again assert itself. The Chinese thus tend to display a combination of respect and envy, superiority and inferiority, towards western culture⁹²⁸. Given their racist attitudes, however, it is not possible to consider indigenous people or their knowledge in isolation from official discourses of 'ethnic nationality', 'development'⁹²⁹, 'superstition' and the discursive strategies of minority nationalities.

7.4.1 Chinese 'Ethnic' Nationalities

In much of the world, ethnicity is not viewed as being the same as race or nationality and is usually characterized by-

- An ethnonym⁹³⁰
- A belief in common descent⁹³¹ and historical destiny
- A set of physical and/or cultural features⁹³² by which group members differentiate themselves from the other groups of such kind
- Shared historical memories
- A sense of collective solidarity
- An association with a territory or homeland⁹³³.

The Chinese however draw no distinction between 'people'⁹³⁴ 'nation'⁹³⁵ 'nationality'⁹³⁶ and '*ethnos*'⁹³⁷. There is no word in Chinese for ethnic group and the nearest term *shaoshu minzu*⁹³⁸ is best translated as 'minority nationality', which is a political construct and has little ethnolinguistic foundation⁹³⁹. Based on ancient Chinese philosophy it was impossible to conceive of a common 'socialized space' for all humankind and for non-Han Chinese⁹⁴⁰ to

928 <http://www.guardian.co.uk/china/story/0,7369,1461260,00.html> accessed 31st October 2005

929 i.e Social engineering.

930 A collective selfname of the group.

931 Either real or putative.

932 So called ethnic markers such as language and worldviews.

933 Smith 1986

934 民族 min2 zu2 (in pinyin the 2nd tone is used for both words).

935 民族 min2 zu2 (in pinyin the 2nd tone is used for both words).

936 民族 min2 zu2 (in pinyin the 2nd tone is used for both words).

937 民族 min2 zu2 (in pinyin the 2nd tone is used for both words).

938 少数民族 shao3 shu4 min2 zu2 (in pinyin the 3rd tone is used for *shao*, the 4th tone for *shu* and the 2nd tone for *min* and *zu*).

939 Heberer 1989

940 i.e.Barbarians.

belong to the human race⁹⁴¹. The basis for difference between the Han Chinese and the barbarian rested on their relationship to Han civilization and a lifestyle based on sedentarization and agriculture. Because the nature of the barbarian was to wander like animals for their subsistence their animal nature was reflected by the Han in the names given them. It was an ontological necessity for the Han to depict each barbarian group under an ideogram marking their animal nature⁹⁴². This denial of humanity evolved over centuries but it underlays Confucian ideology and the relations the Han formed with their neighbours. The Han not only established a protective belt around the socialized space by subjugating or buying off barbarian tribes but also attempted to impose Han values through non-violent assimilation.

There are also dangers in China of addressing ethnicity from a cultural perspective. Culture used in the context of ecological anthropology stresses different ways people interact with each other and create different livelihood strategies⁹⁴³. The culture associated with these ways of life encompasses language, knowledge, means of livelihood, political organization, social arrangements, religious institutions, psychological ideas, cosmologies, and value systems. From this perspective, each way of life is a unique and complex human creation and none is superior to any other. This contrasts with the classical definition of culture⁹⁴⁴ originating in Chinese Confucianism, which refers to literary transformation connotating a higher form of civilization. In the past, this distinguished the culture of the Han majority from those on the peripheries who historically did not possess a writing system. From this perspective, ethnic groups were viewed as more backward in their development compared to the Han and only by adopting Han written language and customs could they attain 'culture'⁹⁴⁵. Additionally this view reduced the complex customs and traditions of ethnic groups to crude stereotypes categories or living museums requiring protection⁹⁴⁶. Epistemologically⁹⁴⁷ the 'knowledge system' of China's national society is much closer to 'modern' knowledge systems while China's ethnic minorities draw on indigenous knowledge systems. It is important to understand

941 Thierry 1989

942 i.e. Reptile, worm, dog, pig, or grass.

943 e.g. Farmers, nomads, fishermen, city dwellers.

944 文化 *wen2 hua4* is Chinese for culture (in pinyin the 2nd tone is used for *wen* and the 4th tone is used for *hua*).

945 Xu and Salas 2003

946 Guldin 1994

947 The branch of philosophy that deals with the nature of knowledge and truth, encompassing the study of the origin, nature, and limits of human knowledge.

that local 'epistemologies of nature'⁹⁴⁸ and the resulting stewardship of natural resources are a contested domain viz a viz the nation state.

7.4.2 Minority Policies

Ethnicity and IK issues are further complicated in China by the Han Chinese view of minority peoples and IK which are reflected in development, natural resources, and minority policies. Although Han China now recognizes that, its ethnic minorities are members of the human race it continues to privilege Han culture and civilization over minority cultures. Since the establishment of new China, almost all its development policies have been predicated on 'uplifting' and 'civilizing' minority peoples. Sun Yat-sen and Chiang Kai-shek called for assimilation and by 1957, all of China's ethno-linguistic groups had been subsumed under 55 artificially created 'nationality' categories and in many cases groups who shared common cultural traits were divided and other groups who had unique cultural practices were merged.

This led to an ethnic identity crisis with many groups petitioning for reclassification. Between the 1950s and 1970s, China introduced a number of development policies that claimed to make provision for indigenous knowledge⁹⁴⁹. With hindsight however, these claims appear less convincing. The system in which development took place was hierarchical and all economic activity took place in collectives or work units. These comprised the lowest of a hierarchy of levels through which directives of the communist party were passed, to be interpreted by local cadres. Although some attention was initially given to the knowledge of the peasants, in practice 'elite knowledge'⁹⁵⁰ became increasingly privileged with cadres becoming the agents of change. In some cases, this resulted in cadres imposing policies, which the cultivators regarded as total inappropriate, such as 'The Great Leap Forward'⁹⁵¹. The Chinese model of development⁹⁵² had one fundamental characteristic in common with the capitalist development project. They were both based on assumptions about an irrefutable need to replace traditional cultural values and practices and the knowledge systems that inform them with a singularly rational, scientific, and unquestionably superior cognitive system.

948 Macdonald 2003

949 Croll 1993a

950 Or "outside knowledge" See Croll 1993a page 164.

951 Chandler 1991

952 Marxist-Leninist.

Despite the antagonism between these two approaches to development, they are in fundamental agreement about the necessity and legitimacy of a major social engineering crusade to transform traditional cultures to facilitate the ultimate transition to a new era. It is only within the 'logics' of these two ideologies of development that the diversity of cultural meanings of traditional society can be reduced to 'backward'⁹⁵³ and social cohesion, solidarity, mutuality, sustainability and reciprocity to the Lockean possessive individualism⁹⁵⁴ we discovered in chapter 3 section 3.1.3 . It is important to understand the links between development⁹⁵⁵, science, technology and disenfranchisement⁹⁵⁶. The social engineering crusade that underpins the technocratizing of development, in common with 'scientific management'⁹⁵⁷ has involved a massive deligitimizing of alternative knowledge systems rooted in the traditions of local communities and a disenfranchising of these communities.

These alternative knowledge systems include; subsistence production systems, ecosystem knowledge and related logics of subsistence, healing, socialization, education, adjudication, self-government, communal decision-making, and a myriad of languages and written and oral traditions. Many of these knowledge systems are not even recognized as knowledge but viewed as 'superstition' (see below). This is especially true when embedded in ritual and myth, as is the case with many traditional agricultural, forestry, birthing and healing practices.

Due to the failures of assimilation new nationality policies of 'ethnic pluralism'⁹⁵⁸ and 'autonomy'⁹⁵⁹ were introduced and when a conference in Shanghai [1984] announced that there was 'no contradiction between religion and socialism' many ethnic traditions clan systems and customs were re-vitalised and celebrated⁹⁶⁰ leading to a profound nativization of culture. Although the state tolerates cultural revitalization as long as it helps tourism and fits in with its vision of 'sanitised' multiculturalism it continued to curb large-scale endeavours⁹⁶¹

953 Esteva 1985, Lummis 1991

954 Euphemistically called 'commodity consciousness' in Chinese development discourse (Lenin 1899).

955 Capitalist and socialist.

956 Banuri 1990

957 Merkle 1980, Taylor 1911

958 In 1982

959 In 1984

960 Harrell 2001

961 e. g. The Falung Gong and the Serthar Monastery.

and to reduce popular culture to 'superstitious', 'local'⁹⁶² and 'of the ordinary people'. Such practices are rarely shown on television or in school textbooks and when they are, they are represented as "thin description"⁹⁶³ or as a means of "commoditizing ethnicity" for tourism⁹⁶⁴.

Because of a new regional development policy in 1992 minority regions were linked with the coastal areas in a relationship best described as internal colonialism. This reversed earlier trends that substantiated economic and political claims that the minority regions were autonomous in their own right. The party-state began a process of systematically removing the foundations of minority autonomy by assertions of native or indigenous status for Han everywhere including minority autonomous regions⁹⁶⁵. Although China's Agenda 21 stressed the importance of the participation of ethnic and religious minorities in sustainable development, respect for unique ethnic cultures, and the incorporation of minority value systems, traditional knowledge, and resource management, this was short lived. This policy was superseded in 2000 by the Great Western Development Strategy⁹⁶⁶ which fails to address ways to support indigenous participation and it ignores indigenous knowledge, in situ conservation, and co-management. This initiative is rooted in a conventional economic development paradigm whereby ethnic minorities although geographically centred remain socially culturally and politically peripheral⁹⁶⁷. As a substitute for minority political and economic autonomy, "multiculturalism"⁹⁶⁸ has recently been promoted celebrating the colourful and diverse cultures of the 'Chinese nation'. Minority cultures and arts, symbols precisely of their inferiority, in an era of modernization have been invested with intrinsic value in this form of multiculturalism. Minorities and their cultures no longer exist in their own right but as part of the Chinese nation in prominent positions in theme parks for national and international consumption⁹⁶⁹.

962 本地 *ben3 di4* is Chinese for local (in pinyin the 3rd tone is used for *ben* and the 4th tone for *di*).

963 Anagnost 1994a pages 221-254

964 Swain 1990 page 26

965 He 1996

966 The Great Western Development Strategy (1999) which was modelled on outmoded 19th century models of the exploitation of the American West and 20th century models of the Development in Siberia (TIN 2000) is based on the unstated assumption that the west of the country is inhabited by indigenous minorities who lack the skills and capacity to 'catch up' with the development pace of the nation as a whole.

967 Xu and Salas 2004

968 多元文化 *duo1 yuan2 wen2 hua4* is Chinese for multiculturalism (in pinyin *duo* is 1st tone, *yuan* and *wen* is 2nd tone and *hua* is 4th tone).

969 Bulag 1999 page 192

7.4.3 Superstition

The term 'superstition'⁹⁷⁰ as a pejorative description of certain beliefs and ritual practices came to China, via Japan, in the late nineteenth century. This and the subsequent campaigns against superstition has had the effect of separating these practices off as discontinuous with the other forms of belief, which were classified as 'religion'⁹⁷¹ which does not have the same pejorative implications. Throughout the twentieth century, the literate elites in China have contrasted 'superstition' with their own vision of a modern and progressive China. The introduction of a policy on superstition took place with the establishment of China as a nation-state and was part of the new Republics modernizing ethos⁹⁷² and the communist party has continued a similar policy and campaigns against superstition have continued to be evident. The harshest campaigns took place during the Cultural Revolution, when all forms of religion were defined as superstitious and many temples and churches were converted or destroyed. Since 1980, it has again become permissible to take part in religion, which is taken to refer to the widespread, text-based traditions⁹⁷³. Nevertheless, official policy still makes a strong contrast between "institutionalized religions" which are normally recognized officially as systematized and well organised than the more negative category of superstition⁹⁷⁴. The latter consists of a cluster of activities including many animistic and shamanistic practices and the building of village temples. Steps against these activities are usually only taken when they are associated with economic crimes. In addition to the criticism that they are generally 'backward'⁹⁷⁵ superstitious practices are also criticized for threatening public order. It is this last aspect, which appears to be of most concern in the most recent banning⁹⁷⁶ of Falun Gong⁹⁷⁷.

970 迷信 *mi2 xin4* is Chinese for superstition (in pinyin *mi* is 2nd tone and *xin* is 4th tone).

971 宗教 *zong2 jiao4* is Chinese for institutional religion (in pinyin *zong* is 2nd tone and *jiao* is 4th tone).

972 Duara 1990

973 i.e. Christianity, Buddhism, Daoism and Islam.

974 Feuchtwang and Wang 1991 page 261

975 落後 *luo4 hou4* is Chinese for 'backward' (luo and hou are pronounced in the 4th tone).

976 BBC News 22/7/1999

977 **Falun Gong** (法輪功 literally Practice of the Wheel of Law) is a controversial Chinese spiritual movement which was introduced in 1992 by Li Hongzhi. Central to Falun Gong are five sets of exercises (four standing, and one sitting) that involve meditation and are said to help in the purification of the mind and the body. Many teachings are similar to those in Buddhism and Taoism though it adds a conservative morality and several New Age and apocalyptic beliefs. Also known as Falun Dafa, the practice has grown swiftly in popularity around the world. http://en.wikipedia.org/wiki/Falun_Gong accessed 31st October 2005.

These campaigns are believed to be a way of promoting an image of an increasingly modern and progressive China⁹⁷⁸ as well as containing religious and ritual activities. Superstitious practices are emptied of any value⁹⁷⁹ except for the purpose of negating them, and presented as the antithesis of the modern and progressive. While belief in institutional religion is permitted among the general public it is strongly discouraged among party cadres and students. Religious expressions, such as funerals organized by Daoists, are not permitted in educational work-units. Employees of state run work-units are encouraged to regard religious sites as places for leisure activities. Many religious establishments are encouraged to become tourist attractions. Criticism of these practices, however, as backward and of the past has not resulted in this form of local knowledge being recast as ignorance⁹⁸⁰ in the eyes of those who draw on it. Presenting such activities as aspects of a backward past, as campaigns against superstition do, fails to take into account their relevance to the present. Furthermore, to divide practices into modern or progressive and superstitious or backward, as official discourse does, underestimates the extent to which the two interpenetrate. Rather than being authorities in the past deities can be seen as highly knowledgeable about aspects of modernity. Such activities can be seen as "localized modernities" or experiences, which inter-relate aspects of both modernity and tradition⁹⁸¹. This is not a new phenomenon, during the Song dynasty⁹⁸² deities were appealed to for control over the elements, and currently they are appealed to for success in terms of the market economy⁹⁸³.

Parallel processes are taking place in China's treatment of indigenous knowledge, especially if the knowledge holders are minority peoples. China's modernization agenda, featuring the centralizing and assimilating power of education and propaganda systems, draws on three stereotypes⁹⁸⁴

- Indigenous people are passive like women, seen from the perspective of the male dominant Han society

978 Guided by the communist party (Anagnost 1994b).

979 This process is not new, and in late Imperial China elite culture permeated popular culture through writing and the policy on superstition reinforces the connection between the heterodox and the local.

980 Hobart 1993

981 Arce and Long 2000

982 AD 960-1279

983 Hansen 1990

984 Salas et al 2000

- Indigenous people are like children who need to be educated in the higher values and 'culture' of the Han Chinese
- Indigenous people are frozen in the early stages of the unilinear evolution of society, unchanged, far from the cultural standards and the 'civilized' Han

There are dangers of essentializing ethnicity as the exclusive definition of identity, and isolating it from the complex and fluid socio-economic and political contexts of ethnic relations, including inter-ethnic divisions and the diverse aspirations of minority peoples⁹⁸⁵. Established ethnic groups in China are engaged in an ongoing process of social and political negotiation mediated on the basis of relations of power and hierarchy. Ethnic resistance in this view is thus a product of the state's own making, yet one that it cannot completely control. Even the most totalitarian of regimes has its limits and the role of the state cannot be over-privileged. Ethnicity has a power and resilience of its own that acts in dialectic fashion with the state apparatus⁹⁸⁶. The feeling of superiority of the Han Chinese has led to continuous intercultural conflicts. Civil servants consider indigenous people and their customs as inferior and barbaric, village life to be dirty and backward, and that local language and knowledge has no value. It is not uncommon, for the author to hear Han cadres⁹⁸⁷ talking about the 'ecological ignorance' of indigenous people, without noticing the biodiverse landscapes that they have productively sustained and enhanced for generations. This mentality characterizes the state policy towards indigenous people. The ethnocentrism of Han culture⁹⁸⁸ has influenced ethnic minority policy. Especially during the Cultural Revolution the belief systems were repressed, temples damaged, traditional forms of worship banned, and hunters were forced to grow rice. The right to maintain their own cultural identity and lifestyle in the last 20 years has become a paradox for indigenous people. Minorities are legally recognized, local leaders must belong to a minority group, and provision is made for the establishment of local institutions but at the expense of cultural erosion. Although the state is interested in the folkloric diversity of indigenous people for the purpose of attracting tourists they make no attempt to understand

985 Bulag 1999

986 Gladney 1994

987 Cadres are workers picked out by the communist party for their political convictions and set to work in the communist bureaucracy. Their consequent position of dependence on the party makes them supporters of the status quo and the party leadership, not reformers. www.rev.hu/history_of_56/szerviz/kislex/glossary.htm accessed 10th May 2003.

988 Confucian values of power, gender relations and materialist ideology.

indigenous cultural values or knowledge. Official discourse completely ignores the wealth of indigenous knowledge and land use systems that exist

7.4.4 Tibetan Responses to Chinese Minority Discourses

Where natural resources are expropriated or indigenous peoples are negatively evaluated this often results in a psychological imbalance, which forces them to employ a range of coping strategies. Researchers⁹⁸⁹ have identified the following coping strategies, namely; social acceptance⁹⁹⁰, social mobility⁹⁹¹, social creativity⁹⁹², and social change⁹⁹³. Where national societies are particularly dominant, social creativity offers the optimum means for achieving a psychological balance. Typically, this may include a bolstering of group language, culture, religion, self-identity place attachment and nationalism. When secular customs break down, when traditional ways of life disappear, when old solidarities crumble, when natural resources are appropriated there is frequently an identity crisis⁹⁹⁴

The early Tibetans during the Imperial Period⁹⁹⁵ had a strong sense of their national and cultural identity. They were proud of Tibet's geographical location, its beauty, purity, wildness, and because it was an abode of the gods⁹⁹⁶. Additionally they were proud of its central juxtaposition in relationship to India, Iran, Turkistan, and Han China. In terms of cultural identity the animistic and shamanistic folk customs associated with territorial (local or regional) numina (*yul lha*⁹⁹⁷) were an essential element in Tibetan life and part of the collective identities that were expressed in cultural, economic and political behaviour⁹⁹⁸. Today the importance of this complex of folk beliefs is still symbolised in the banned national flag (snow mountains and snow lions). It is no wonder that these national symbols are

989 Tajfel 1978

990 Accepting the negative values as true.

991 i.e. Leaving the group.

992 Reinterpreting the negative stigma as a positive evaluation.

993 Engaging in collective action meant to change the group's status.

994 Levi-Strauss 1974

995 ca 7th to 9th centuries AD

996 Karmay 1996

997 ཡུལ་ལྗ་ a *yul-lha* is a place god or territorial numina i.e a spirit or deity that presides over a place (Oxford compact dictionary http://www.askoxford.com/concise_oed/numen?view=uk) accessed 30th October 2005.

998 Blondeau et al 1996

considered dangerous⁹⁹⁹, because they date back to the pre-dynasty period¹⁰⁰⁰. With the advent of Buddhism and particularly from the 11th century onward, the national and cultural identity of the Tibetan people suffered greatly. This impacted their national identity, epic literature and folk beliefs. This is not really surprising when we consider the manner in which Buddhism took hold in the minds of the people at large, especially within the monasteries. Nationalism requires will, self-assertion, self-identification, and self-determination, and these notions have no place and receive no respect in Buddhism. Neither is Buddhism a socially or politically organised religious system. There were periods of time when monastic Tibetans became so immersed in the tranquillity of Buddhist compassion they forgot who they were and where they were. Epic literature was forbidden in monasteries and despised by the Buddhist clergy. Buddhism, being a-theist, considers 'gods' a vain projection of our ego and it not only 'tamed' (*dul*¹⁰⁰¹) indigenous gods but integrated and reformed beliefs in everyday gods (*mi chos*¹⁰⁰²) and territorial and mountain numina (*yul lha*¹⁰⁰³). In more remote areas, however, they have survived to this day, and exhibit pronounced continuity in ritual performance as well as their influence on social, economic and political activities

During the last forty years, however attempts have been made by Tibetans to revitalize and renegotiate Tibetan identity in some of the following ways and means:

- Tibetan intellectuals have been attempting to recover the history of the Tibetan people and are using a discourse of cultural critique, in common with other 'Chinese' minority groups, to re-frame their identity in a changing world¹⁰⁰⁴
- Tibetan Buddhism, which once worked to counter any sense of nationality, now works the other way. With the Dalai Lama as its spokesperson and with his policy of non-violence, Tibetan Buddhism has come to symbolise Tibet's national identity.

999 Recently Wu Bangguo, chairman of China's National People's Congress entered the New Zealand parliament by a side door rather than face a lone protester with a borrowed Tibetan flag (VOA News 2005).

1000 Karmay 1989, 1994

1001 དུལ་ *dul* is Tibetan for tamed.

1002 མི་ཆོས་ *mi chos* is a Tibetan literary term for folk religion.

1003 ཡུལ་ལྗེ་ *a yul-lha* is a place god or territorial numina i.e. a spirit or deity that presides over a place (Oxford compact dictionary http://www.askoxford.com/concise_oed/numen?view=uk) accessed 12th May 2003

1004 Harrell 1995, Litzinger 1995, Upton 1996

Moreover, it is proving an effective ideological counterbalance in the face of the advance of the Chinese brand of socialism/communism in Tibet.

- Epic literature has become the most popular reading in many parts of Tibet in recent years. The hero of the best-known epic, King Gesar, is the personification of the ideal Tibetan man, who can perform superhuman feats in battle, and go into retreat and practice meditation during peace. It is evident that the stories of his conquest of different countries and his other heroic exploits have contributed to the awakening of the national consciousness, as have depictions of the characteristic boldness of the Khamba warriors and their patriotism, referred to in chapter 8 section 8.1. It is, however, particularly the literary and poetic language in which the epic is written, as well as the ideas it expresses, that illustrate Tibet's cultural identity¹⁰⁰⁵
- Perhaps the most interesting visionary movement in the post 1978 religious renaissance in Tibet has been the revitalization of 'hidden' sacred scriptures (*ter*¹⁰⁰⁶) from the distant imperial past¹⁰⁰⁷.
- The worship of *mi chos*¹⁰⁰⁸ especially territorial divinities (*yul lha*¹⁰⁰⁹) associated with animism and shamanism, although suppressed by Buddhism and Communism, have always been important elements under girding Tibetan local identity, although there is

1005 Samuel 2002

1006 རྟོན་ *ter* is Tibetan for sacred scriptures or hidden text.

1007 One of the most prominent proponents has been Khenpo Jigme Phuntsog, whose past-life memories also play a critical role in his relationship to Tibetan literature, and the King Gesar epic in particular (Germano 1998). Khenpo founded the Sertar Institute which was at the heart of the resurgent Nyingma tradition (one of the five schools of Tibetan Buddhism) in Eastern Kham. He not only 'reinterpreted' 11th century scriptures in terms of the present day, but constellated Tibet's fragmented culture, reinvested in it the Tibetan physical and imagined landscape, and directly relinked the contemporary situation with Tibet's past. In providing a platform for a reconstituted Tibetan identity within the realities of life in the contemporary People's Republic of China, he reinvigorated Tibetan pride, self-confidence, and sense of purpose. He did so in a uniquely Tibetan, and in particular Nyingma fashion. The potency of *ter* as a Tibetan response to modernity is particularly clear in Khenpo's impact on the Chinese. Not only did hundreds of Chinese monks and nuns reside at the Institute, and lay Buddhists make long pilgrimages there, he was mobbed by Chinese Buddhists in Kanding and Chengdu. This phenomena reverses the standard Han dismissal of 'dirty, barbaric Tibetans' and raises the possibility of an acknowledged cultural superiority at least in some respects. Whatever the States rationale (personal communication Germano 2003 weblog), in June 2001 hundreds of Tibetan monks and nuns and Chinese Buddhist scholars were forced to leave the Sertar Institute, following the arrival of armed police, provincial officials and the United Front work unit from Beijing. The population was reduced from nearly 8,000 to 1,400, most of the residential quarters were demolished and Khenpo was placed under house arrest.

1008 བོ་ཚུ་ *mi-chos* is Tibetan for the gods of everyday life.

1009 ཡུལ་ལྷ་ *a yul-lha* is a place god or territorial numina i.e. a spirit or deity that presides over a place (Oxford compact dictionary http://www.askoxford.com/concise_oed/numen?view=uk), accessed 9th October 2005

disagreement about national identity¹⁰¹⁰. The animistic and shamanistic rites which survive in Tibet to this day originated in the hunter and nomad cultures of the steppes of Central Asia. Within this paradigm, space is made for a soul-concept (*lha*¹⁰¹¹) that is alien to Buddhism. In fact Buddhism attempts to deny or destroy the 'soul'. Animistic spirits, anthropologically referred to as *numina* are for many lay Tibetans, true divinities, not mere reflections of the transcendental absolute into which Buddhism has recast them.

- The restoration of territorial cults are important for local identity, political leadership and nature conservation¹⁰¹²
- The Buddhist doctrine of 'karmic retribution' explains any present misfortune as the fruits of past misdeeds, but this cannot satisfactorily explain the collective misfortune experienced by the Tibetan peoples, which is viewed as an 'evil era' and part of a

1010 Huber 1999, Karmay 1994

1011 ལྷ། *lha* is Tibetan for soul or god.

1012 Territorial divinities (*yul-lha*) inhabit features of the landscape and are 'controlled' by a 'shaman/medium' (*lha-pa*), who may, during invocation rites/ possession produce oral utterances. The *lha-pa* ('shaman') has not only an important role in maintaining harmony between humanity, the spirit world and nature but in order to ensure success in hunting and to ask forgiveness for any environmental degradation occurs (Gross 1997, Samuel 1993a + b, Ura Karma 2001). The *yul lha* are protective deities associated with specific clans, who came under their protection, and who bestow honour (*dbu 'phang*) and blessing on the land, people, and political leadership (Diemberger 2002, Ma Lihua 1993). If the harmony between a people and their *yul-lha* is broken, he will allow malevolent numina to harm humankind with illness, floods, or crop failure (Reynolds 1989). The rites associated with *yul lha* do not involve either Buddhist or Bonpo clergy, and represents a supremely important element underlying Tibetan identity. Usually the communal worship of a *yul-lha* is depicted in the style of a traditional warrior and is worshipped as an ancestor or an ancestral divinity for protection. *Yul lha* rituals take place daily at home and during communal mountain rituals (*lha bsang*) which usually takes place annually and are in sharp contrast to the Buddhist or Bonpo veneration of specific holy (*ne-ri* or *gnas-ri*) mountains (e.g. Tsari, Kongpo Bonri or Tsari). The latter is part of a process of "Buddhacization" which is concerned with the transcendent, and a textual tradition, and is characterized by small monasteries and hermitages and pilgrims performing devotional exercise (McKay 2000 p 14). *Yul-lha* rituals, which are part of a nonliterate tradition do not attract Buddhist devotees but laypeople (farmer, nomad, trader, hunter) and are concerned with the immediate world through the use of rituals and often with the assistance of a *lha pa* (Shaman/Medium). Although *yu-lha* mountain rituals (*lha bsang*) were banned in 1960s they were re-instated in 1980s. Typically *lha bsang* rituals include fumigation offerings, the scattering of wind horses, the planting of prayer flags or arrows and prayer to the *yul-lha*. Through prayer the whole territory is evoked by the geographically ordered naming of all the specific land deities. The aim of the ritual is in fact to restore relationship (linked to ritual commensality) between the community and the *yul lha* and consists of both offering and requests. The worshippers call on the *yul lha* for personal protection, the realization of ambitions and fortune, and the subduing of enemies. They regard the *yul lha* as a provider of blessing, glory, honour, fame, prosperity, power, and progeny for the people and their political and religious leadership. Participation in such a ritual therefore implies total integration into the community, which in turn implies inherited social and political obligations, moral and individual responsibility, and an affirmation of communal solidarity in the face of external aggression. This phenomenon appears to resonate with a similar *adivasi* cult associated with sacred groves (*sarna*) in India (Parajuli 2001, personal communication Ramble 2003 weblog). *Yul-lha* worship in Tibetan culture therefore plays a very significant role in the building up of identity through each individual's identification of themselves as active members of the community.

historic process. For the Tibetans the counter image of an evil era is the return of a 'good era'. This possibility finds expression in a number of utopian beliefs namely; the return of King Gesar, the reign of Shambala, the coming age of the Buddha Maitreya, and the return of the Dalai Lama to Tibet¹⁰¹³.

- Millennial¹⁰¹⁴ movements have occurred mostly in isolated nomadic areas (Amdo and Nagchu), and may increase with the increased marginalization of the rural Tibetan population resulting from urban economic development and the influx of Chinese¹⁰¹⁵.

Individual acts of resistance and self-sacrifice are sustained by the certainty that the political destiny of Tibet is part of a larger story in which suffering will finally be vindicated and good will finally triumph. These acts often find expression in 'rituals of protest'.

Rituals of protest

Not only have Tibetans revitalized their culture as a means of enhancing their identity, they have drawn on it as a source of symbols for ritualized protest. Tibetan nationalist opposition, to natural resource appropriation and oppression has taken many forms since the Chinese occupation of Tibet began in 1950. However, in 1987 a new period of non-violent protest spread from Lhasa, coinciding with the visit by the Dalai Lama to the USA that was predicated on religion and culture, and provided a new means of articulating national identity. This was unintentionally aided by a Chinese minority policy that has permitted greater expressions of Tibetan religion and culture in an effort to make them serve the interests of the Chinese state. Protest became ritualized, assuming the same symbolic form every time it occurred and through it, Tibetans were able to:

1013 Bistrich 2003, David-Neel 1983, Mumford 1989, Samuel 1993a, Sponberg et al 1988, Schwartz 1994a + b
 1014 a social movement with a doctrine of a new world (a millennium) to be attained at least in part by spiritual means (Keesing 1975 page 514).

1015 One such movement the 'Heroes of Ling', whose leader claimed to be a reincarnation of King Gesar of Ling, and a medium for a deity named *gyatsa* (ཁྱེ་མཆོག), was crushed by the Chinese authorities. The movement had identified the Chinese with demonic forces and called on the deities to overcome the power of evil. The real political threat, for the Chinese lay in the movement's potential for mass mobilization. Movements like the 'Heroes of Ling' aim to restore a social world that has been violently disrupted. The participants are able to recover a sense of both individual and collective integrity by aligning the Tibetan experience of Chinese rule with the conflict between spiritual powers of good and evil.

- Overcome their objective powerlessness and experience both solidarity, equality and 'communitas'¹⁰¹⁶ as they mutually acknowledge their common nationhood
- Resolve problems in the form of a drama of symbols, conflicts and contradictions in social life where there was no apparent solution. It offered an anticipatory resolution of conflict, an imaginative prefiguring of the future that drew on the symbolic potential of the present and past.

Ritualized protest, by Tibet's Buddhist elite is not currently "millennial"¹⁰¹⁷ in character¹⁰¹⁸ although it is linked with some animistic and shamanistic practices among the nomads. It is a substitute for licensed political discourse and communication. It must be remembered that the Chinese system is totalitarian and the state monopolizes every legal avenue of public expression, suppressing all dissent, while it manufactures through its own organs the official version of Tibetan reality and history. Tibetan ritual protest is an attempt to symbolically even the scales, and can be viewed as communication deferred in an attempt to engage a hypothetically fair arbitrator¹⁰¹⁹ in the hope that truth will prevail. Tibetan nationalism, expressed in ritual political protest, is a modern phenomenon among Tibetans, and a response to their recent experience with the Chinese socialist state. Ritual protest, however did not arise from a feeling of minority status, and is overtly political, targeting the Chinese state and the apparatus of social control that maintains state power. Nationalism in the context of Tibet must be qualified¹⁰²⁰ because the political dimension takes precedence, while ethnic opposition is a by-product of political domination.

The Chinese response to Tibetan nationalism has been constant repetition of the same propaganda themes, namely that:-

- Tibet has 'always' been part of China
- The idea of Tibetan independence is an imperialist plot orchestrated by the 'Dalai clique' and 'reactionary enemies of China'
- Tibetans have welcomed the Chinese as 'liberators'

1016 Turner 1977

1017 a social movement with a doctrine of a new world (a millennium) to be attained at least in part by spiritual means (Keesing 1975 page 514).

1018 Burridge 1969

1019 Such as the UN

1020 Gellner 1983

An enormous propaganda effort is expended attempting to legitimize the Chinese claim to 'ownership' of Tibet. At the same time, the official political culture and political symbolism are exclusively Chinese. Tibetans find themselves included within Chinese national culture, as one of many ethnic groups, and thus obliged to regard the ceremonies of state patriotism as their own. China, like other nation-states invents traditions in the form of symbols and ceremonials that binds its citizens to the emergent state and generating more loyalty and commitment¹⁰²¹.

Under these conditions the cultural and religious forms that define, 'Tibetanness' have assumed their current political significance. Tibetans, however have responded with growing confidence to Chinese attempts to obliterate their past, but it is the Chinese who have turned historical memory into a battlefield, not Tibetans. The rituals of nationalist protest built continuities between the recollected Tibetan past, contemporary political experience, and universalistic values. Thus enabling the Tibetans to leap frog over the ideologies of Chinese domination and build a bridge to the modern world.

The main symbols or symbolic sites of protest have included

- **Festivals:** although the struggle between China and Tibet is over sovereignty and national identity, the battleground on which that the battle is fought is religion. More specifically, it is the festivals and anniversaries of the Tibetan religious calendar that provide the context and landmarks for the central dispute between Tibetans and Chinese. Furthermore, the key issue in the religious battle is whether the festival will signify the sustaining of a Chinese or Tibetan state¹⁰²².

1021 Hobsbawn and Ranger 1983

1022 The second week in March has special significance, because of the number of anniversaries, and when most of Tibet's political battles are fought. Time and time again the Chinese appear to have been unaware of the power of symbolism in their attempt to nourish the union of religion and politics through visible 'staged' displays of religious tolerance. The Chinese operation in Tibet is riddled with anomalies and irony. The PLA soldiers, for example are obliged to patrol around the Jokhang temple in an anti-clockwise direction. They have little choice because if they walked around in a clockwise direction, it would symbolise devotion and respect to the Buddhas within. By cancelling the Monlam festival in 1989 and 1990 China renounced the symbolic centre of their claim to tolerate religious practice in Tibet. In the event the Tibetans managed to stage three days of demonstrations in 1990, and the symbolism in cancelling it was overshadowed by the stronger images of protest and martial law. With the onset of martial law it became impossible to stage political demonstrations in the obvious way. Tibetan religious traditions which had always tended to express nationalist feelings as well as spiritual ones, became more laden with political symbolism.

- **The Jokhang temple:** in the centre of Lhasa has become the symbolic focus of political protest precisely because it exemplifies continuities, linking Tibetan identity to its remembered past¹⁰²³.
- **The legends of Songtsen Gampo and the ancient kings:** Likewise, reinforce a collective political identity and sustain a sense of political agency in the face of Chinese political domination.
- **The Dalai Lama:** as a symbol and rallying-point of Tibetan protest exemplifies these continuities best of all, since he epitomizes both the Tibetan religious and political past and a bridge to the modern world. The sense of constituting a political community is condensed into the figure of the Dalai Lama, who represents not only the pre 1959 government in Lhasa, which continues in exile in India, but a remembered political history stretching back to the time of the ancient kings
- **Monks and nuns:** have played a leading role as organizers and initiators of demonstrations, drawing on Buddhist religious ideas and practices to oppose the power of the Chinese state. The rebuilding of Buddhist institutions has, more than anything else, been an opportunity to reassert an independent Tibetan identity and restore the integrity of Tibetan social institutions. The situation in Tibet under Chinese rule can be compared with political developments in the Theravadian Buddhist countries of Thailand, Burma and Sri Lanka¹⁰²⁴.

Rituals of defiance

- Circumambulation¹⁰²⁵ or *khorra*¹⁰²⁶ has a central place in Tibetan Buddhism for accumulating merit. It was forbidden during the Cultural Revolution and only allowed again in the 1980s. It was tolerated because it appeared to be private and personal and did not challenge the authority of the Chinese state. When groups of monks began to use *khorra*, around Jokhang temple, as a means of political protest this illustrated the

1023 Schwartz 1994a + b

1024 Kapferer 1988

1025 Circumambulation is the movement around a holy object, or of a holy object. The completion of a circle of protection, or of community, creates an integrity that is otherwise difficult to obtain in this world.

<http://www.themystica.com/mystica/articles/c/circumambulation.html> accessed 5th July 2005.

1026 ཀོར་ར་ *kor-ra* is Tibetan for circumambulation.

limits of Chinese 'religious freedom'. In effect, the monks forced the Chinese to strike out at religion by striking out at nationalism. At the same time, the monks were showing ordinary Tibetans how to transform their personal practice of religion, which Chinese policy allows, into a practice which, through recovering symbols of nationhood, becomes an act of rebellion¹⁰²⁷.

- In October 1989 the authorities in Lhasa, found themselves obliged to ban *tsampa*¹⁰²⁸ throwing and incense burning, after Chinese troops and police had spent ten hours watching Tibetans walking round the Jokhang temple throwing *tsampa* over each other and burning juniper. They were celebrating openly, but without words, the award of the Nobel peace prize to the Dalai Lama¹⁰²⁹.
- Omens and animistic and shamanistic beliefs are important because they provide a platform for; non-violent protest, enhancing clan identity and explicit nature conservation. They have largely remained in the background, in terms of protest, a supernatural gloss to political developments¹⁰³⁰.
- Popular religion has increased following the lifting of prohibitions on expressions of traditional culture¹⁰³¹ and the introduction of martial law. They are part of a spontaneous and diffuse process of 'cultural revitalization' and have been expressed in terms of increased occurrences of shamanistic spirit-possession and the manifestations of deities. Such accounts are sanctioned by traditional religious beliefs and have

1027 Schwartz 1994a

1028 ཙམཔ། *tsampa* is Tibetan for (popped) barley flour.

1029 This new anniversary must have been something of a humiliation for the authorities that their knowledge of Tibetan religious ritual was so superficial that they were unaware of the special relation of *lha-rgyal* (*tsampa* throwing) to the person of the Dalai Lama. As a result both *tsampa* throwing and juniper burning became illegal. This state of affairs had more serious connotations than at first appeared. Incense offering is central to religious practice in Tibet and not a trivial ornament to ritual. The practice of *lha-rgyal* is less central, and probably has animistic/shamanistic roots but is still religious practice. *Lha-rgyal* means offering to the gods and is designed to ensure the future welfare of the person being celebrated, in this case the Dalai Lama. The Tibetans concentrated on the ban on *lha-rgyal* rather than incense. This may have been because *tsampa* is the Tibetan national foodstuff, and so has a symbolic importance because it is something the Chinese never eat. It may have even more significance, as a key symbol of Tibetan identity, because *tsampa*-eaters is the term used to distinguish Tibetans who adhere to Tibetan traditions from those who have become sinicised. In banning the practice of *lha-rgyal* the Chinese may have been enhancing the identity of the Tibetan opposition rather than subduing it (Barnett 1994, Ramble 1993, Tsering Shakya 1993).

1030 One example of an omen included the rainbow and earth tremors that coincided with the demonstration on 27th Sept 1987. They were interpreted as signs of impending political upheaval. Under other conditions these elements may come into the foreground producing a religious revival along millennial lines, where the political content is expressed through religious themes, and religious longing becomes a substitute for effective political power.

1031 July 1992

credibility as indicators that the deities and protectors of Tibet have not abandoned them. Shamanism has a long-standing basis within Tibetan religious practice, persisting as part of popular religion. It is not protected under the Chinese policy of freedom of religious belief, and is considered a form of 'feudal superstition', which is prohibited. As a spontaneously recovered folk practice, it lies outside the scope of state control. Although the shaman (*lha-pa*¹⁰³²) usually only addresses personal affairs (illness misfortune etc) the potential for mass mobilization remains a threat. Speaking through the shaman the spirit-guide (*pa-wo*¹⁰³³) is able to interpret the plight of Tibetans in terms of religious themes and promise divine interventions to overcome evil and drive away enemies¹⁰³⁴.

The Chinese authorities appear to have become involved in a struggle over symbols in which they were constantly caught on the defensive. Although party strategy has always laid a premium on the exhaustive re-writing of history, Chinese officials seem unable to contain the historical resonances which the Tibetan nationalists evoked by their use of anniversaries and ritualized protest. The Chinese position on religious tolerance was progressively invalidated as they found it harder to separate the attack on nationalism from that on the politico-religious symbols used by the pro-independence movement. The Chinese state was being forced to make incursions into the thin but crucial fabric of religious tolerance in Tibet. What had been, until the late 1980s an ideological management issue about security and the control of political dissidence became a challenge to China's self-proclaimed ability to accommodate a measure of religious and national or ethnic identity. The Tibetans had led the Chinese state into an arena rich in symbolism where, systematically, the ideology of Chinese liberalisation was stripped of value and exposed as rhetoric¹⁰³⁵.

The Tibetans have not only had to 'make space' within Han minority discourse, by using ritualized protest as a substitute, but within environmental discourse as they have witnessed the appropriation and degradation of their natural resources since 1950.

1032 ལྷ་པ། *lha-pa* is Tibetan for shaman.

1033 པ་འོ ལྷ་པོ། *pa-wo* is Tibetan for spirit guide.

1034 Samuel 1993a

1035 Barnett 1994

7.5 CHINESE ENVIRONMENTAL DISCOURSE

Although environmental discourses in China, may have developed as 'regional discursive formations'¹⁰³⁶ they cannot be considered as static or in isolation. Issues such as climate change have global impact and share commonalities with environmental discourse¹⁰³⁷ and 'green governmentality'¹⁰³⁸ that were discussed in chapter 3 section 3.3. and 3.3.2.

Environmental discourse is slowly making its way into the public debate in China, although it cannot be fully considered without reference to a number of sub-discourses¹⁰³⁹ and a comparison of Mainland Chinese, Taiwan and Tibetan trajectories. Taiwan has been included because it provides a trajectory that mainland China might adopt if the political landscape changed.

Both China and Taiwan have experienced, within the last 3 decades rapid economic growth, but at the expense of the environment and people's health¹⁰⁴⁰. The massive damage to China's natural environment, the air, water, forests and lands has been caused by pesticide mismanagement and of over-rapid and under-regulated processes of industrialization and urbanization. This has threatened the health and livelihood of millions¹⁰⁴¹. Although people have lived with severe pollution environmental consciousness has only slowly emerged, because authoritarian rule has prohibited them, until recently from engaging in environmental discourse, movements or popular protest.

By contrast, in 1986, an opposition party was formed in Taiwan and KMT lifted the 38-year-old martial law, and allowed strikes, protests, the formation of political parties, and freedom of speech and publication. These political changes, coupled with previous success of anti-pollution protests, had a dramatic effect on Taiwan's political scene. Between 1980 and 1987, there were 110 environmental protests but between 1988 and 1991, there were 352¹⁰⁴².

1036 Lowe 1991

1037 See para 3.32

1038 Luke 1999a, Taylor and Buttel 1992 and pages 32, 35, 115, 347

1039 Namely: - religious environmentalism, nature discourse and indigenous knowledge.

1040 Chi 1994, He 1991, Smil 1984

1041 Shue 2001

1042 Chi et al 1996, Hsiao 1994

In China environmental consciousness emerged in 1978 and since the paroxysm of state violence on June 4th 1989, there have been many popular protests but few major social movements or protests with the possible exception of the resurgence of popular religion¹⁰⁴³.

Any form of protest, by China's minority people is not encouraged, and it has been even more difficult for them to identify a metaphor¹⁰⁴⁴ or a strategic discourse to oppose Han development or to develop their own autonomy¹⁰⁴⁵.

7.5.1 Environmental Consciousness

Environmental consciousness emerged in Taiwan and China because of both socio-psychological and structural factors. In Taiwan, after 30 years of rapid economic growth, the material well-being of most Taiwanese has improved significantly. The increase in economic satisfaction has bred non-economic interests, especially those related to the quality of life. This is especially true of the emerging middle class who have been influenced by western socio-cultural-political ideas and values. They have played an important role in Taiwan's transformation and constitute the main supporters of Taiwan's environmental movement¹⁰⁴⁶.

The current awareness in China of environmental degradation¹⁰⁴⁷ contrasts, at the rhetorical level, with fairly recent attitudes of complacency and self-praise, wherein no one could tell the truth without being seen to criticize socialism¹⁰⁴⁸. Only since 1978 have senior researchers and writers finally been able to speak out in several different forms: - scientific journals, conferences, symposia, and daily newspapers. The government response appears to have been multifaceted and, since 1978, China has ordered both industry and construction to control pollution or face shutdown, began to pass laws on environmental pollution, joined all the relevant branches of the UN¹⁰⁴⁹, and has made encouraging progress in nature conservation. All these efforts however have been made against a background of attempting to quadruple economic output and a fear of citizen movements. From an individual standpoint, although

1043 Feuchtwang 1999

1044 personal communication Sayers 2002 weblog

1045 Feit 2001

1046 Chang 1993, Hsiao 1996

1047 Kirby 2002

1048 Gao and Jin 1980

1049 United Nations

many have become more 'environmentally aware', with the exception of some people in Beijing and Shanghai¹⁰⁵⁰ most of China's emerging middle class appear not to be overly concerned about the environment as long as they can secure higher city earnings. The 1989 environmental protection law¹⁰⁵¹ has proved to be weak and difficult to implement, nature conservation has lacked sustained enforcement and has been used for "ecocolonialism"¹⁰⁵² as nature reserves have been forcefully established in indigenous minority areas, ignoring their rights, values and knowledge¹⁰⁵³. Even China's extensive recycling programme, much admired by naïve westerners¹⁰⁵⁴ is not all it seems. It originates from necessity owing to shortage rather than environmental consciousness¹⁰⁵⁵.

7.5.2 Environmental Movements

Prior to the mid 1990's there were no significant non-government environmental movements (NGEM) in China. With an emphasis on centralization, local government's role as a catalyst for environmental legislation is not likely to happen as it did in Japan¹⁰⁵⁶. If Taiwan is to be taken as a model it is possible that eventually massive pressure could be put on central government forcing change¹⁰⁵⁷.

The stereotype that the Chinese are docile and uninterested in grass roots political movements concerned with the environment has been proved untrue with the development of environmental pressure groups in Taiwan, Hong Kong and Macau. These groups have been successful at changing the plans of government and private enterprises¹⁰⁵⁸ but it is fair to say that the only substantial open environmental movements in Chinese societies are in Taiwan,

1050 Young 1996

1051 Edmonds 1994

1052 ecocolonialism is the imposition of exogenous conservation paradigms and power structures on indigenous peoples and is incompatible with indigenous concepts of conservation and human dignity (Cox and Elmqvist 1997 and

http://www.amazon.com/gp/phrase/ref=sip_top_3/104-5629773-1073558?%5Fencoding=UTF8&src=0313307253&checkSum=wj%2BXS5BpvVRX6rvl%2Fi%2Fby4GkZP3nlBsJNQU3yf0jN7W%2FG%2B1fbvfV2A%3D%3D&phrase=ecological%20colonialism) accessed 28th Oct 2005.

1053 AhoraNow 2000, Bonner 1994

1054 Kapp 1975

1055 Kinzelbach 1981

1056 Imamura 1989, Ueta 1989

1057 Hsiao 1986 1989

1058 Edmonds 1994

Hong Kong and Macau. The dictatorial political system and the local level of economic development have hindered the development of NGEMs.

Because of Deng's policy of opening and reform (from 1979), increases in income, and the establishment of a complaint office, this did allow for some complaints and protests. In 1979, there were a reported 339 confrontations, in Shanghai, between factories and the general public, and there has been a consistent environmental protest since Deng's reform began¹⁰⁵⁹.

Most of the protests have been staged by peasants angered by factory pollution ruining their crops¹⁰⁶⁰. Throughout the 1980's groups became more openly critical of government attitudes towards pollution, but after the carnage of 'Tiananmen'¹⁰⁶¹ government fear of organized citizen-based national level environmental movements increased, especially of university based activist groups¹⁰⁶². In the mid 1990's a tiny but important non-government green sector¹⁰⁶³ was allowed to emerge but government "firmly retains the 'green' initiative where it is vulnerable to technocratic centralism"¹⁰⁶⁴ which we alluded to in Chapter 3 section 3.1.3 and 3.1.4. After Tiananmen, environmental non-government organisations (NGO's) had to pick and choose causes and use subterfuge. 'Friends of Nature' did not address the Three Gorges Dam Project¹⁰⁶⁵, but was able to mobilise support to protect the snub-nosed monkey in Yunnan, and support the logging ban¹⁰⁶⁶. 'The Green Student Forum', a nationwide network of more than 60 groups, rather than protesting about pollution focused on the protection of endangered species. In recent years, however they have been able to address a broader range of environmental issues, although they still mostly address nature conservation. Recently they were able to send one of their members to the USA to meet with American environmental groups to learn how to organise, motivate, educate and protest¹⁰⁶⁷.

1059 Ross 1988

1060 Ross 1988

1061 4th June 1989

1062 Edmonds 1994, Wen Bo 2000

1063 The NGO's involved included Beijing Environment and Development Institute, Friends of Nature, Institute of Environment and Development and Yunnan Man and Nature Foundation (Young 1996).

1064 Young 1996 page 3

1065 http://en.wikipedia.org/wiki/Three_Gorges_Dam accessed 29th October 2005

1066 Hao Bing 1998

1067 Wen Bo 2000

Although there has been considerable international criticism¹⁰⁶⁸ of the Three Gorges Dam Project¹⁰⁶⁹ and its western suppliers¹⁰⁷⁰ and underwriters¹⁰⁷¹, especially Morgan Stanley¹⁰⁷², it is rarely allowed to appear in China's state-controlled media¹⁰⁷³. In 1999, however a Chinese academic, wrote in a leading journal that the resettlement programme could become "an explosive social issue, and a source of constant social instability for the first half of the next century"¹⁰⁷⁴. In 2001 when four farmers complained to western journalists about corruption among resettlement officials, they were arrested and accused of 'leaking state secrets'. In late May 2002 when hundreds of villagers from Yaowan protested about inadequate compensation, hundreds of police and paramilitary troops were deployed and 12 people were detained. There are fears that protests will increase as resettlement and flooding is stepped up. China's Finance Ministry want to relocate some of the 2 million people to Tibet, which will also fuel anti-Chinese sentiment among the ethnic minorities in those areas.

There has been, and continues to be, a great deal of reform to the legal system in relation to environmental protection. There have been serious problems with implementing regulations and controls, particularly concerning pollution from factories and public protest is emerging as a force demanding that this be rectified. The People's Daily¹⁰⁷⁵ regularly prints articles about the closure of factories, including state owned enterprises, for not complying with emission standards. This indicates at the very least an acknowledgement of just how important this kind of policy implementation is to public opinion. Significantly, in October 2000 the government closed a factory in Beihai reportedly as a direct result of strong public protest over

1068 Free Tibet Campaign, International Rivers Network, Corpwatch, Friends of the Earth (UK), US Water News, Rivers Watch, Planet Ark.

1069 http://en.wikipedia.org/wiki/Three_Gorges_Dam accessed 29th October 2005

1070 <http://www.probeinternational.org/probeint/ThreeGorges/who.html> accessed 28th Oct 2005

1071 Lehman Brothers, Credit Suisse, First Boston, Smith Barney Inc, J.P. Morgan & Co, Banc America Securities Inc, Nomura Securities and IBJ Securities etc.

1072 . Morgan Stanley eyeing lucrative banking fees in emerging markets are quick to pick up where public banks deny finance. Lacking environmental or social criteria Morgan Stanley appear to finance destructive projects until consumers or shareholders hold them accountable. Morgan Stanley were planning to underwrite the Initial Public Offering (IPO) for the Three Gorges Power on the London Stock Exchange.

1073 Dai Qing 1994

1074 John Pomfret 2001 page A01

1075 <http://english.peopledaily.com.cn/other/about.shtml> accessed 29th October 2005

environmental issues. These kinds of civil protest are still rare in China, but they represent an emerging trend¹⁰⁷⁶.

7.5.3 State-Public Dialogue

Since 2000, China's environmental crisis has become the focus of a very public dialogue between state and society. A re-negotiation of the relationship between the two is underway, and a new and politically significant dynamic between them is emerging. This dialogue is being especially articulated in the media. Between 1995-1999 coverage of environmental issues tripled. Many of the articles fell into two categories, either awareness raising or information on government policy¹⁰⁷⁷. Issues of pollution and environmental degradation have been made very public and both government and the public are responding to them. The desired responses of both sectors ultimately involves changes in the ways in which people understand their relationship with nature and the priority given to it. The prominence of environmental issues in the 'People's Daily'¹⁰⁷⁸ indicates not only the importance with which the government view environmental issues, but recognition that there is a public discourse around such issues.

The government have also responded by establishing a centre for legal assistance to pollution victims, in Beijing. The success and continued use of the centre depends on the results achieved but its existence underlines the dynamic nature of state-society relations over environmental issues. The centre provides an avenue for citizens to express discontent, seek compensation and to assert the importance they attach to more effective policy implementation¹⁰⁷⁹.

The state of the environment has become a very public issue and it is being used as a site for testing the relationship between these two sectors. While the government has made a call for public reform with respect to treatment of the environment there is also pressure upon it to

1076 Sayers 2000

1077 Sayers 2000

1078 <http://english.peopledaily.com.cn/> One of China's most widely read newspapers with a circulation of 3 to 4 million.

1079 Sayers 2000

reform itself. There is also international pressure on China for improvement. Membership of WTO¹⁰⁸⁰ requires a commitment to environmental standards, but there are dangers that with full exposure to market forces there will be less concern with environmental protection.

7.5.4 Chinese Environmental Protest

Environmental protests in China are a relatively recent phenomenon. The promulgation of China's first environmental law, in 1979, has not only provided a legal basis for environmental protection but also enhanced the public's sense of basic rights in favour of justifying forceful, sometimes even violent, environmental protests. Such protests also embody a rich, culturally informed repertoire of social movements in Chinese history. Specifically, kinship, popular religion, moral concerns, and ancient tales of justice serve as crucial institutional and symbolic resources in the mobilization of protesters at the grassroots level. The interplay of these issues informs the social and cultural context in which rural environmental protests take place and are organized, usually with emphasis on ecological improvements essential for people's well-being rather than trying to save the natural environment for its own sake.

Environmental protest needs to be understood against a background of multiple sources of resistance, namely class, gender, ethnicity, generation, and regional location, in the face of the massive social change and disruption brought about by:-

- The further dismantling of the old socialist system
- The deepening marketization of economic relations
- The de facto redistribution of property rights
- The laying off of thousands of state-sector workers
- The urban migration of millions of poor
- The unfair prices given to rural farmers for crops
- Inequitable tax assessments
- The large scale AIDS infection of poor blood donors
- The one-child policy

1080 World Trade Organisation <http://www.wto.org/> accessed 5th July 2005.

- The oppression and commodification of art and literature
- The oppression of ethnic minorities and lack of freedom of expression
- The resettlement of millions of Han Chinese in ethnic minority areas

Protests have been directed against state policies, state practices and state officials, but most actions have remained local and limited. The authorities, ever watchful, have all worked hard to contain such incidents and prevent them growing into larger-scale mass movements. No sustained movement of popular opposition from workers¹⁰⁸¹, migrants¹⁰⁸², peasants¹⁰⁸³, women¹⁰⁸⁴, intellectuals¹⁰⁸⁵, ethnic minorities¹⁰⁸⁶ or environmentalists¹⁰⁸⁷ has been realised with the possible exception of the resurgence of popular religion, sects and kinship ties¹⁰⁸⁸. Since the mid 1980's there has been remarkable growth in both '*mixin*'¹⁰⁸⁹ and '*zongjiao*'¹⁰⁹⁰ religious traditions¹⁰⁹¹ with an estimated 70 -100 million Christians¹⁰⁹² attending underground churches.

In every region and province acts of disruption by reactionary sects and societies have occurred. Contrary to official reports these activities have not only taken place in the countryside in remote mountain areas along China's borders, but are widespread throughout China where they are often tolerated as custom or commodified for tourism¹⁰⁹³.

Longstanding village and kinship loyalties continue to shape insurgent identities in rural China as social movements draw on themes and images sanctified by tradition even as they engage

1081 Lee 2000

1082 Mallee 2000

1083 Bernstein 2000

1084 http://www.chinalaborwatch.org/en/web/article.php?article_id=50205 accessed 29th October 2005

1085 Goldman 2000

1086 Bulag 1999, Dreyer 2000

1087 Jing 1999

1088 Schechter 2000, Shue 2001, Wong and Liu 1999

1089 民心 *mi2 xin4*: is viewed as superstitious (*mi* is pronounced in the 2nd tone and *xin* in the 4th).

1090 宗教 *zong1 jiao4*: is officially recognized by the state (*zong* is pronounced in the 1st tone and *jiao* in the 4th).

1091 Anthropologists no longer categorize religions on the basis of 'high' and 'low' because they consider the latter term to be pejorative (personal communication Anderson 7/2/2000 weblog).

1092 <http://www.cbn.com/CBNNews/CWN/062504heavenlyman.asp> accessed 29th October 2005

1093 Feuchtwang 1999, Munro 1989

the consequences of reform¹⁰⁹⁴. Revitalized religious traditions and folk ideologies play pivotal roles in this process, with the beliefs and rituals surrounding local temples, deities, ancestral halls, and festivals often providing inspiration for collective mobilization and political resistance¹⁰⁹⁵. This is the case even in the face of modernizing agendas, such as the three gorges dam project. Traditional forms of contention are being revitalized in a new socio-political context, sometimes creating new public spaces with new economic bases¹⁰⁹⁶.

Some view the resurgence of interest in kinship ties and popular religion as harbingers of 'oriental democracy'¹⁰⁹⁷ and a platform for environmental activism¹⁰⁹⁸. They provided a safe realm in pre-democracy Taiwan where 'social capital'¹⁰⁹⁹ was able to incubate away from the state. With the arrival of democratic government in the late 1980's a mature civil society flourished almost immediately, in sharp contrast to the chaos of the sudden liberalization of Eastern Europe. Today religious sects have become some of the most respected, well-funded and socially responsible civic associations in Taiwan, and have played an important role in environmental activism.

Chinese leaders however are aware of the dangers inherent in cross-class, cross-nationality and cross-regional associations. Since the founding of the People's Republic, attempts to forge such bonds have been dealt with swiftly and severely. The crackdown against the Falungong¹¹⁰⁰ movement, referred to earlier in this chapter, in 1999 is only the latest in a series of suppression efforts that includes the anti-rightist campaign of 1957, the crushing of Cultural Revolution rebels in 1967-68, the closing of the democracy wall in 1979, and the Tianamen Square massacre of 4th June 1989 among others. In all of these instances, repression was a

1094 Jing 1999

1095 Feuchtwang 1999

1096 Perry and Selden 1999

1097 A form of democracy that evolves from social ties that were always based in particular localities and corporate identities, and never the autonomous individuals of an idealized 'west'.

1098 Weller 1999

1099 This is a contested term (Baron et al 2004, Leung 2002, Stolle and Lewis undated).

1100 Falun Gong (法輪功) literally Practice of the Wheel of Law) is a controversial Chinese spiritual movement which was introduced in 1992 by Li Hongzhi. Central to Falun Gong are five sets of exercises (four standing, and one sitting) that involve meditation and are said to help in the purification of the mind and the body. Many teachings are similar to those in Buddhism and Daoism though it adds a conservative morality and several New Age and apocalyptic beliefs. Also known as Falun Dafa, the practice has grown swiftly in popularity around the world. http://en.wikipedia.org/wiki/Falun_Gong accessed 31st October 2005.

response to state fears that protest could give rise to inter-class and inter-regional connections¹¹⁰¹. Although Beijing is unlikely to welcome religious sects for some time it may have more difficulty with another, but related, source of Taiwanese 'social capital', environmental activism. In Taiwan grass-roots action, often encouraged by religious sects, against industrial pollution was a major precursor to democracy. With the extreme environmental degradation that is occurring in China, Beijing can ill afford to discourage popular concern for the environment.

It would appear that environmental protest in rural China is characterized:-

- By the central role of culture in the mobilization of participants. This is often done through appeals to kinship ties, village unity, popular religion, and the security of the rural family.
- By economic grievances, health-claims, or legal demands accompanied by distinctly moral judgements.
- By protest organizers who are evidently not only highly aware of environmental law but of taking advantage of fissures within the government to find allies.
- By the ability of people in rural China to launch well-organized and forceful protests against environmental abuses.

The way that rural people organize their protests reflects the centrality of particular social values and moral concerns. The protests are aimed at seeking social justice to protect the ecological basis of human existence¹¹⁰².

Although the landscape of grassroots protest changed at the end of the 1970s when complaints offices and legitimate channels for protest were established, those that protest almost always face hostility, bribery and even revenge. Local cadres will try all methods to stop or suppress grassroots protest against them, especially collective protests, because of the threat posed to them officially. The punishment and removal of the leaders of collective protests is regarded as an efficient approach to smash the collective action immediately. In contemporary China, local officials control many indispensable resources and the state still effectively penetrates

1101 Perry and Selden 1999

1102 Jing 1999

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into the individual's everyday life. They will usually punish protest leaders by means that are not related to the protest in question, such as birth control violation¹¹⁰³.

7.5.5 Tibetan Environmental Protest and Coping Strategies

It has proved almost impossible for China's minority peoples to form even a small local movement to overtly 'protest' about anything, let alone the damage caused by the national society to their environment. Tibetans are concerned about the exploitation of their mineral and natural resources, and the introduction of development projects that damage their environment and marginalise them. They are afraid, for good reason to protest, even through legitimate channels, that they will be labelled 'splittist' or 'counter- revolutionaries' and imprisoned . This has got worse since 11th September 2001, when the Chinese branded all 'ethnic separatists' as 'terrorists' and increased punishments for people 'who lead a terrorist organization'¹¹⁰⁴. Tibetans, however, are responding to the destruction of their natural resources and culture in a number of ways.

- By local protest, if they are willing to accept arrest
- By developing links with international environmental and human rights groups
- By voicing their concerns at international fora¹¹⁰⁵
- By promoting discursive 'green' strategies¹¹⁰⁶
- By adopting coping strategies predicated on the enhancement of their identity, culture and place attachment referred to in section 7.4.4 and 7.5.5
- Through rituals of defiance referred to in section 7.4.4 and 7.5.5

Local protest

Environmental protests by local Tibetan people about hydro-electricity, oil and mining, the environmental, development, deforestation and international economic exploitation have been ignored or crushed. Many individuals have been subjected to severe punishments, often leading to long-term imprisonment, torture and death¹¹⁰⁷. This has, if anything got worse since 11th September 2001.

1103 Jin 2001

1104 Article 120 of the criminal Law.

1105 eg Rio Earth Summit 1992, UN Human Rights Commission 2002, WSSD 2002

1106 Huber 1995, Rather and Dodin 2001

1107 Marshall 2002

In 1986 the *yumdog tsho*¹¹⁰⁸ hydroelectric project was brought to a halt due to concerns expressed by Tibetans and UNDP¹¹⁰⁹ that the project would damage the local ecosystem, violate Tibet's most sacred lake, and favour Han Chinese immigrants¹¹¹⁰. In spite of these concerns, the project became one of China's key projects in its eighth five-year plan¹¹¹¹ and armed police were drafted in to oversee the project. As a result; in 1991 the International Campaign for Tibet (ICT) launched a campaign to stop the project and Greenpeace urged its members to write to Mao Rubai the vice chair of the Tibetan Autonomous Region (TAR)¹¹¹², in 1992 during the Rio Earth Summit ICT and Eco-Tibet presented a petition of over 10,000 signatures to stop the project, and ICT and Greenpeace exposed the involvement of Austrian (Elin¹¹¹³), German (Voth) and possibly Norwegian companies in the project¹¹¹⁴. In spite of international criticism, the Chinese began to drain the lake in 2000 to produce electricity. Although as of 2005 there have been no impact assessments no local people had received any electricity and there are fears that the turquoise colour is fading as the level of the lake is lowered.

In 1991 two Tibetan men named Phuntsok Chosang¹¹¹⁵ and Gyatso¹¹¹⁶ pasted posters for the third time to protest about the building of roads into their hometown, Meldro Gongkar¹¹¹⁷, for the transportation of minerals from Thalung¹¹¹⁸ Mine in Gyama¹¹¹⁹ to Han China. Subsequently locals in the mining area also raised objections to the operation of the mine because of the use of toxic materials and dynamite in the area. According to Phuntsok the mine has caused severe ecological imbalance in the form of soil erosion, frequent rainfall and

1108 གཡུ་མདོག་མཚོ། *g.yu mdog tsho* is Tibetan for turquoise coloured lake.

1109 United Nations Development Programme.

1110 Living in Lhasa

1111 1991-1995

1112 Western Kham is in TAR but Eastern Kham is not (see map 1-1).

1113 <http://www.elinebgtraction.at/page/en/7> accessed 5th July 2005

1114 Who were later accused of human right violation by the UNHC for Human Rights.

1115 ཕུན་སྙེག་ཆོས་ངག། *phuntsok chosang*

1116 གྱའ་མཚོ། *gyatso*

1117 མེལ་དྲོ་གོང་ཀར། *meldro gongkar* in the Tibet Autonomous Region (TAR) 67 km east of Lhasa.

1118 ཐལུང། *thalung*

1119 གྱཡམ། *gyama* is located 80 kilometers east of Lhasa, and is the birthplace of King Srongtsan Gampo.

hailstorms and many wild animals, birds and farm animals have died from the toxic gases released. But the authorities ignored their pleas and both Phuntsok Chosang and Gyatso were imprisoned, tortured and put in solitary confinement for 13 days and nights.

In 1996 when Kabukye Rinpoche¹¹²⁰ complained about the environmental degradation caused by gold mining near Nabzur monastery¹¹²¹ he was imprisoned for six years for 'counter-revolutionary- splittism'¹¹²². The Rinpoche¹¹²³ was very well respected and his imprisonment and torture caused widespread anger among Tibetans¹¹²⁴.

In 1997 Breckenridge Resources¹¹²⁵, announced plans, against the wishes of local Tibetan people, to develop open cast mines in very fragile ecosystems, near Litang, Baiyu and Rangtang¹¹²⁶. In the feasibility study conducted by Rescan Engineering¹¹²⁷, near Litang¹¹²⁸, no environmental or socio-cultural impact assessment was conducted. Local people expressed very real fears not only about environmental damage but that most of the workers would be Chinese and the in-migration would further threaten Tibetan cultural and survival¹¹²⁹.

In 1999, Chinese police banned the first known attempt by Tibetans in Lhasa to stage an environment-related demonstration. The student-organised demonstration was to highlight concern over the degradation of Tibet's fragile ecosystem and to enhance public awareness of the issue. The Lhasa police also banned the students from distributing a petition, which was a plea for better environmental protection. This was in spite of the fact that China admitted that

1120 ཀའབུལེ་རིནཔོ་ཆེ། also known as རཱུ་ཐོད་ཏུ་ལྷོ། *nazod trulku*.

1121 རཱུ་ཐོད་ཏུ་ལྷོ། in Serta County, Ganzi Prefecture in Sichuan Province.

1122 Schwartz 1994b

1123 A reincarnate Tibetan Buddhist lama.

1124 Studley 1999a, TIN 1998

1125 A Canadian mining company, part of Athabaska Gold Resources Ltd

http://www.infomine.com/index/companies/ATHABASKA_GOLD_RESOURCES_LTD..html accessed 5th Jan 2003.

1126 All in Sichuan Province.

1127 http://www.infomine.com/index/suppliers/Rescan_Engineering_Ltd..html accessed 5th July 2005.

1128 Ganzi TAP, Sichuan

1129 WTN 1997

rampant deforestation on the Tibetan plateau, had caused the worst floods since 1954, the loss of 4,150 people and 248.4 billion yuan of damage.

In 2001, thirty Tibetans staged a silent but futile protest, outside Qinghai provincial government headquarters, against the seizure of their land in the name of China's 'Great Western Development Campaign', which is discussed further in section 7.6.3.

A senior Tibetan teacher was detained on 7th April 2002, by the Public Security Bureau on 'conspiracy to bomb charges' allegedly for leading a 'popular protest' against deforestation and trying to establish private schools, orphanages, and an old peoples home¹¹³⁰. According to the Kashag¹¹³¹ chair the arrest of such a highly revered teacher will only serve to alienate the Tibetan people even further. The nature of the 'popular protest' included publishing poems that highlighted the importance of forest resources to local people, and making representation to the authorities on the behalf of people whose village forest had been felled by the Forestry Bureau¹¹³². The Teacher approached the author, and provided photos and poems about the forest destruction, but given the sensitivities involved, a community forestry programme was suggested to replace the felled forest. The author was denied permission to visit the area to explore this option in more detail. After appearing at a 'closed hearing', the teacher and a colleague were sentenced to death by an Intermediate People's Court¹¹³³. The death sentence may prove to be of wider significance with respect to relations between the Chinese and Tibetan governments and is the first reported instance for many years of the death penalty being imposed against a Tibetan, for an offence with a 'political' background. In 2002, there was the unprecedented early release by China of six Tibetan political prisoners, the Dalai Lama's special envoy was able to participate in talks in Beijing and Lhasa, the first formal contact since 1993, and the US was able to hold the first 'human rights' (sic) dialogue with China since 2001. Since the teacher was sentenced, however ten more Tibetans are reported to

1130 TIN News Update 5/5/02

1131 Tibetan cabinet of the government in exile.

1132 personal communication Anon October 1995

1133 The sentences required confirmation from the provincial level court, which occurred in 2003. The colleague was sentenced to death without reprieve and was executed in Jan 2003 (BBC News 27/1/03a.c, and 28/3/03). The Teacher received a death sentence with a two-year suspension of execution. On the basis of Article 50 of the criminal code if he does not intentionally commit any crime during the 2 year suspension his sentence may be commuted to life imprisonment. This was commuted to life imprisonment in early 2005 (BBC 26/1/2005) <http://news.bbc.co.uk/2/hi/asia-pacific/4208179.stm> accessed 7th Dec 2005.

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have been arrested in connection with 'a bombing campaign' in south-west China. This raises concerns about the apparently widening scope of this case and about the possibility that China may have withheld this information in recent human rights talks in December 2002¹¹³⁴.

The protests continue to this day and in May 2005 thousands of Tibetans clashed with Chinese security forces over access to a valuable medicinal fungus¹¹³⁵, after county officials imposed a USD180 tax on collectors and Han Chinese officials were accused of pocketing USD 78,500¹¹³⁶.

International protest

As the occupation of Tibet enters its sixth decade, a new force is being brought to bear on the nation, China's economic revolution, which is moving west bringing international capital and technology on a scale never before seen.

Large-scale developments in Tibet rarely benefit local Tibetans, but mostly international companies or Han Chinese. More than often resources leave Tibet, Han Chinese move in, while leaving a legacy of environmental harm and social dislocation that falls on the poorest inhabitants.

As a result, some major investments in Tibet have generated intense international opposition. In 1999 and 2000, environmental and human rights organisations¹¹³⁷:

- Prevented BP from investing in a pipeline project that would have moved natural gas a thousand kilometres east from fields in northern Tibet. BP, however continue to be a shareholder in PetroChina.

1134 BBC News: Asia-Pacific 22/1/2003a.c, TIN 27/1/03

1135 *Cordyceps sinensis*

1136 ENS 2005

1137 Milarepa Fund, Students for Free Tibet, Tibet Government-in-exile, Free Tibet Campaign, International campaign for Tibet, Amnesty International, Project Underground, TIN (UK), Flouride Action Network, International Rivers Network, Australian Tibet Council, Corpwatch, International campaign for Tibetan environmental rights, Houston independent media centre, FOE (UK), Canada Tibet Committee, Sierra Club, Student Action Network, Tibet Justice Centre.

- Successfully challenged the World Bank's¹¹³⁸ USD 40 million loan to assist China in relocating thousands of Han Chinese farmers in Tibet's Tsaidam Basin.
- Thwarted one of China's largest oil companies (PetroChina) attempt to offer stock on the New York stock exchange, costing them USD 7 billion

Unfortunately, the gold rush in Tibet continues as China rolls out its 'Great Western Development campaign', and news of new discoveries and overtures from western companies are reported with increasing frequency. This is the beginning of a challenging period in Tibet's history. Attempting to influence the course of development in Tibet is very difficult for the government-in-exile and Tibet's supporters, as China is intent on extending total political control over Tibet.

The 'Great Western Development Project' is the Chinese government's current attempt to aggressively court foreign investment in occupied Tibet. By locking foreign capital into resource extraction projects, the Chinese government hopes to solidify its grip on its restive western regions. Development projects serve the central government's aim to turn Tibet into a resource extraction colony and to lure Chinese settlers to Tibet, diluting the indigenous Tibetan population.

Each new discovery and new investment in extraction, whether Chinese, foreign, or both, places considerable additional pressure on Tibet's natural resources and further assimilates its people and culture into the Chinese state¹¹³⁹.

1138 In spite of the World Bank's (WB) vast and very sophisticated PR operations, this project managed to trip over one of the most influential and well-known indigenous rights movements in the world. Controversy raged at the highest levels and between the US and Chinese governments, when affected Tibetans filed a claim with the WB's ombudsman's office charging violations of its own policies. The case turned into a make-or-break test, in the face of charges that its 'social and environmental policies violated national sovereignty'. Following on from (See Fox 2000) anti WTO protests in Seattle (N30), anti-globalization protests (J18) and the anti IMF/WB protests in DC (A16) the media was already receptive and the Tibetan solidarity movement had already targeted the Bank. There was a torrent of opposition. The WB had probably never before faced such an enormous fax and email campaign, and as a result Wolfensohn's fax machines kept breaking down from overuse. In June and July 1999 vocal protesters were situated downstairs while the WB board of executive directors were discussing the project upstairs. It is one of the few times that a mass protest has targeted a board's decision-making process and won. The Chinese, who were furious at the 'politicization of the WB' were obliged to withdraw their proposal, threatening to 're-evaluate' their entire relationship with the Bank (Economist 19th June 1999, TIN 15/6/99).

1139 Fischer 2005

Since the beginning of this millennium environmental and human rights, groups have been critical of

- *The Chinese government* for: its imprisonment of a) Kabukye Rinpoche, b) Environmentally destructive projects c) For its complicity in religious and political persecution, the rape of Buddhist nuns, torture of Tibetan political prisoners, forced abortions and sterilizations d) The environmental destruction of Tibet's fragile ecosystem e) For imprisoning Tenzin Delek Rinpoche¹¹⁴⁰.
- *Morgan Stanley* (New York and London) for its lack of environmental risk management policies which have led the company to underwrite:- Chalco Aluminium¹¹⁴¹, the Golmud-Lhasa Railway, PetroChina and The Three Gorges Dam Project¹¹⁴².
- *ExxonMobil/Shell* for their joint venture with the Chinese government to build a 4000 km pipeline to extract Tibet's oil and natural gas reserves from Xinjiang to Shanghai and are also complicit in environmental destruction of Tibet's fragile ecosystem.

1140 Representation has been made to Western governments to put pressure on China to release the Rinpoche. The US State department are aware of Tenzin Delek's case and have asked their consulate in Chengdu to monitor the situation. The Rinpoche's arrest came at a time when the PRC was releasing selected Tibetan prisoners very publically before the UN Human Rights Commission in Geneva. They were, however simultaneously arresting popular Tibetan religious figures (personal communication Kate Saunders 7/5/02, BBC News 27/1/03a..c).

1141 Chalco is China's largest producer of Aluminium, and its primary smelter is located in Chinese occupied Tibet near Xining in Amdo. Although major smelters such as Portland, partly owned by the Chinese government, take care to abide by the rules and filter out fluoride, Chalco Aluminium is allowed to get away, in Tibet, without treating the smoke or toxic fluoride. Tibetans and supporters oppose Western investment in Chalco because of the destructive impacts the smelting facility is having on local people and the environment. An environmental review of the plant conducted by Worley Chemicals and Minerals Ltd, an independent Australian engineering company, for Chalco, found that the Chinese government regulated emission level at the plant had been exceeded. There have been reported cases near the Xining plant of sheep losing teeth and starving to death after having been poisoned by fluoride contaminated grass. As a result of their deaths the local Tibetan herders are losing their livelihood. Both the TGIE and SFT believe that Chalco is poisoning Tibet and impoverishing its people, it should release the Worley report in full and that Morgan Stanley would be well advised to postpone the next public offering (PO) until they can prove that Tibetans are not being harmed by the company they are underwriting. In December 2001, Morgan Stanley underwrote the initial public offering for Chalco and they helped raise \$450 million from American investors.

1142 The World Bank, traditionally the largest financier of large dams projects has refrained from extending loans to the Three Gorges Dam project, due to environmental and human rights concerns. Morgan Stanley, however eyeing lucrative banking fees in emerging markets are quick to pick up where public banks deny finance. Lacking environmental or social criteria Morgan Stanley appear to finance destructive projects until consumers or shareholders hold them accountable. In May 2002 they continued to be lead manager and bookrunner and issued US\$ 500 million bonds for the PRC.

- *Bombardier (Canada)* for supplying 361 cars¹¹⁴³ and Nortel for supplying communications¹¹⁴⁴ for the Golmud to Lhasa railway.
- *Breckenridge Resources* for its attempts to mine in Litang Baiyu and Rongtang Counties¹¹⁴⁵.
- *British Petroleum*¹¹⁴⁶ for its involvement with PetroChina. After pressure from human rights groups and Tibetan supporters worldwide BP Amoco decided not to participate in a joint venture around the Sebei-Lanzhou pipeline. It continues however to be a major shareholder in PetroChina and in Sept 2000 announced a £400 million investment in Sinopec¹¹⁴⁷, which makes it the largest foreign investor in China¹¹⁴⁸. BP appears to be at odds with its own ethical code¹¹⁴⁹ the UN Commission on human rights¹¹⁵⁰, Tibetan society and their values and ethics

1143 <http://www.phayul.com/news/article.aspx?id=9956&article=Activist+Scales+Hotel+with+Tibetan+Flag+and+Calls+on+Bombardier+to+Leave+Tibet&t=1&c=1> International Campaign for Tibet [Wednesday, June 08, 2005]

1144 ICFT 2005

1145 Breckenridge Resources eventually sold all their rights, obligations and interests to APAC Minerals on 14th July 2000, who reportedly never received approval and were therefore unable to proceed with the project. It is not known if the project has gone forward with 100% Chinese investment or in a joint venture with a non Canadian corporation (personal communication Carole Samdup CTC Montreal 29th Nov 2001).

1146 BP as a result of its investment continues to be complicit in the exploitation and destruction of the region. It naively argues that constructive engagement between Chinese and Western business, will somehow 'lead to increased freedom in China'. It even denies involvement in 'Tibet' (meaning TAR or Political Tibet), claiming the 91 PetroChina retail sites and 1400 employees there are not part of the BP Amoco/Petro China joint venture and ignoring their involvement in the extensive Tibetan areas of Kham and Amdo outside TAR (personal communication Gore 13th Nov 2000 weblog). BP appears to have double standards, it has recently been accused by a UN sub-commission on Human Rights of violation of up to 9 human rights principles in Tibet although it is a member of the Prince of Wales International Business Leaders Forum (personal communication Prince of Wales 17/12/2002 weblog), which promotes corporate social responsibility. BPs chairman even claims on the IBLF website <http://www.iblf.org/csr/csrwebassist.nsf/content/fl1.html> (accessed 10th June 2002) that :-

'Getting it right is not only a matter of ethical behaviour and moral choice. Enlightened business people have realised that good business is good for business. Good business is sustainable, is part of global society, not at odds with it, and reflects values which are shared across the world.'

1147 Sinopec holds the rights to the Lunpola oil field, the world's highest, and only 300km from Lhasa.

1148 £1.7 billion

1149 <http://www.iblf.org/iblf/csrwebassist.nsf/content/fl1b2a3e4.html> accessed 5th July 2005

<http://www.bp.com/sectiongenericarticle.do?categoryId=9002630&contentId=7005204> accessed 5th July 2005

1150 <http://www.unhchr.ch/html/menu2/2/54sub/ood0808.htm> accessed 5th July 2005

International fora

Increasing numbers of Tibetans and their supporters are raising both environmental and human rights issues at international fora.

- Since the mid-1980's the Dalai Lama has made environmental protection the theme of numerous major statements, including several speeches at the Earth Summit in 1992 and the five point peace plan at the US congressional human rights Caucus (1987). Point 4 of the peace plan included the 'restoration and protection of Tibet's natural environment'¹¹⁵¹
- The Dalai Lama and a number of Tibetan organisations were prevented from attending the World Summit on Sustainable Development in 2002 because of pressure put on the South African government by China¹¹⁵². A shadow report - 'speaking for Tibet', however, was presented by the Tibet Environment and Development Organisation, covering forestry, environmental and wellbeing issues.
- Concern was expressed at the 54th session¹¹⁵³ of the UN Human Rights Sub-Commission about the ability of transnational corporations (TNCs) to operate with impunity in partnership with states such as China that routinely violate and permit the violation of human rights in their territories. Corporations that knowingly contribute to human rights violations should not be allowed to absolve themselves of responsibility by claiming that any human rights violations are the responsibility of the state in which they occur^{1154 1155}. The Sub-Commission accuses a number of TNCs, including BP Amoco, of violating up to nine Human right principles¹¹⁵⁶ in Tibet¹¹⁵⁷.

1151 Dalai Lama 1987

1152 Asipisu 2002, Lateline news 2002

1153 8th August 2002

1154 E/CN.4/Sub.2/2002/OD.9 GE.02-0 14372 UN HCHR, Geneva 2002

1155 The UN Human Rights principles (E/CN.4/ Sub.2/ 2002/ WG.2/WP.1/Add.2) state that transnational corporations have an independent obligation to respect generally recognized human rights principles and norms 1156 2,3 5-10 and 12.

1157 TNCs are directly or indirectly assisting the Chinese to turn Tibetan into an extractive colony. Theoretically China's Great Western Development Project refers to a policy to develop western China by improving its economic infrastructure and providing more funds for education, the environment and technology development. In practice, it represents the systematic escalation of a long-standing policy of exploiting natural resources in Tibet and Xinjiang for export to China. The People's Daily acknowledged that the project will result in an 'unprecedented mammoth transfer of resources' to China, and with the building of the Golmud to Lhasa railway this will not only accelerate the extraction of resources to Eastern China, but assimilate Tibet into the motherland by increasing Han Chinese migration.

Green Tibetan discourse

Since the mid 1980's there have been discursive attempts to re-fashion the image of Tibet as a land of 'green' environmentalism and non-violence, which has succeeded in deceiving many westerners. In reality, the former was adopted by the government-in-exile to gain international sympathy for their cause and the latter appeared in films such as Scorsese's 'Kundun' where we are told that 'Tibetans have practised non-violence for over a thousand years'. In reality from 763 to 1970's state violence continued to be sanctioned by Buddhist authorities, and by the 'Great Fifth' Dalai Lama to unify the country¹¹⁵⁸.

It has been important thus far to consider Han and Tibetan discourses germane to this study but perhaps more importantly this chapter will conclude with a critique of environmental and forestry policy in terms of the challenges of implementation and their impact on the peoples of China, Tibet, and Kham.

7.6 ENVIRONMENTAL AND FORESTRY POLICY

Throughout China's long history there is evidence of a long legacy of conservation, 'nature reserves', and 'eco-tourism' although there are paradoxes in both Chinese and Tibetan treatment of the natural world. China is a signatory of a number of international conventions that address conservation and the environment and their policies resonate with the western mainstream referred to in section 3.3.1 and 3.3.2. They reduce the forest to a utilitarian commodity, referred to in chapter 3¹¹⁵⁹, 4.5 and 5¹¹⁶⁰, and ignore the values, linguistic ecologies and needs of local people.

Chinese civilization realised the need to protect natural resources, especially flora and fauna long before the birth of Christ and the importance of tree planting in soil erosion control and water conservation.

¹¹⁵⁸ Sperling 1998

¹¹⁵⁹ section 3.1.2, 3.3.1, 3.3.5.

¹¹⁶⁰ section 5.3, 5.5, 5.8, 5.9, 5.9.2.

Many passages in Chinese classical literature refer to the ruler's duty to safeguard the environment¹¹⁶¹. In the *Chou Li*¹¹⁶² two classes of 'conservation official' are recognized¹¹⁶³ and by the Song period¹¹⁶⁴ the concept of an ecological balance in nature was recognised¹¹⁶⁵. From the fourteenth century onwards, population pressure was such that environmental protection was often of secondary importance and became increasingly an ideal¹¹⁶⁶.

The earliest examples of 'reserves' or 'parks' in China belonged to its rulers, and although their purpose was as gardens, temples or for hunting they indirectly served as protected or semi-protected environments. Parks and reserves can be found in imperial records from the *Qin*¹¹⁶⁷ and *Han* dynasties¹¹⁶⁸ and down to the last dynasty¹¹⁶⁹. Sacred mountains and forests and often-extensive temple lands also helped to preserve species, which might have disappeared¹¹⁷⁰. China first nature reserve¹¹⁷¹ was established in 1956, but it was really only after 1979 that substantial development of nature reserves began, by which time it was probably too late for many animals. An ecological approach to environmental problems did not really begin until after 1983 when a wildlife protection bureau was established, and the China wildlife conservation association was founded¹¹⁷². By 1991, China had established 708 nature reserves covering 6.6 % of China's national territory¹¹⁷³. If we include heritage travel, pilgrimage and festivals as 'tourism' it is possible to chart its history over four millennia covering the reigns of the dynastic emperors¹¹⁷⁴. It virtually disappeared during the twentieth

1161 We read in *Shi Ji*, during the Shang dynasty (1766BC-1122BC) that there was awareness of wildlife preservation, and in the *Guoyu* of Duke *Xuan's* (608BC - 590 BC) need to learn the environmental lessons of the past. This suggests that rules about environmental protection may predate the Zhou period (1122BC-221BC). From the *Wen Tao* it is evident that the connection between deforestation and soil erosion was understood as early as the Warring States era (403-221 BC) and from the early Chinese philosopher Mencius (372 BC- 289 BC) the dangers of over killing wild animals (Edmonds 1994).

1162 周禮 (Rites of Chou) A work compiled in the third century BC.

1163 A *Shan-yu*, inspector of mountains and a *Lin-heng*, inspector of forests who were charged with the care and conservation of mountains and forests.

1164 AD 960-1275

1165 As was the consequences of filling in lakes to create extra crop land.

1166 Edmonds 1994, Yi-Fu Tuan 1968

1167 221 BC- 207 BC

1168 206 BC-220 AD

1169 The *Qing* dynasty (1644-1912).

1170 eg. 水杉 *shui shan Metasequoia glyptostroboides* (Dawn Redwood), 银杏 *yin xing Ginkgo biloba* (Tree of Heaven), and 普陀鵝耳枥 *pu tuo e er li Carpinus putoensis* (Puto Hornbeam).

1171 The *Dinghu* Mountain Nature Reserve (*Guangdong* Province).

1172 Fu 1989, Liu 1990

1173 Edmonds 1994, Jiang Zhai 1993

1174 from 2000 BC to AD 1900 (Overmyer 1986, Li and Sofield 1994)

century in the Kuomintang regime and Mao Zedong's regime. Mao suppressed culture, habits and tourism, and with the exception of the 800-year-old, Xiaolan Chrysanthemum festival, virtually the only form of 'tourism' allowed was its use as a propaganda tool¹¹⁷⁵. It was only after the 'opening and reform policies' of Deng Xiaoping in 1978 that trends were reversed and tourism allowed¹¹⁷⁶, because of its capacity to contribute to modernisation and its perceived contribution to national unity. However, contradictions remain between the competing ideologies of socialism, modernisation, globalization and traditional culture.

Although China has embraced the 'socialist market economy', its form remains embedded in ancient heritage. The resolution of the tension between its traditional roots and contemporary commoditisation is apparently essential¹¹⁷⁷ to develop sustainable tourism. The importance of 'eco-tourism' is gaining recognition¹¹⁷⁸ and the State forest bureau has announced plans¹¹⁷⁹ to expand its forest parks from 874¹¹⁸⁰ to 2000 parks¹¹⁸¹ by 2010. Every attempt is being made to tap into what China considers to be 'rich biological and cultural resources of rare wealth to humankind'¹¹⁸². Even though China does not have extensive forests remaining, there are a relatively large number of unusually spectacular forest parks that often include ancient cultural and sacred resources as well as unique mountains and rivers. In the past decade, China has established over eighty-four national sites of scenic beauty as well as over five hundred historic and national relic sites. China is seemingly keen to promote 'ethnic' tourism, because of demand and its potential for 'developing' some of China's more remote areas and incorporating them into the market economy. Since 1997, there has been an increase in 'ethnic' tours arranged by China National Tourism Administration (CNTA)¹¹⁸³ and local authorities in ethnic minority areas are being encouraged to restore traditional buildings and temples. In spite of the steps China is taking overall the facts concerning ecological deterioration in contemporary China are grim and have obvious global implications. Studies have concluded that nine of the ten worst air-polluted cities in the world are found in China. Other statistics

1175 Sofield and Li 1998

1176 Meisner 1986

1177 Swain 1989

1178 personal communication Ling Lin 8/1998

1179 http://english.people.com.cn/200205/16/eng20020516_95836.shtml accessed 5th July 2005

1180 7.48 million ha

1181 19 million ha

1182 Tao 1990

1183 China National Tourism Administration <http://www.cnta.com/lyen/index.asp> accessed 5th July 2005.

Chapter 7 China and Tibet concerning deforestation, desertification, and water pollution are equally alarming. There are, however, some promising signs that go back to 1972 when China sent a delegation to the Human Environment Conference in Stockholm. This was followed by the promulgation of an Environmental Protection Law in 1989 and the establishment of a State Environment Protection Administration in 1998¹¹⁸⁴.

7.6.1 The Challenges for Conservation, National Parks and Tourism

Although conservation, national parks and tourism are all relatively new, it would appear that they all present a number of challenges that should be considered before expansion.

Although China has experienced massive deforestation since 1950, and 3,000 tree species have been seriously reduced in number, there are evidently no examples of tree species disappearing in the last 30 years. What is more worrying though is environmental degradation and loss of habitat resulting from deforestation. There is a good deal of specific information on the extinction or endangered state of numerous mammals and birds. Since 1949, ten wild mammal species have become extinct¹¹⁸⁵ and 20 are endangered. Most of the endangered species are in southwest China where the countries richest forests have been indiscriminately cut causing drastic declines of mammal and bird counts¹¹⁸⁶.

The major purpose of 80% of China's reserves is the protection and conservation of flora and fauna, but similar problems to the scenic reserves have been caused by : the lack of a central planning agency; agencies who only protect their own interests; reserves that are too small to be effective; illegal tree felling; a lack of cooperation between adjacent forest parks and reserves; low levels of 'environmental education' amongst the people living close to the reserve; staff shortages; a failure to compensate local inhabitants; a failure to curb or control tourism; and hunting in exchange for shooting fees and the sale of trophy heads. Some of these problems are caused by the contradictory reserve goals of maximising income and conservation.¹¹⁸⁷

1184 Edmonds 1994, 1999

1185 Including *Equus przewalskii* (Przewalski's Horse) and *Saiga tatarica* (Saiga antelope).

1186 Edmonds 1994, Ma and Chang 1980

1187 Edmonds 1994, Richardson 1990

Forest parks are evidently needed more for their social values than for the limited economic returns associated with timber harvest. One of the major goals for China's forest parks is to provide benefits to the domestic market and international foreign visitors. Unfortunately, these goals are not compatible as the use patterns and needs of the foreign visitor are not always the same as the Chinese. Typically, the foreign visitor uses a forest park for camping; orienteering; backpacking; mountain biking; kayaking; high-risk recreation¹¹⁸⁸; driving-for-pleasure; caravanning; and recreational vehicle use. All of these activities are very low on the preference list of typical Chinese park visitors. Chinese forest park visitors typically dress in their best clothes and go to the parks to enjoy their families and romantic interests. Car ownership is low precluding the possibility of driving-for-pleasure, bicycle riding is deemed a necessity not a recreational activity, there are few facilities for RV's or caravans, sleeping in a tent on the ground and backpacking are not considered recreational and most Chinese people do not like high-risk recreation. Most of China's parks and reserves do not fit neatly into one category, and there is considerable overlap. Many of them are, in fact, multifunctional which leads to a conflict of interest. Forest parks can only be utilized when they are properly developed. If conservation is not fully considered the resource may be damaged during development¹¹⁸⁹. In order to preserve tourist resources it is necessary to regulate, conserve and educate. The number of tourists in the Forbidden City has been regulated by raising the admission fee. A new section of the Great Wall¹¹⁹⁰ has been opened to relieve pressure on the congested Badaling section, and two more sections are being restored. Environmental conservation regulations are needed for all major tourist areas. In addition, there is a need for natural environment interpretation and education¹¹⁹¹.

In the past decade, China has established over eighty-four national sites of scenic beauty as well as over five hundred historic and national relic sites. Rapid tourism development however, has caused a number of on-site problems including: poor planning, constant changes of management agency; a lack of cooperation between too many agencies; and the lack of a

1188 Skiing, mountain climbing, hunting, caving.

1189 One example of this is the *Hailuoguo* Glacier Park, in Sichuan, which I first visited in 1994, when it had a few discrete hotels, and a path which wound its way between magnificent conifers (*Abies* spp and *Picea* spp) which linked the three camps to the glacier. Today it has been over-developed, with large brash concrete hotels, poorly aligned power lines, and an unnecessary 'motorway' slicing through the forest, to the edge of the glacier (Schaller 1998b).

1190 At Mutainyu.

1191 Liu and Dowling 1991

centralised management system. This has resulted in: pollution; soil erosion; urbanization, litter; industrial waste; haphazard or inappropriate location of concessions¹¹⁹²; inappropriate building styles; poor maintenance; acid rain; the erosion of traditional ethnic culture and social values; elite capture and inequitable benefit sharing; and the "McDonaldization" of tourism.¹¹⁹³ In the past few years, however local governments have done more to protect relics, restore temples, plant trees and develop tourism services. Most eco-tourism is predicated on an ecotourism-for-business model and there are few if any models of ecotourism-for-development. There appears to be an emphasis within ethnic tourism on the economic development of select 'ideal' groups, often to the detriment of culture and environment, and often without an adequate socio-environmental impact assessment. This has resulted in : a lack of ethnic control and ownership; elite capture; the 'freezing' of ethnic culture; assimilation with the national society; inequitable benefit distribution; authentic compromise; incomplete ethnic images; the erosion of traditional ethnic culture and social values; and compounded by a lack of ethnic capacity building in resource management, marketing or site development¹¹⁹⁴. One critical characteristic of indigenous or ethnic tourism development is the actual 'ownership' or control an ethnic minority group can exert in the process. If the group has legally recognised power in determining local use of national services and infrastructure, and natural resource management it is likely to play a strong role in its own tourism development. The cooperation of local, national and international concerns is a central issue in this kind of tourism development. Political autonomy plays a key role in this development process, which benefits minority groups¹¹⁹⁵. The paradoxes of ethnic tourism occur because of inherent contradictions between conservation and change associated with the process of development. Viable cultures are not static but evolve and tourism accelerates socioeconomic change, which often affects the authenticity of ethnic tourism. Cultural pluralism is an important asset in ethnic tourism, yet political and economic institutions tend to integrate minority peoples into the national society. Culturally and economically sustainable tourism development must fit the local society and make cultural sense. The ethnic people themselves must own the process of

1192 Hotels in particular.

1193 Dangerfield 1995, Liu and Dowling 1991, Li and Hinch 1998, McMaster 1999, Newby and Hong Tao 1991, Ritzer 1993, Tisdell 1996

1194 Li and Hinch 1998

1195 Li and Hinch 1998

local tourism development, and the state, in turn, may benefit from cultural diversity in both a socio-cultural and an economic sense¹¹⁹⁶.

7.6.2 Forest Policies

Although this study recognizes the very long history of forest policy in China¹¹⁹⁷ it will focus on the raft of Chinese forest policies introduced or accelerated since the 1998 floods that are germane to this study and were mostly introduced in Southwest China in Sichuan and Yunnan Province and Tibet AR.

During the summer of 1998, China¹¹⁹⁸ experienced the worst flooding since 1954, which we referred to in chapter 7 section 7.5.5 and will explore further in chapter 8 section 8.1.7. As a result, the Chinese Government introduced or accelerated a number of policies in what appeared to be a 'knee-jerk' reaction to the floods.

They included:-

- A logging ban in southwest China
- A natural forest protection programme
- An upland conversion (or conservation set-aside) programme of steep agricultural land to forest or grassland
- Nature conservation

To be fair most of the policies had been planned and were being gradually introduced and broadly speaking were included under Great Western Development Strategy, China's 10th 5-year plan and Agenda 21.

The Great Western Development Strategy

The Great Western Development Strategy is not a new concept it represents an acceleration of policies, which began when Eastern Kham was 'liberated' in 1949. In the 1950's the Soviet

¹¹⁹⁶ Swain 1989

¹¹⁹⁷ Richardson 1990, Edmonds 1994

¹¹⁹⁸ As well as India and Bangladesh.

Union helped China to build factories in the region and in the 1960's Mao Zedong announced plans to develop heavy industry. In the 1980's, however, Deng Xiaoping focused his market reform policy on the East Coast, and urged the western regions to be patient, stating that their time would come. President Jiang Zemin launched the campaign to develop the west with great fanfare in June 1999. The development model being used, however, resonates with Locke and traditional Marxism where society is deemed to progress through set stages¹¹⁹⁹. The leading group for Western Development, in their search for an apposite development model, have ignored grass roots participation and consultation, and local need, and focused instead on outmoded 19th century colonial models of development¹²⁰⁰. The project was heralded as 'epoch-making' and a 'once in a millennium opportunity'. It would appear, however, that already policies imposed top-down are failing to address local needs and are detrimental to the indigenous people. Policies with the aim of 'ecological protection', such as the new forest policies are depriving people of their livelihood. The influx of Han Chinese migrants is having a dramatic impact on the lives and livelihoods of the local people. Indigenous people face increasing competition for employment and marginalisation within their own communities due to numbers of Han migrants entering the area, leading to concerns for the survival of their culture and identity¹²⁰¹. While Beijing presents the campaign as an entirely positive initiative leading to wealth creation and poverty alleviation, many think its a smokescreen to transfer hundreds of Han Chinese for permanent settlement into minority areas, to further exploit resources, and to bear down heavily on 'splittism' or political intransigence. Top-down policies such as this have tended to exclude the indigenous people from participating in the shaping of their environment and development of their economy.

The Logging Ban

In mid-August 1998, the State Council recognized that the Yangtze river floods, discussed in in chapter 8 section 8.1.7, were related to deforestation in the upper reaches and it urged all governments to protect their forests. Sichuan province responded by introducing a felling ban

¹¹⁹⁹ TIN 2000

¹²⁰⁰ Their 'exemplars' for study included the 'development' of the American West, of 20th century Siberia, of post WW2 Japan, and the poorer areas of Brazil and India.

¹²⁰¹ Fischer 2005

on 1 September in 54 counties¹²⁰² and closing 9 million ha of grazing to facilitate reforestation. In late August, the State Council urged 51 key forestry enterprises to stop, logging and Yunnan introduced a felling ban, along its section of the Yangtze. In December Tibet AR closed all sawmills in southeast Tibet¹²⁰³ and the State Council ratified the ban. Almost immediately, after the felling ban was introduced timber prices in the Beijing wood market rose by up to 30% and the authorities announced they were expecting a shortfall of 45million cubic metres, out of a total requirement of 100 million cubic metres¹²⁰⁴.

In Yunnan, the logging ban was imposed in 54 counties¹²⁰⁵ including nine counties where reforestation experimental units operate. It has had both positive and negative impacts. The policy appears to have helped accelerate the process of natural forest protection. Initially the logging ban was welcomed although there were immediate signs that it was being flouted, and officials who questioned if the funding for conservation (offered in lieu of logging revenue) was a sustainable income stream. Concerns were also expressed about the impact of the ban and pasture closure on the local inhabitants and that most of the funds for replanting would go to Han Chinese forestry workers, instead of local people. It caused much initial hardship to county governments and those receiving income from the logging and transportation business. Additionally those individuals who had invested in logging or transportation equipment received no compensation and were forced to sell at very low prices. It is estimated that in Zhaotong Prefecture¹²⁰⁶, for example local income was reduced by 35million RMB¹²⁰⁷, and in Lijiang by 70%¹²⁰⁸. The logging ban greatly limited sources of income in many villages because farmers were not able to earn income from collective forest and labour opportunities in logging or transportation had gone¹²⁰⁹. This drove many to find off-farm income or back to subsistence lifestyles and as a result, 1.2 million people became 'poor'. The impact on the subsistence sectors appears less severe, because limited access to the forest was allowed for

1202 4.5million ha.

1203 Winkler 1998a+b

1204 Anon 1998a

1205 Comprising 164,343 km²

1206 In Yunnan Province.

1207 £2.4 million.

1208 USE 2000, personal communication Zhao 21/8/01

1209 Mallee 2000

firewood and non-timber forest products (NTFP)¹²¹⁰. The ethnic minorities were especially upset by the logging ban, because they had been using the forest sustainably for thousands of years¹²¹¹. While local farmers are opposed to the ban they know that the policy comes from the top and cannot be disputed. The ban reinforces their sense of powerlessness, justifies their scepticism of the durability of policy impositions, and weakens their security of tenure. Although employment was provided for those state employees in the logging industry and some compensation was given to local governments this proved inadequate at the time. As a result, the capacity of local government to develop infrastructure and maintain health and education services was impaired¹²¹². In spite of the impact of the logging ban, there were signs of localised recovery within 2 years. In Deqin, for example, where government income was reduced by 80% and 340,000 people became poor the economy changed from logging to tourism, and by 2001 access fees to nature reserves alone provide the same income as logging used to¹²¹³.

International studies of the impact of logging bans show very mixed results. In some cases, a logging ban has increased pressure on forests in neighbouring countries and in other countries they have provided protection for forests at risk. An FAO report¹²¹⁴ on logging bans in New Zealand, China, the Philippines, Sri Lanka, Thailand and Viet Nam concluded that bans have in some cases stopped or slowed deforestation. On a regional or global scale, however bans have not significantly slowed deforestation. A key conclusion to be drawn is that logging bans are simply one set of policy tools available to decision-makers within a spectrum of options and alternatives. Several case studies on the Chinese logging ban¹²¹⁵ have concluded:

- The banning of logging in collective forests actually lacks a legal basis. According to the Forest Law farmers who plant trees on collective land own these trees and can harvest them based on a harvest quota system.
- That subsidies failed to address the problems of the local communities dependent on the timber economy.

1210 Xu personal communication 18/9/01

1211 Colchester 2002

1212 personal communication Xu 18/9/01

1213 personal communication Wang Deqiang 24/9/01

1214 Brown et al 2001

1215 CCICED 2002, 2003

- Blanket logging bans create a very powerful disincentive for farmers and the private sector to plant trees, including negative effects on sustaining forest development in the mid and long term

The case studies¹²¹⁶ propose

- The logging ban should be removed from collective forests where appropriate and the farmers provided with secure property rights over their forests
- Compensation should be provided for the losses of private investors
- The natural forest protection program should not be considered equivalent to a logging ban. In many cases, natural resource conservation can coexist with timber and NTFP utilization, given a carefully designed operational plan and an appropriate harvesting regime.
- The government should make a gradual and carefully planned transition over time from a blanket ban to a more diversified flexible approach that enables sustainable forest management of state-owned forests. This will require planning for diversified land use that includes ensuring adequate protection of old growth forests, tree planting as well as natural rehabilitation of sites¹²¹⁷
- That community-based natural forest management should be considered as an option for better management of natural forests instead of the logging ban¹²¹⁸

Clearly, China could not have anticipated all the outcomes of the logging ban, and it would be unfair to single out China alone for blame. In moving to avoid ecological disaster at home, Beijing however has causing a catastrophe abroad, to supply its huge demand for timber and timber products. Environmental groups are monitoring the alarming impact of demand from China in Russia, Indonesia, Burma, Cambodia, Laos, Vietnam, Thailand, Gabon and Papua New Guinea. Japan's hunger for timber helped destroy the rain forests of the Philippines and Borneo and ecologists now fear China will fell the rest. To make matters worse illegal loggers

1216 CCICED 2002, 2003

1217 CCICED 2003

1218 Weiji Deng nd

are taking advantage of entrenched corruption in timber-producing countries to supply this demand. The lowland forests of Indonesia, for example are being systematically destroyed by a corrupt triangle of military officers, timber barons and international companies. At the current rates of destruction, forests will disappear on Sumatra and Kalimantan before 2010. China is moving in aggressively, muscling out competitors and was rapidly becoming the leading destination for Indonesia's illegal logs. There was evidence to suggest that in 2002 China imported 200 times the quantity of logs reported by Indonesian customs. Nearly 50% of China's imports come from the coniferous forests of Siberia and the Russian Far East and illegal logging could exceed 70% of the total¹²¹⁹ with corrupt officials and criminal gangs on both sides of the border playing a role¹²²⁰. With a border that extends approximately 2000 miles and dozens of border crossings¹²²¹ that allow for the unregulated export of logs. Local observers claim there is little monitoring or legal control of the timber trade and that hundreds of small contractors are supplying Chinese timber buyers. Some Chinese logging companies have begun investing in logging companies¹²²² in Siberia and the Russian Far East and to manage logging operations as well¹²²³. It is estimated that 70% of Cambodia's logging is unregulated and much of it is destined for China. Phnom Penh, however, expelled the environmental group Global Witness¹²²⁴, who had been contracted to monitor illegal logging, because they named corrupt officials in the timber trade¹²²⁵. The cash-strapped military regime in Rangoon has been accused of excessive logging in some of the world's largest remaining tracts of virgin tropical forest. Extensive areas of pristine forest in Kachin state, on the Western slopes of Gaoligongshan, have been felled to supply the China trade. While two national nature reserves protect the Chinese side of the mountains, Chinese companies are carrying out large-scale, unregulated logging and mining operations on the Burmese side. The implications for local communities and the environment will be catastrophic¹²²⁶. As the logging ban took hold in the late 1990's China suddenly became the world's second biggest timber importer, after the USA. The logging ban was a huge factor, but there are others too. Domestic

1219 17million cubic metres.

1220 Lague 2003, 2004

1221 And frozen rivers.

1222 Kluchi and Epos

1223 Wen Bo nd, Knight 2000

1224 <http://www.globalwitness.org/> accessed 5th July 2005

1225 Larmer and Seno 2003

1226 Global Witness 2003

consumption is growing fast as the middle classes buy new homes and China undertakes huge civil construction projects. China's entry into WTO¹²²⁷ has driven tariffs for most timber imports down to zero, fuelling imports as well as a rapidly expanding export industry most of it destined to the US and Europe. The rise in demand from China is particularly devastating for Asia in terms of its timing and momentum. Forests were already depleted after decades of felling, by the US and Europe and more recently Japan, Taiwan and Korea, before China became a major player. In many Asian countries conservation policies were only just being implemented when China's economy took off and there are fears that protective measures will prove inadequate in the face of economic pressure. Managing China's requirements is vital for the survival of some of the world's most valuable remaining tracts of forest. Despite the grim outlook there are signs that Beijing is willing to work with foreign governments and environmental groups to try to end the trade in illegal logs and timber products.

In December 2002, Beijing and Jakarta signed a memorandum of understanding to curb the flow of illegal timber into China. It outlines no specific plans or policies, only a list of intentions. It is however, a positive step holding both governments accountable¹²²⁸. Many environmentalists however remain sceptical that this will have any impact until Jakarta tackles the corruption surrounding the logging and timber industries¹²²⁹. There are also high hopes that China will join international efforts to certify legally logged timber so that it can be tracked from forest to end-user.

Beijing is also coming under pressure to relax its logging ban selectively so that designated forests can be harvested on a sustainable basis. At the same time environmental groups, such as WWF are encouraging China to expand its commercial timber plantations, which could replace a big proportion of imports if managed efficiently. Some foreign-owned timber plantation companies view China as a 'suppliers' market for 20 years' and are expanding their holdings. The Toronto listed Sino-Forest Corp, which operates plantations in southern China,

1227 World Trade Organisation.

1228 Larmer and Seno 2003

1229 Lague 2003

plans to list a subsidiary, Sino-Wood, in Hong Kong early in 2004 with the proceeds to be used to fund expansion on the mainland¹²³⁰.

Natural Forest Protection Programme

In Dec 2000, the State Council announced a large and unique plan for protecting China's natural forests, the Natural Forest Protection Programme (NFPP). The historic roots for the plan go back to the 1970's, but the issues were dramatically brought to public attention, because of the heavy floods in 1998 and a number of provinces introduced a felling ban. In the two years following, the Chinese government invested £0.68 billion¹²³¹ in NFPP and related activities. Some of the funds were used to provide new jobs and some for compensation to local governments¹²³² but the main focus was on forest protection and reforestation. In Yunnan, this project covers 8.5million ha of forestland¹²³³ in the main river basins¹²³⁴ comprising 74 counties¹²³⁵. The aim of these forests is to provide an environmental function in terms of biodiversity, climate regulation, nutrient cycling and water and soil conservation. The project includes not only the protection of existing natural forest but afforestation by planting, air seeding and mountain closure.

Ethnic minorities are critical of NFPP and mountain closure in areas that were historical grazing lands¹²³⁶ because throughout their lives, they had protected their forest and enhanced local biodiversity¹²³⁷ and they were not responsible for the felling. They received little or no compensation and are expected to 'protect' the forest, which excludes them and ignores their customary rights, indigenous knowledge and linguistic ecologies¹²³⁸.

Case studies¹²³⁹ have expressed concern about NFPP

1230 <http://www.sinoforest.com/> accessed 5th July 2005

1231 ten billion China Yuan Renminbi (RMB).

1232 Mallee 2000

1233 Accounting for 66% of forest land in Yunnan.

1234 Namely the upper Yangtze, Mekong, and Salween.

1235 13 prefectures.

1236 And are now designated for reforestation, have been fenced off and enclosed against them.

1237 Chen Bo et al 2003, He, Yu, and Li 2000, Yin Shaoting 2001

1238 personal communication He Shao Ying 2001

1239 CCICED 2001

- due to the lack of any specific operating regulations for forest care and management and its failure to address the subsistence needs of the poor
- that the ecological goals of NFPP are not being fully met in that the promotion of monoculture plantings in protected areas fails to ensure preservation of biodiversity

Upland Conversion (agriculture to forest)

The aim of 'Upland Conversion' (UC) was to curb all agriculture on lands with a slope of over 25 degrees. Under the programme, farmers were encouraged to plant trees on their steeper fields, and were offered free grain and cash compensation to make up losses. Additional sums were advanced to establish nurseries and acquire saplings. When completed the aim is to convert around 14.67 million hectares of cropland to forest or pasture. During the first three years, the program spread to 20 provinces, 400 counties and 27,000 villages and more than 15 million farmers participated in the program. The potential impact of upland conversion is huge and could affect 25% of the mountain population of Southwest China. There were concerns though that compensation of grains and cash is inadequate for the local population and alternative livelihood strategies are required¹²⁴⁰.

In Yunnan, the project began in nine pilot counties¹²⁴¹ but there is potential for the programme to spread to 126¹²⁴² counties, which have steep land. The programme has been widely adopted and demand for tree seedling, by 2000 exceeded 6m/year¹²⁴³. By November 2000, more than 50,000 rural households in Yunnan had signed contracts, while others¹²⁴⁴ were reporting a decline in income and farmland¹²⁴⁵. The enthusiasm at local level can be explained by two factors. Firstly, the compensation of food and cash per mu¹²⁴⁶ generally exceeded the farmer's yield on the targeted land. Secondly, the previous three years had been poor in terms of agricultural output and stored food was running out. The compensation, then served as

1240 Zhao et al 2002

1241 Comprising 11.21million mu of steep land of which 2m mu has been transferred to terrace, 8million mu to forest and 1million mu to grassland.

1242 Of 128 counties.

1243 TIN 2000

1244 Usually poor non-participants.

1245 Li Weichang 2001, Ward and Chaudry 2001

1246 15 mu = 1 hectare.

emergency aid to farmers. There was evidence however, that upland conversion is causing socioeconomic change, including loss of income and farmland, increased out-migration and school dropout rates, reduced community action, labour exchange and social cohesion and a decrease in collective trusteeship of natural resources¹²⁴⁷. Curiously, this loss of 'common land/forest common' has taken place at the same time as local village elections, which are predicated on 'local self-governance'. The two processes, the loss of control over commonly managed resources and increased village control are obvious contradictory phenomena¹²⁴⁸. Some farmers have been forced to sell livestock, rent grazing, graze illegally in 'closed' forest or mountains, or even cross international boundaries in search of grazing¹²⁴⁹. Ethnic minorities have been critical of the implementation of Upland Conversion and a delegation at the WSSD¹²⁵⁰ complained that the policy excluded them, marginalized them and impoverished them just as much as the logging prior to 1998.

Although China has reversed its policies, it continues to treat minority people as primitive and backward with no positive role to play in the regeneration of forest. The delegation would welcome the opportunity to participate in reforestation to ameliorate environmental damage as core stakeholders and for community forestry based on best international practice rather than as an instrument of social engineering. They requested WSSD to press China to allow all ethnic minority groups to become full partners in sustainable development¹²⁵¹. There are those who question if Upland Conversion is economically sustainable, what will happen when the compensation runs out and if the compensation is adequate in the long term¹²⁵². If compensation arrives late this can cause problems and species choice is key because people need income early¹²⁵³. In many parts of Kham, grazing continues in the new forest areas, and some have suggested that for reforestation to succeed the local economy should have been allowed to diversify into areas like NTFP and ecotourism¹²⁵⁴. In terms of biodiversity and

1247 CCICED 2001, Du and Guo 2001

1248 Sturgeon 2003

1249 Ward and Chaudry 2001

1250 World Summit on Sustainable Development [2002].

1251 Howard 1994, Li and He 1998

1252 USE 2000

1253 The Lisu and Nu people of Nujiang used to grow *Cannabis sativa* [hemp] as a cash crop, but because economic trees do not give the same return, the government compensates them for not growing hemp. If the compensation arrives late the people have to cut trees, for sale, from their collective forest.

1254 TIN 2000

erosion prevention there are those who have suggested that a conifer monoculture does little to prevent erosion and that the previous agricultural land may have even supported greater diversity. Multiple-storey agro-forestry would have been a more suitable option in terms of addressing nutrition, biodiversity and erosion prevention¹²⁵⁵. The uncertainty and ambiguities surrounding the tenure arrangements will hardly act as an incentive for farmers considering conversion, especially as tenure rights are difficult to support under Chinese law¹²⁵⁶. Lastly, adequate funding has not been provided to protect and manage the forest after they become established¹²⁵⁷. Although the program is impressive in terms of scale, success is dependent not only on erosion reduction, and adequate levels of long-term income to participating farmers but the wellbeing of poor non- participants. Surprisingly, given the large expenditures of effort and capital, the government has undertaken very little systematic evaluation.

While many countries have implemented ambitious conservation set-aside programmes¹²⁵⁸ lessons can be learned from the US Conservation Reserve Program (CRP), because of its scale, history and modifications. Officials in the US were concerned about the cost-effectiveness of CRP, its sustainability, and the post-contract land use decisions of participating farmers. They found that farmers with high current farm income and those with highly productive land were less likely to re-enrol in CRP when the contract expired, and that farmers that were less risk averse, have higher discount rates and have more debt were more likely to return to cultivation.

While the policy's criterion was clear, case studies of Upland Conversion in China¹²⁵⁹ have shown that the speed, top-down nature and over-uniformity of implementation led to some anomalies and failings:

- In addition to land with steep slopes some regions have given priority to flat sites close to the road
- The program lacks systematic indicators that measures the environmental benefits of each site

1255 Mallee 2000

1256 Mallee 2000, personal communication Zhao 21/8/01

1257 personal communication Hu and Lu 16/8/01

1258 Ferraro and Simpson 2000, Uchida et al 2004

1259 CCICED 2002, 2003

- There are no clear guidelines over property rights or future responsibility for management of the trees
- There has been a mismatch between local and central government targets.
- Tree survival rates have in general been less than 50%
- There was a technical bias favouring tree planting over other vegetation and reliance heavily on activities limited to the forestry sector.
- The speed of implementation was beyond the financial, technical, institutional and human capacity of the actors involved.
- There was little integration with other related areas of agriculture.
- There was poor plant/tree selection and an economic tree bias
- There was ambiguity over 'wasteland' and 'bare land' afforestation
- There was a total lack of farmer participation in the planning design and long-term management of the land conversion program
- There was poor extension in terms of the content of the policy
- Farmers had no influence on the choice of technology or species of vegetation to be used.
- It led to a distortion of local markets putting downward pressure on prices, decreasing incomes for farmers who are not involved in UC yet still rely on crop production.

The studies proposed

- Upland conversion should be integrated into watershed management
- Wasteland planting should be reduced
- Reliance on natural regeneration of anti-drought species should be increased
- Conservation technology should be integrated into the development of orchards
- An extension to the compensation period should be considered
- Farmer property rights on converted land should be reinforced
- The government should adopt a holistic, more flexible and multi-sectoral approach to make upland conversion both ecologically and economically sustainable. What is needed is an approach aimed at achieving ecological restoration while providing realistic, economic market-based incentives to households. This will require a more

fine-tuned, decentralized, location-specific approach suited to highly diverse upland conversion circumstances.

- The government should promote routine independent monitoring and evaluation to improve planning and implementation at all levels, adopting a participatory consultative approach to planning that involves stakeholders.

Nature Conservation

Although nature reserves were introduced in Southwest China some time ago, their introduction has recently been increased and their impact needs to be considered in tandem with the other forest policies. Plans were first made for nature reserves in Yunnan in 1958, but due to lack of funds and conservation awareness, they were not implemented for 22 years. During that time 900 tigers, 40,000 leopards and 85,000 pythons were killed. Learning from this lesson the Yunnan Provincial Government (YPG) has made a significant investment in the establishment of nature reserves. By the end of 1999, Yunnan had established more nature reserves than any other province in China¹²⁶⁰. Most nature reserves¹²⁶¹ come under the direct management of the wildlife conservation office of Yunnan Forestry Bureau (YFB). There are plans, in Yunnan, to add 11 nature reserves and 3 bases for wild species during the 10th 5-year forestry plan. Nature reserves are often situated near the poor, who may recognize their importance but require firewood, timber, food, medicines, and grazing for their subsistence livelihoods, which leads to conflict. Additionally birds and animals can destroy crops, and farmers receive inadequate compensation¹²⁶². 'Voluntary' relocation of people from reserves, has proved possible in some parts of Yunnan, although in Danshanbao township 30 families asked to be relocated within the township rather than moving to Simao Prefecture. Currently, however, no funding is available for relocation within a township. Nature reserve managers hope that tourism will bring increased income, but this may negatively impact the wildlife the

¹²⁶⁰ 112 reserves with a total land area of 2.2million ha comprising 6.6% of the province.

¹²⁶¹ 100 out of 112.

¹²⁶² e.g. During 1998 and 1999 birds destroyed 300 ha of crops in Lijiang wetland reserve, and farmers only received USD 4,200 .

environment and the local culture¹²⁶³. Many reserves (especially in north Yunnan) are over-staffed, but under funded, and as a result there is little data collection, inventory development or reporting. Management capability is a major weakness and there are no systems to monitor growth and decline of wildlife species. Subsequently the actual status of wildlife populations in many of Yunnan's reserves is quite uncertain. Better planning is required and more capacity building in wildlife conservation and tourism management, and more research is required to find a formula that balances environmental and biodiversity protection, cultural preservation, and community development. In order to maintain the reserves and reduce conflict provision has been made within the nature reserve legislation (in the experimental areas) for: fuel wood plantations; economic trees; rural energy; NTFP development; eco-tourism; infrastructure development and employment. Provision also exists for the joint-management of nature reserve between the YFB and the local people.

None of the forest policies critiqued above enhance the environment **and** the well-being of the region's poor or minority people. They all are based on a biocentric discourse that prioritizes environmental justice over social justice. In so doing, this discourse strikes directly at efforts to address the felt needs of the poor and indigenous peoples. The only policy that makes any provision for the subsistence needs¹²⁶⁴ is Nature Conservation. Even this appears to be a concession rather than a deliberate aim. One vision for forestry in the region would be based on multi-aim community forestry¹²⁶⁵ based on best international practice, rather than social forestry¹²⁶⁶, which appears to be the antithesis. An alternative might be community- based natural forest management¹²⁶⁷. Unfortunately, the main obstacle to wider success in community forestry is that the approach being demonstrated and advocated by a number of projects¹²⁶⁸ in Yunnan has not been adopted by the government. Although the government permits foreign agencies to carry out community forestry initiatives, and South West Forestry

1263 Currently horseback riding near Bitahai Lake is damaging fragile wetlands and grasslands, and concern has been expressed about tourism impact on the fragile mountain vegetation of Haba Xueshan Reserve. Both Zhongdian and Lijiang county have blasted unsightly roads along both sides of Tiger Leaping Gorge, destroying the scenic properties and filling the river bed with rubble.

1264 Fuel, NTFP, agro-forestry, ecotourism.

1265 Colchester 2002

1266 He and Li 1998

1267 Weijie Deng 2003

1268 e.g. Ford Foundation.

College (Yunnan) and Sichuan Forestry College have appropriate departments, the government regards the approach as too expensive and time-consuming. Indeed all the new forest policies run directly counter to community forestry.

Given the lack of commitment to community forestry, ways should be sought to revise the new policies so that they enhance the environment and the well-being of the poor in the following ways:-

- There should be full partnership/participation for all ethnic and local groups in all forestry programs alluded to in chapter 5 section 5.5, 5.7.1 5.7.2 5.7.3 and 5.9
- The logging ban should be removed from collective forests and people provided with property rights
- There should be easier reclassification of nature reserve¹²⁶⁹
- Forests subject to the logging ban should gradually become sustainably managed (multiple aim) or included in community forestry programmes
- 10% of all forests should be designated for subsistence use
- Bare/burnt areas in all Nature Reserves should be designated for Community Plantations
- The firewood/NTFP quota should be increased¹²⁷⁰ from forests subject to logging ban.
- That subsistence provision (of fuel, NTFP etc) be established in the experimental zones of all Nature Reserves
- That experimental zones in Nature Reserves be located near villages
- That clearer tenure arrangements be made for those participating in UC
- That funds for UC forest management be made available
- That species choice for UC should not just comprise conifer monocultures but should address water and soil conservation, biodiversity and agro-forestry.

¹²⁶⁹ From core to experimental where required.

¹²⁷⁰ a small unfixed quota of firewood/NTFP was allowed from forests subject to the logging ban in order to address subsistence need.

7.7 CONCLUSIONS

In this chapter, we considered Chinese and Tibetan eco-spiritual, nature, race, and environmental discourses and policy and reached the following conclusions.

Traditional religious knowledge systems are being reconsidered in Asia for their environmental potential. In Thailand, monks are tackling environmental issues using, Dhammic socialism, folk Buddhist rituals and an ecological interpretation of Buddhist teachings and in India Chipko, activists are drawing on a Bishnois Vaishnavite tradition. In China *fengshui*, Daoism and indigenous knowledge are being revived in a process of nativization, that is juxtaposed against a political landscape that encourages 'science' and 'economics' at the expense of 'superstition' and 'backward culture'. We discovered that although Daoism and *fengshui* have resources that support nature conservation neither are exemplars of explicit nature conservation.

Neither Eastern nor Western societies are intrinsically inferior or superior in their perspectives of nature. Conceptually and empirically, both cultural viewpoints reflect functional and dysfunctional attitudes toward the natural world. From a positive perspective, both cultural traditions have embedded within their conceptions of nature the seeds of a powerful ethic of appreciation, respect, and concern for the conservation of nature. From the East, we derive an enhanced compassion and appreciation for life, a profound intuition of nature's oneness, and the willingness to exist in harmony and balance with the natural world. From the West, we understand nature empirically; we have a tradition of environmental stewardship, and the belief in wisely managing and controlling the natural world.

The right for China's indigenous people to maintain their own cultural identity and lifestyle in the last 20 years has become a paradox. Minorities are legally recognized, local leaders must belong to a minority group, and provision is made for the establishment of local institutions but at the expense of cultural erosion. Although the state is interested in the folkloric diversity of indigenous people for the purpose of attracting tourists they make no attempt to understand indigenous cultural values or knowledge. Official discourse completely ignores the wealth of

indigenous knowledge and land use systems that exist. In order to maintain their cultural identity the Tibetans have had to adopt a form of ritualized protest as a substitute for discourse.

Throughout China's long history there is evidence of a long legacy of conservation, 'nature reserves', and 'eco-tourism' but there are paradoxes in both Chinese and Tibetan treatment of the natural world, which present challenges to Nature conservation and Natural Resource Management. China's recent forestry policies are manifestly overly biocentric and very little attention appears to have been given to the impact of individual or collective policies on the subsistence economy, the inclusion of best practices in community forestry, or the impact on gender relation or the poor, or minority groups.

In spite of severe pollution, environmental consciousness has only emerged slowly among the Han Chinese and authoritarian rule has only recently allowed limited engagement in environmental discourse, movements and popular protest. In the mid 1990's a tiny, but important environmental movement was allowed to emerge although the government retained the green initiative, which continues to be vulnerable to technocratic centralism. After Tiananmen environmental NGOs had to pick and choose causes and use subterfuge, but since 2000 China's environmental crisis has become the focus of a very public dialogue between state and society. A re-negotiation of the relationship between the two is underway, and a new and politically significant dynamic between them is emerging. This dialogue is being especially articulated in the media

Environmental protests in China are a relatively recent phenomenon. The promulgation of China's first environmental law, in 1979, has not only provided a legal basis for environmental protection but also enhanced the public's sense of basic rights in favour of justifying forceful, sometimes even violent, environmental protests. Such protests also embody a rich, culturally informed repertoire of social movements in Chinese history. Specifically, kinship, popular religion, moral concerns, and ancient tales of justice serve as crucial institutional and symbolic resources in the mobilization of protesters at the grassroots level. General Protests have been directed against state policies, state practices and state officials, but most actions have remained local and limited. The authorities, ever watchful, have all worked hard to contain

such incidents and prevent them growing into larger-scale mass movements. Although the landscape of grassroots protest changed at the end of the 1970s when complaints offices and legitimate channels for protest were established, those that protest almost always face hostility, bribery and even revenge.

Any form of protest, by minority people is not encouraged, and post 11th Sept are often interpreted as 'acts of terrorism' and it has been even more difficult for them to identify a metaphor or a strategic discourse to oppose Han development or to develop their own autonomy. The Tibetans, however, are responding to the destruction of their natural resources and culture in a number of ways by local protest, by developing links with international environmental and human rights groups, by voicing their concerns at international fora, and by promoting discursive 'green' strategies.

In spite of the impact of four totalizing discourses and extractive forest policies endured for more than 50 years there remains a strong tradition of natural resource stewardship among the peoples of the Kham. Their forest values and unique linguistic ecologies¹²⁷¹ bear testimony to these traditions as do their "epistemologies of nature". In the next chapter, we will attempt to analyze these phenomena among the peoples of Eastern Kham with the research methods reviewed in chapter 6 section 6.3.

1271 Mulhausler 1996

CHAPTER 8 FOREST VALUES IN EASTERN KHAM: RESULTS OF COGNITIVE MAPPING

This chapter will focus primarily on the cognitive mapping of forest values in Eastern Kham in pursuance of the aims outlined at the end of chapter 5, based on the methods outlined in chapter six section 6.3 and against the background of the discourses discussed in the last chapter. Before, however, we consider the results it is important to recognize that notwithstanding the influence of Beijing discussed in the last chapter that Eastern Kham has existed as a separate geo-political entity for much of the last millennium. In comparison Western Kham, which culturally has much in common with Eastern Kham, has largely been controlled from Lhasa. Because of their respective backgrounds, this chapter will begin by addressing both (See Map 1-1). For more details of Eastern Kham, refer to Map 8-2 for ethnic groups, Map 8-3 for the forest cover, Map 8-4 for counties, and Map 8-5 for water catchments.

8.1 KHAM

8.1.1 Kham

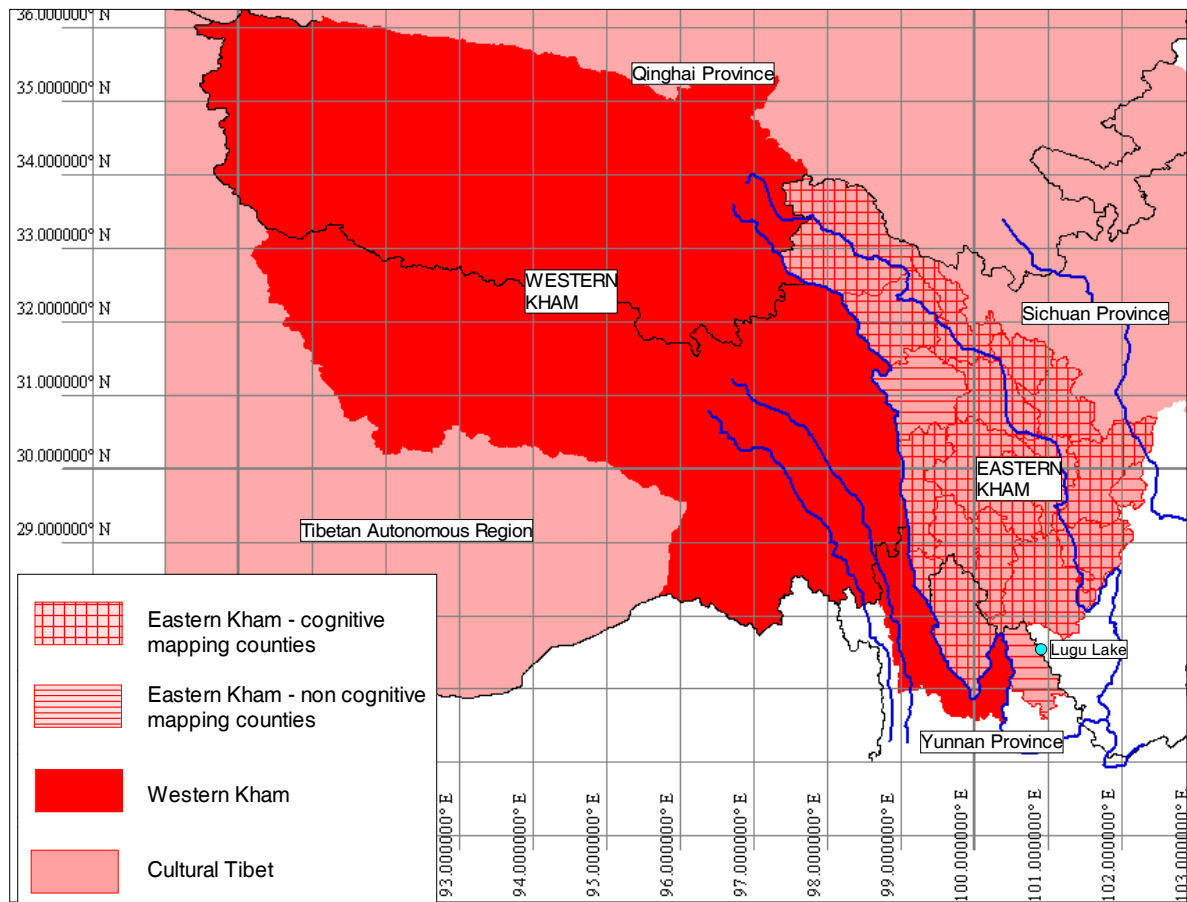
Kham (subsequently referred to as 'the region') represents one of the most unique biological regions on earth. It is situated at the eastern end of the Himalaya between the Qinghai-Xizhang¹²⁷² Plateau and the central plain of China. The spectacular north-south mountain ridges sandwiched between deep river gorges contain the most diverse vascular plant flora of any region of comparable size in the temperate zone, and almost half of China's flowering plant species. Identified as one of twenty five biodiversity 'hotspots'¹²⁷³ on earth this vast region, covering ca 400,000 sq km, contains over 12,000 species of vascular plants¹²⁷⁴. Although some botanical exploration has been conducted, the region has never been fully inventoried because of the sensitive political environment and the rugged terrain makes much of the area difficult to traverse. The Region constitutes about 4% of China's land area,

¹²⁷² Tibetan.

¹²⁷³ Myers 1988

¹²⁷⁴ With almost 3,500 endemic species and at least 20 endemic genera.

Map 8-1 of Western and Eastern Kham (east of the Yangtze River)



includes seven mountain ranges¹²⁷⁵ and comprises 'Western Kham'¹²⁷⁶ and 'Eastern Kham'¹²⁷⁷. Elevations range from 1000m to over 7556m¹²⁷⁸ with a mean elevation of 3500m. Four of Asia's largest rivers¹²⁷⁹ flow through the region, which originate on the 5000m high Qinghai-Zizang¹²⁸⁰ plateau and are of great economic importance to the people who live along them. The rapidly increasing exogenous impact on the region threatens not only the diversity of flora and fauna, but also the survival of indigenous cultures that define much of Southeast Asia. A brief glimpse at the dominant Tibetan culture illustrates the richly textured traditions, which characterize the region. The region bears the strong imprint of Tibetan Buddhism, Bon

1275 Shaluli shan, Taniantaweng shan, Nu shan, Goligong shan, Daxue shan, Qionglai shan and Min shan.

1276 Parts of eastern Xizang and southern Qinghai to the west of the Yangtze river.

1277 Parts of western Sichuan and northern Yunnan to the east of the Yangtze river.

1278 At the summit of Gongga Shan in western Sichuan.

1279 Yangtze, Mekong, and Salween and Brahmaputra.

1280 Tibetan.

and folk religion¹²⁸¹ which is displayed in large temple complexes, chortens, prayer flags, festivals, oracles and numina associated with sacred landscape features¹²⁸². Sacred mountains punctuate the landscape and they are unique in that their forests have not been subject to logging¹²⁸³. Although more ethnobotanical research has been done in the region than in the rest of China, little research has been conducted on customary nature conservation practices, linguistic ecology, environmental perception, or the impact of proposed landscape use changes on the local people

8.1.2 The Khamba Peoples

Of nearly 5 million 'Tibetans'¹²⁸⁴, living in China, there are approximately 2 million who speak 'Kham'¹²⁸⁵, which is quite distinct¹²⁸⁶ from the Kham spoken in mid-western Nepal¹²⁸⁷. They inhabit a vast area but are primarily concentrated for political and historic reasons in western Sichuan Province¹²⁸⁸, a large portion of eastern Tibet¹²⁸⁹, parts of southern Qinghai Province¹²⁹⁰, and parts of Northern Yunnan¹²⁹¹. The eastern Kham language (See Map 8-2¹²⁹²) is by far the largest of the Kham varieties with possibly 1,250,000 speakers. It is reported to have 8 dialects and 80% lexical similarity with central Tibetan. There are also about 50,000 Qiangic speaking peoples¹²⁹³ in Eastern Kham who are also classified as 'Tibetan'

1281 Samuel 1993 a + b Stein, 1972

1282 Ramble and Braun 1993

1283 Stevens 1993, 1997, Studley 2004c

1284 i.e. 藏族 zang4 zu2 which refers to "Tibetan nationality" and includes Qiangic speaking 'Tibetans' (in pinyin *zang* is 4th tone and *zu* is 2nd tone).

1285 As a 1st or 2nd language (Barnett 1993).

1286 <http://www.infoclub.com.np/nepal/detailsoflanguages.htm> accessed 5th July 2005

http://www.ethnologue.com/show_language.asp?code=kjl accessed 10th Aug 2004

1287 Watters 2002

1288 Ganzi Prefecture and Muli County.

1289 Parts of Chamdo, Nakchu and Nyangtri district.

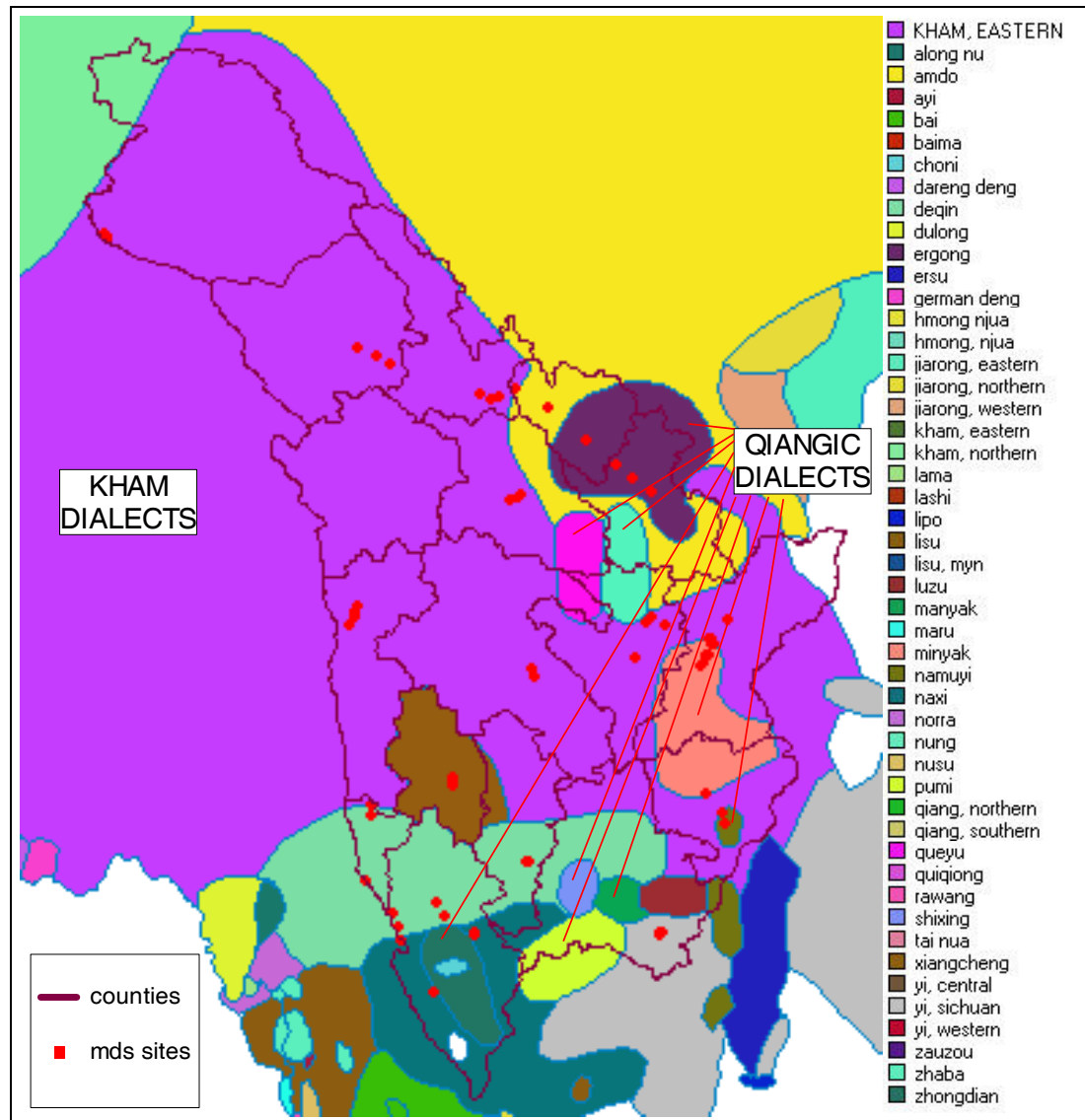
1290 Yushu Prefecture.

1291 Deqin Prefecture.

1292 Global Mapping Institute and digitized from Hattaway 2000.

1293 These include the Ergong, Ersu, Minyak, Zhaba, Xiangcheng, Queyi, Namuyi, Shixing, Manyak, and Luzu peoples (Hattaway 2000).

Map 8-2 The language groups of Eastern Kham



because of their culture, customs and beliefs¹²⁹⁴, but speak Khamba as a second or third language, and are usually matrilineal¹²⁹⁵. The most important cities in Kham include: Chamdo, Derge, Yushu, Kanding and Zhongdian, and among these Chamdo¹²⁹⁶ with a monastery housing 2500 monks and dating from 1473, is regarded as the main centre. Other main towns include Bayi, where a massive textile and carpet factory employs 1,300 workers, and Batang, which at 2,700 meters had a large Chinese and small European settlement prior to 1950¹²⁹⁷.

1294 In common with the Khambas they are animistic/shamanistic as well as Tibetan Buddhist as well as burning incense and honouring mountain gods at yearly festivals.

1295 <http://www.answers.com/topic/qiang-1> accessed 5th July 2005

1296 in Western Kham.

1297 Gyurme Dorje 1996

The Khamba have a fearsome reputation as the most hostile and violent of Tibetans. They have been described as tall and well-built men, fearless and open of countenance, they resemble Apache Indians, with plaited hair hanging from each side of well-modelled heads¹²⁹⁸. Kham is larger than Spain; a rectangle of approximately 160,000 square miles¹²⁹⁹ lying between central Tibet and China, and is part of 'Greater Tibet' or 'Ethnographic Tibet'¹³⁰⁰. Bisected by deep gorges and high passes Kham's altitude, weather, and aggressive population have always united to deny entry to the foreigner. Even today, there are few accurate maps that define its contours, record its villages and the secret routes of its nomads. To the Europeans, Chinese and Lhasa Tibetans, Kham has always been a vast no-man's-land. To the south, it is bounded by the Himalaya and the Bramaputra, to the north the Amne Machin range and the Tibetan region of Amdo, and to the east the Sichuan Basin.

8.1.3 Kham History

Space only allows me to summarise my account¹³⁰¹ of the history of Kham. It is hardly surprising that here in this wild, forgotten land, should be found one of the most rugged races on earth, and an independent fighting spirit that was birthed during the reign of Tibetan King Songtsen Gampo¹³⁰². Songtsen Gampo was a Tibetan chieftain who, in AD 630 set out to unify the wild tribes of central Asia. Twenty years after taking up arms, he had raised one of the fiercest armies of all time and extended his empire over Kham and Amdo, which had been the domain of the White Wolf Qiang, as well as most of central Asia and well into China¹³⁰³. From the frightened Chinese emperor he demanded a daughter in marriage. The emperor was obliged to comply and also to pay an annual tribute to the Tibetan King. So powerful was Tibet at this time that when in AD 763 a subsequent Chinese emperor refused to pay the fifty thousand rolls of silk owed in tribute to the Tibetan court, Trisong Detson¹³⁰⁴, Songtsen Gampo's great-grandson, invaded China and captured the capital of the Celestial Empire¹³⁰⁵. The Tibetan king then deposed the Chinese emperor and replaced him temporarily with his

1298 Hattaway 2000

1299 414,400 sq km.

1300 See Map 1-1 on page 7

1301 Studley 2004 www.members.lycos.co.uk/johnfstudley/Kham_History.rtf accessed 12th Feb. 2004

1302 AD 617-650

1303 Marshall and Cooke 1997

1304 AD 741-798

1305 Which was Xi'an (or Chang'an) in those days.

own brother-in-law. Later when King Ralpachen converted to Buddhism the Tibetan empire began to disintegrate, and Kham became more independent. In 821 during a lull in hostilities, Tibet and China made a pact of nonaggression¹³⁰⁶.

In the 1,200 years that followed, however, the history of Kham was marked by endless feuds between warrior chiefs in deadly competition for supremacy over Kham's remote hinterlands¹³⁰⁷. By the end of the 12th century, the Kingdom of Ling, home of the epic hero King Gesar, had expanded, to include most of Kham, if we are to believe his "super human" exploits¹³⁰⁸. In the 1600's the Naxi Kings¹³⁰⁹ felt strong enough to make incursions into Tibetan territory, resulting in recurrent fighting on the southern Kham cultural-ecological frontier. This made the Tibetans build watch and defence towers across southern Kham separating the Tibetans from the Tibeto-Burmans¹³¹⁰. The kingdom of Ling must have declined because it apparently played no significant role in 1640 during Gushri Khan's campaigns in Kham, when his principal opponent was the pro-Bon King of Beri. By the 17th century, the kingdom of Derge had enlarged itself at Ling's and Beri's expense, and subsequently much of eastern Kham became part of the extensive Derge estate. It would appear, however that Ling and Beri continued as a semi-independent states. In spite of Derge's overlordship, eastern Kham's nomads were notorious for their independent nature, and could hardly be considered submissive to anyone except their immediate tribal chiefs. When, as occasionally happened, a foreigner was foolish enough to challenge the Khambas, they would unite, their quarrels momentarily forgotten. When this occurred there were few who could oppose the "race of kings", not the Chinese, or even Chenggis Khan who eventually came to terms with them on the basis of patron-priest relationship¹³¹¹.

1306 Snellgrove and Richardson 1968, Stein 1972, Strauss 1992

1307 Lane 1994

1308 Samuel 1992

1309 Of NW Yunnan

1310 Rock 1930a + b, Roosevelt and Roosevelt 1929, van Spengen 2002

1311 Peissel 1972 page 11-18

8.1.4 Khamba Identity

Kham is situated between two power centres, China and Tibet and from the late nineteenth to the mid-twentieth century, imperial, colonial and local forces clashed and intersected in a process of place-making and nation-building. Too often latter-day Chinese, Tibetan and Western accounts have ignored this and peripherized local concerns. The multiplex conditions that constituted the Khamba geopolity have received little attention. Recent research however has begun to address aspects of the axes of power, space and identity in Kham, the often-discordant visions of parties who wished to transform it and the vision of the Khamba. Traditional historiogeography characterized Kham as a frontier zone to be incorporated and civilized by the centres of power, and ignored the frontier as discursive process. In traditional studies of frontier places, the people who inhabit them have been portrayed as passive objects, and their responses to forces beyond their immediate control simply ignored. When viewed from the centres of power (Beijing, Chengdu and Lhasa) frontier zones like Kham were easily relegated to the margins of history. This position has been interrogated increasingly in recent scholarship of the Han frontier and has led to a recentering of the local. The Khambas have been employing political strategies, which appropriated both local and inflowing resources thus turning them into power sources and establishing their sense of centrality. Although much of the ethno-graphic and historical studies focus on central Tibet, with the exception of King Gesar of Ling¹³¹², it would appear that Kham did not make much impression on the Tibetan or Chinese consciousness until the mid-nineteenth century with the Khamba warlord *nyag rong mgon po mam rgyal (mgon mam)*¹³¹³ and Chinese and Tibetan activities in the border region. There is however strong indications that even before this period there was an emergent ethno-national consciousness among the Khambas of which *mgon mam* was only a part. During the Republican period¹³¹⁴ there were three movements¹³¹⁵ for Khamba autonomy, the Baan incident in 1932, the Nuola Incident in 1935, and the Ganze incident in 1939, but they were largely written out of standard Chinese and Tibetan histories. In reality, the Khambas' actions were mapped in response to political exigencies in Central Tibet and China. They were

1312 Whose super human exploits in the 11th century including conquering most of the region.

1313 ཉག་རོང་མགོན་པོ་རྒྱལ། *nyag rong mgon po mam rgyal*

1314 AD 1911-1949.

1315 Peng Wenbin 2002, Qing 1975

attempting to establish regional autonomy while coping with Chinese and Tibetan nation-building projects¹³¹⁶. There has been little research exploring *mgon mam*'s attempt to restructure society and build a Khamba state¹³¹⁷, the religio- philosophical union resulting from the *ris med*¹³¹⁸ movement¹³¹⁹ or the revival of the King Gesar cult as the foundational saga for unification¹³²⁰. Taken together these movements appear to signal a nascent sense of unique Khamba identity¹³²¹ which continue to this day where they provide the basis for an oblique 'counter discourses' against Han China predicated on rituals of defiance and protest, which we referred to in chapter 7 section 7.4.4 and 7.5.5.

8.1.5 Environmental Degradation

The forests of Kham¹³²² were among the most extensive areas of forest cover in China and comprise 95% of forestland found in the 'headwaters of the Yangtze'. Since they were designated,¹³²³ China's 'second timber production base' and macro-scale timber production enterprises were established¹³²⁴ all these areas have experienced indiscriminate felling¹³²⁵. The majority of the destruction was **not** caused by population pressure, or 'criminal elements', or local farmers, and it did **not** mostly occur "40 years ago to fuel backyard steel furnaces of Chairman Mao's ill fated Great Leap Forward"¹³²⁶. It was caused by 'planned' commercial timber extraction based on government quotas¹³²⁷. Timber was not only required for China's booming economy, but it was often the most important source of cash revenue for local administrations, enabling them to fund education health and infrastructure. State forest enterprises were required to sell a minimum timber quota, which was often as much as 3 times the sustainable yield, at a price that was often below production costs¹³²⁸. To compensate for this they often sold even more timber on the free market. As a result, in some areas annual

1316 Feng 1992

1317 Tsering 1985

1318 རིས་མེད། *ris med*

1319 A synthesis of academic and shamanic aspects of Tibetan Buddhism (Samuel 1993a).

1320 Samuel 2002

1321 Epstein 2002, Samuel 1993a

1322 Including SE Tibet AR, Western Sichuan, Northern Yunnan, South West Gansu, and SE Qinghai.

1323 In 1950

1324 In 1956

1325 Li 1993, Richardson 1990

1326 Pearce 1999

1327 Smil 1984, Winkler 1998a+b

1328 Winkler 1998a+b

felling was four times more than the sustainable yield. Consequently, Forest cover in TAR fell from 9 % to 5 %¹³²⁹, in Yunnan from 55 % to 30 %¹³³⁰, and in Sichuan from 30% to 6.5%¹³³¹¹³³². Some of the most disquieting reports on deforestation come from Sichuan and Yunnan Province. Deforestation in Aba Prefecture¹³³³ began in the late 1950's, and although Sichuan did lose one tenth of its growing stock¹³³⁴ during the 'Great Leap Forward'¹³³⁵ this was mostly in the Sichuan Basin¹³³⁶. Deforestation accelerated in Aba Prefecture in the late 1960's, when it supplied up to 84% of Sichuan's timber quota. It was not until the 1980's and 1990's, when most of Aba's forests were depleted¹³³⁷ that large-scale deforestation spread into the main Yangtze catchment in Kham.

Yunnan still ranks fourth in China in terms of total timber resources, but in relative terms, the province's deforestation has been even more extensive than in Sichuan, and its loss of forestland appears to be by far the greatest in China. Clear felling began in N Yunnan in the early 1950's when about 55 percent of province was covered by forests, but by the 980's, it had dropped to 30 percent¹³³⁸, and annual wood consumption was double the growth rate. To make matters worse large scale clear felling was widely practiced, tree planting to tree felling ratios were very low (1:10), tree seedling survival rates of less than 30% were common¹³³⁹, less than 40% of woody biomass was utilized, and only about 7% of milling wastes were utilized¹³⁴⁰. The destruction of the forests of Kham, from the 1980's appears to have been paralleled by an almost annual occurrence of environmental destruction¹³⁴¹ with flooding and snow disasters.

1329 1950-1985

1330 1950-1975

1331 1950-1998

1332 Pomfret 1998, Winkler 1998a+b

1333 Western Sichuan.

1334 Or 1.24m ha.

1335 1958-61

1336 i.e. Eastern Sichuan.

1337 It only supplied 15% of Sichuan's total quota in 1980.

1338 In some areas it was much worse and in Zhaotong County forest cover fell from 50% to 8%.

1339 Dong 1985, He 1991

1340 Smil 1993

1341 Studley 1999a, 1999b, Smil 1984, Wang Hongchang undated

8.1.6 Climate Change

The destruction of forest, and grassland, in Kham, appears to have impacted not only regional but also global climatic patterns. The environmental, social and economic impact was not just confined to the region¹³⁴². Kham towers over the Eurasian landmass deflecting the 'jet streams'¹³⁴³, in the upper atmosphere influencing the atmospheric circulation of the northern hemisphere. The area is a critical player in global climate stability and has an especially important influence on the Indian monsoon. With the help of computer modelling up to 29 indicators have been identified which help predict the formation of monsoons. Two important indicators are the jet stream patterns and the amount of snow cover on the area. The amount of snow cover is partially determined by the amount of forest and grass cover, but more specifically any reduction in vegetation, increases albedo¹³⁴⁴ which delays rates of snow melt during the spring. Green forest cover absorbs 95% of solar energy, clear-felled areas and grasslands absorb 80% while barren land and rock even less. Forested areas not only break up snow cover but also retain heat. As the plateau's ability to absorb solar heat is crippled by deforestation, and pasture degradation, snow disasters are exacerbated¹³⁴⁵ and snowmelt is delayed. Due to the delay in snowmelt, the heating mechanisms of the area diminish, and through a series of interconnections the pressure systems are altered which delay or reduce the Indian monsoon. The disruption of the monsoon is potentially disastrous for Indian agriculture¹³⁴⁶. As the heating capabilities of the area are delayed jet stream patterns that affect the entire northern hemisphere are altered, and wind currents are deflected and compressed over thousands of kilometres¹³⁴⁷. A correlation has, for example, been established between extended snow cover in Tibet and not only heavy rainfall in the Yangtze basin but high sea temperatures over the North Atlantic, resulting in sunshine in Europe and typhoons in the

1342 Derbyshire and Gasse 1996, Smil 1984, Studley 1999a, 1999b Wang Hongchang nd

1343 The jet stream is a current of fast moving air found in the upper levels of the atmosphere. This rapid current is typically thousands of kilometers long, a few hundred kilometers wide, and only a few kilometers thick. Jet streams are usually found somewhere between 10-15 km (6-9 miles) above the earth's surface.

[http://ww2010.atmos.uiuc.edu/\(Gh\)/guides/mtr/cyc/upa/jet.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/cyc/upa/jet.rxml) accessed 5th July 2005

1344 The fraction of solar energy (shortwave radiation) reflected from the Earth back into space.

1345 O'Kane, M. 12/12/1998, Studley 1999a, 1999b

1346 In 1998, for example, the erratic behaviour of the monsoon (unexpected rains and drought) caused extensive damage to crops, resulting in escalating food prices, and extreme hardship.

1347 Reiter 1981

Pacific¹³⁴⁸. Although there is some debate in China¹³⁴⁹ about snow disaster reduction because of global warming the recent evidence¹³⁵⁰ still suggests almost annual snow disasters in the region. In:-

- 1993-1994 - in Nagchu Prefecture (TAR) 76% of livestock died
- 1995-1996 - in Yushu Prefecture (Qinghai Province) and Shiqu and Serta County 800,000 yak died with losses of USD 14.5 million
- 1997-1998 - in Yushu, Chamdo, and Nagchu Prefectures (in TAR) 50% of livestock died with losses of USD 125 million
- 1998- 1999 - in Qinghai Province 100,000 yaks died with losses of USD 31 million
- The spring of 2000, some pastoral areas in Xinjiang and Inner Mongolia suffered from heavy snow disasters. 25 persons were killed, 16 in Inner Mongolia and 9 in Xinjiang. 788,000 animals died, 467,000 in Inner Mongolia and 321,000 in Xinjiang¹³⁵¹.
- The December 2002 continuous snow fell in Inner Mongolia, accompanied by a drastic temperature drop and 20-40 cm of snow. In January 2003, the snow disaster became worse and by the end of February, animals were still unable to go out for food¹³⁵².
- July 2003 rain, floods and hail caused havoc in Yushu Town (in Qinghai Province). According to local government report, there were 67 family homes in Yushu town completely destroyed causing 348 people to become homeless with nothing left except the clothes on their backs. There were 5491 family homes damaged or partially destroyed and 33,023 people are affected in some way¹³⁵³.
- January 2005 constant snowfalls hit Ari, Shigatse and Nagchu in Tibet Autonomous Region, causing the death of 16,600 animals and blocking transport¹³⁵⁴.

1348 When the typhoons in the Pacific interrupt the trade winds off the West Coast of North and South America, they may cause *el nino*, which is seemingly responsible for disruption and storms in Peru, Ecuador and California and possibly droughts in New Zealand, Indonesia, Australia, India and southern Africa. It would appear that alterations to the area's vegetation cover play a role in generating regional climatic disruptions which have the potential to dovetail into global climatic change.

1349 ITV.COM 2005, People's Daily 4/4/2003

1350 AFP 31/12/1997, O'Kane 12/12/1998, TIN 13/3/98, 3/3/96, Xinhua 28/8/94

1351 http://www.zhb.gov.cn/english/SOE/soechina2000/english/climate/climate_maine.htm accessed 31st October 2005.

1352 <http://www.zhb.gov.cn/english/SOE/soechina2003/disaster.htm> accessed 31st October 2005.

1353 <http://www.jinpa.org/news/030813news.asp> accessed 31st October 2005.

1354 <http://english.sina.com/china/1/2005/0227/22558.html> accessed 29th Sept 2005

This evidence underlines for the peoples of Kham, in common with the Chipko activists we will discuss in chapter 10 section 10.1.1, that on the basis of 'folk sense' the destruction of the forests and pasture land by the Han Chinese has a causal link with climate, environment, well-being and especially the floods of 1998.

8.1.7 The Floods

During the summer of 1998, China¹³⁵⁵ experienced severe floods affecting many of Asia's largest rivers, which we referred to in chapter 7 section 7.6.2. The Yangtze experienced the worst flooding since 1954, claiming more than 3,650 lives and causing more than USD 30 billion of damage. Although most of the flooding occurred in the Chinese lowlands it also occurred on the Tibetan plateau. In Tibet AR, the Yarlang Tsangpo¹³⁵⁶, the Kyi-Chu and other rivers rose to record levels resulting in the loss of at least 53 people and 4000 head of livestock¹³⁵⁷. More than 40 counties were affected and most of TAR's roads were damaged. Flood frequency has been increasing in both Tibet and southwest China. During the Qing dynasty,¹³⁵⁸ the Yangtze flooded every decade, and between 1921-1949, the frequency rose to once every six years. In the 1980's the frequency rose to a large flood every two years. In the 1990's the situation got worse with floods in 1994, 1995, 1996 and 1998. The Chinese government first officially recognized a causal link between deforestation and environmental destruction after the floods of 1981 and 1983¹³⁵⁹ and measures were implemented in some areas. Chinese forest researchers have for many years been developing pragmatic eco-friendly silvicultural and harvesting guidelines¹³⁶⁰. All these measures, however well-intentioned have rarely been translated into best practice on the ground. Best practice has always had to compete with the doctrine of 'social market forces', which has treated trees as a free good and lacks the feedback processes of the conventional market economies¹³⁶¹. After four decades of timber mining, the floods caused the government to consider in more detail both logging practices and reforestation in the headwaters of many of Asia's largest rivers.

1355 As well as India and Bangladesh.

1356 Bramaputra.

1357 Mostly Yak.

1358 1644-1911.

1359 Richardson 1990

1360 eg Yang 1986, 1987

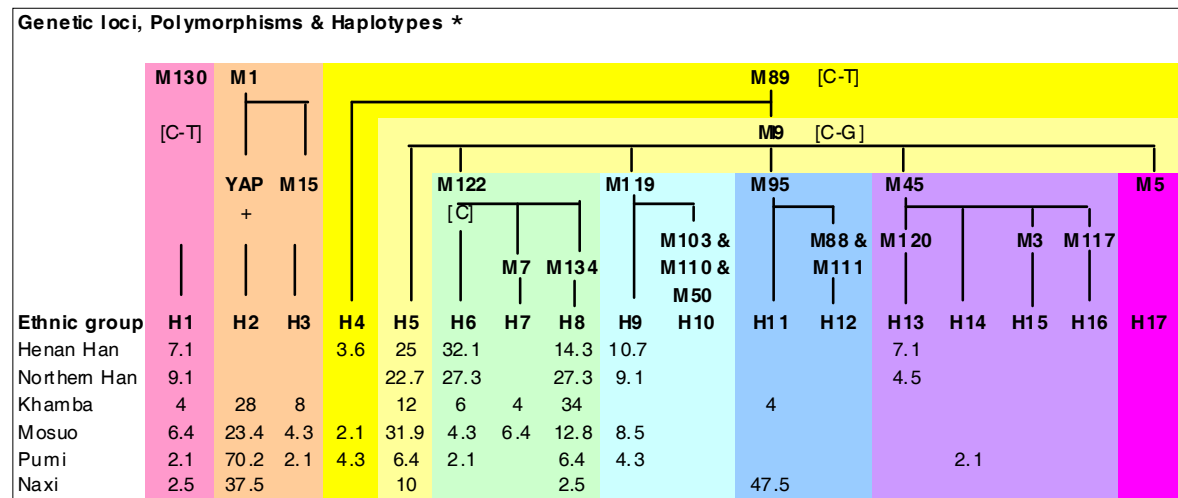
1361 Zhang 1/11/1998

The preceding sections of this chapter have provided a vignette of the history and dynamics of Kham and the Khamba peoples and the specifics of the environmental circumstances facing the region and its peoples over recent years. This has provided a contextual base to consider in the following sections environmental and forestry perception among the Khamba peoples through a presentation of cognitive mapping research conducted amongst the peoples of eastern Kham. The justification for this quantitative approach and the methodologies used described and evaluated are found in chapter 6 section 6.1 and 6.3.

8.2 RESULTS

The results of cognitive mapping will be discussed and analyzed from a local and regional context and will draw heavily on two studies from an enclave of Kham at Lugu Lake

Figure 8-1 Genetic profile of selected ethnic groups



recognized by the Tibetan government-in-exile among people with similar genetic stock¹³⁶² (See Figure 8-1) as the Khamba Tibetans. The two studies were discussed in chapter 6 section 6.5.2, 6.5.3, included forest value ranking, and ethnoforestry.

¹³⁶² It would appear that the Khamba Tibetans have a similar profile to the Mosuo and the Pumi and a dissimilar profile to the Naxi and Han Chinese. The Qiangic peoples are believed to belong to the same bloodline as the Xia (Shang) Chinese who originated in Henan province. Whatever their blood line there is every reason to suspect that the Tibetan & Qiang molecular sequences are geographically discordant (Bailey nd)* Genetic loci = M*, Polymorphisms = [] and Haplotypes = H? (See Bing Su et al 2000, The Y Chromosome Consortium 2002 (for nomenclature), Zhili Yang et al 2005).

8.2.1 The Forest Values Used for Cognitive Mapping

The purpose of cognitive mapping is to understand; the relative importance of local forest values to the peoples of Eastern Kham, the cognitive domains¹³⁶³ (or subdomains) and paradigms they use, and the perceptual impact of external interventions. The 'Galileo' MDS technique discussed in chapter 6 section 6.3.1 was adopted in order to cognitively map the 15 forest values (See Table 8-1) that were identified during the forest value study during field testing in Kham described in chapter 6 section 6.6.2.

Table 8-1 Forest values adopted for cognitive mapping from 1999-2005

Years	Type of Value	15 Forest Value	17 Forest Values
1999-2005	Local values	Conservation, Blessing, Tibetan Buddhism, yul-lha, Natural Environmental Function, Forest products, Natural Hydrological Function	Conservation, Blessing, Tibetan Buddhism, yul-lha, Natural Environmental Function, Forest products, Natural Hydrological Function
	Objects of Value	Forest and Wildlife	Forest and Wildlife
	Local forest actors	Men, Women, Self	Men, Women, Self
	External interventions	Conservation, Hunting for foreign exchange, Industrial forestation, Socialism	Conservation, Hunting for foreign exchange, Industrial forestation, Socialism
2003-2005	Other		This place and Ganzi Town

During 1999-2002 MDS was based on scaling between 15 forest values (See Plot 8-1 and 8-2) or 105 pairs¹³⁶⁴ referred to above and from 2003- 2005 it was based on 17 forest values (See Plot 8-3) or 135 pairs¹³⁶⁵. The new values added from 2003 included 'this place' and 'Ganzi Town'¹³⁶⁶ the latter being added for comparison, because the juxtaposition of 'place' and the other values would have been meaningless on its own. 'This place' was added because of its increasing importance, in the face of natural resource appropriation, along with cultural

1363 Domains are most typically introduced to circumscribe exclusive realms or sets -- i.e., they serve as categorization constructs for sorting out unities and phenomena. <http://www.imprint.co.uk/thesaurus/domain.htm> accessed 5th October 2005.

1364 $((15 \times 15) - 15/2)$

1365 $((17 \times 17) - 17/2)$

1366 which gives its name to the Prefecture.

identity ('self' in this study) in both the environmental psychology literature¹³⁶⁷ and Tibetan literature¹³⁶⁸.

Although MDS software can handle hundreds of values, the field-testing demonstrated that respondents 'lost focus' scaling 20 values (or 190 pairs of values) and 15 values (105 pairs of values) appeared to be the optimum. Given (See Table 8-1) that there were 4 interventions, 3 local actors, 2 objects of value this only allowed us to select 6 local values **from the forest value study**, which were chosen on the basis of a frequency of 3 or more¹³⁶⁹. In any cognitive mapping study it was important to include local actors (Men, Women, Self) in order to differentiate between attitudes and belief. The external interventions that were selected were either being implemented or planned by local government and it was important to understand their impact on sustainable resource stewardship. Conservation was considered by respondents to be both a local forest value and an external intervention.

8.2.2 Geographical Coverage

MDS was conducted among 86 people at 86 sites (See Map 8-3) in 16 counties (Map 8-4) in Eastern Kham¹³⁷⁰ and a full breakdown of respondents by county, village, coordinates, gender, ethnicity, age, and catchment can be found in Appendix 1.

Originally, it was planned to survey the whole of Kham but challenging terrain, lack of consultancy opportunities, expense, and bureaucracy made this impossible and Eastern Kham was selected due to its relative accessibility and openness. Although ethno-linguistically there is not much difference between Eastern and Western Kham geo-politically Eastern Kham for much of its history has represented an independent territory, with its own tribal chieftains, sandwiched between Lhasa controlled Tibet and Han China.

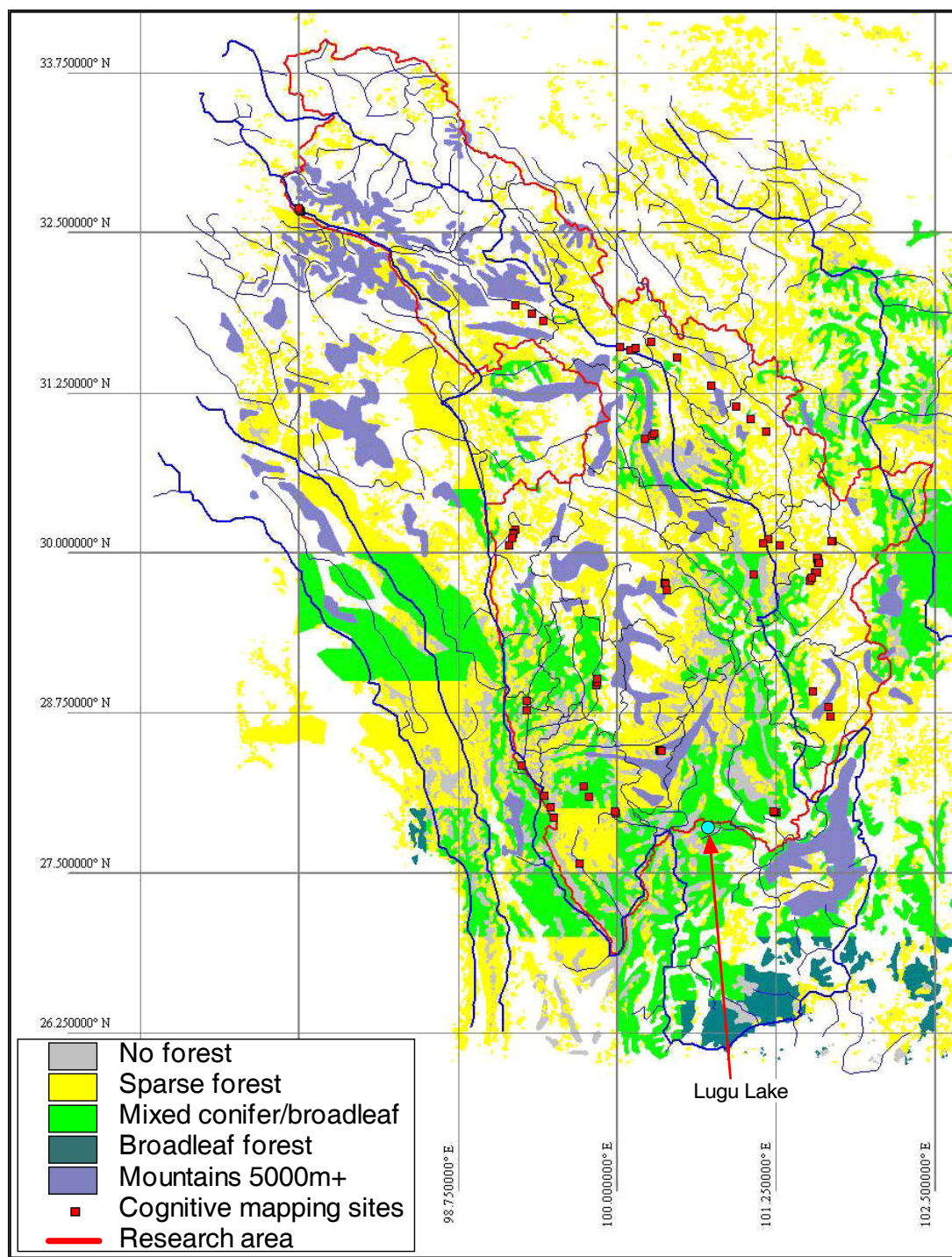
1367 Bonaiuto et al 2002

1368 Goldstein and Kapstein 1998, Schwartz 1994

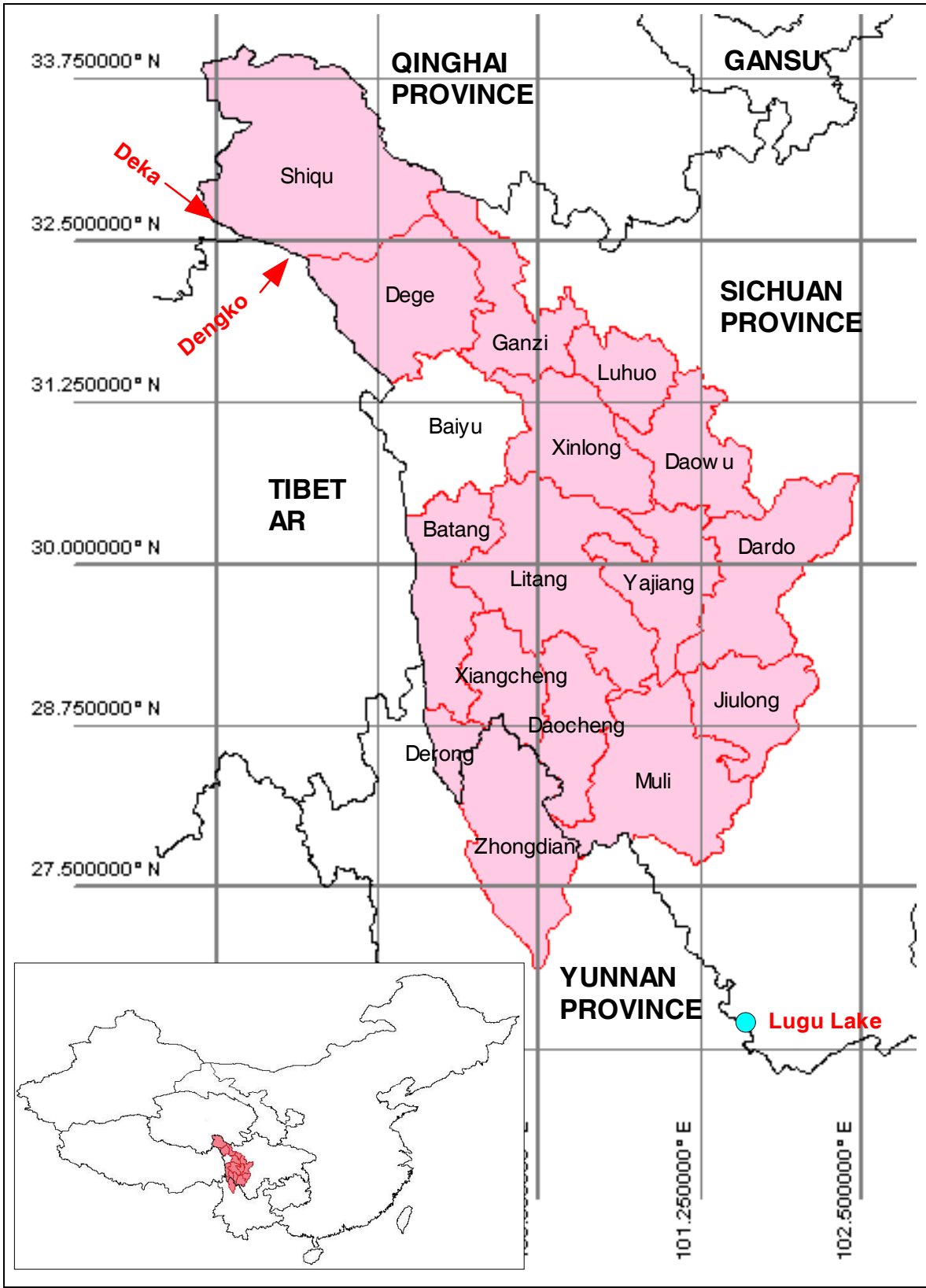
1369 i.e. values that were mentioned by three or more respondents.

1370 See site information Appendix 1.

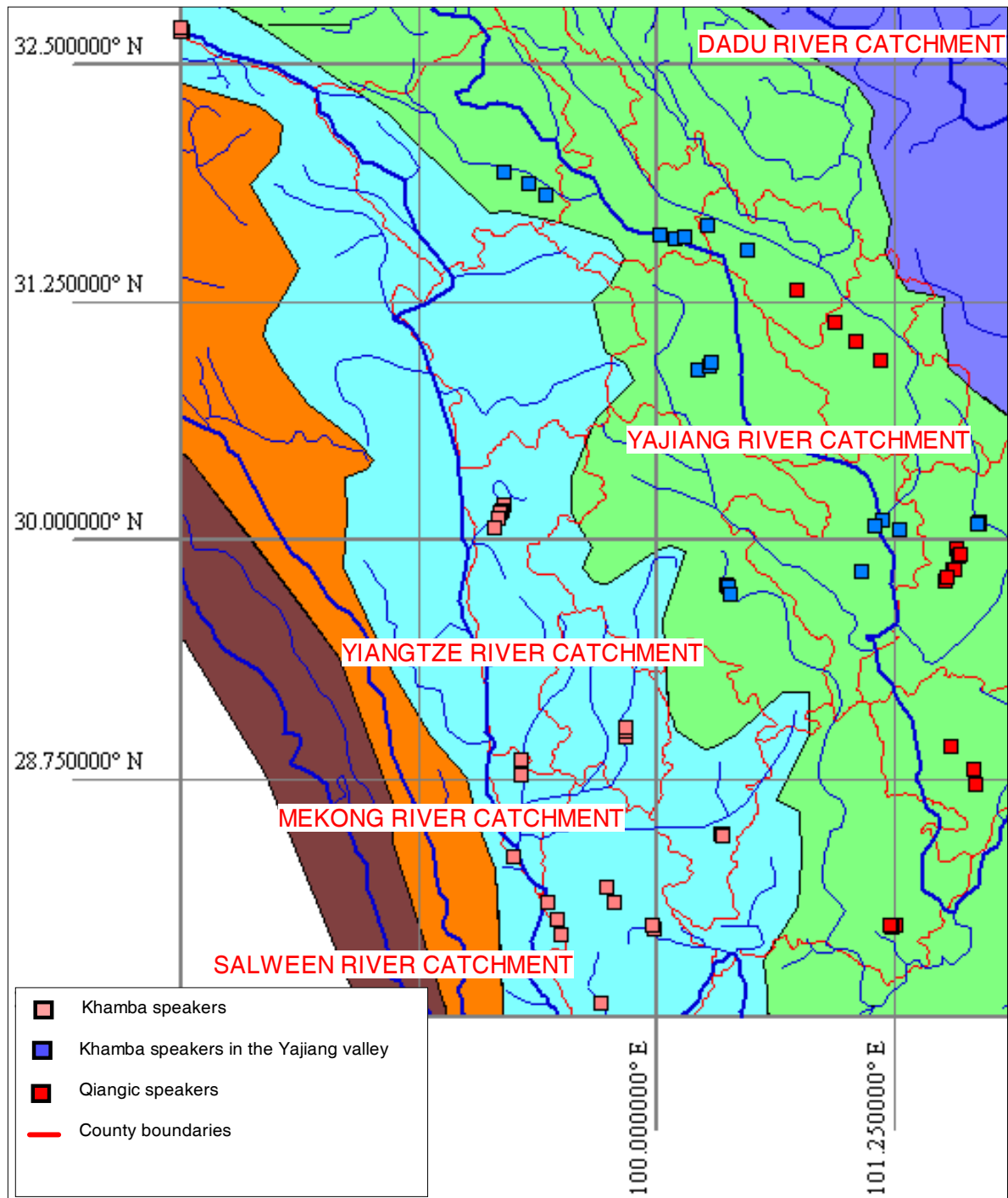
Map 8-3 Eastern Kham showing the research area in red and cognitive mapping sites as red squares



Map 8-4 The counties of Eastern Kham



Map 8-5 The water catchments of Eastern Kham



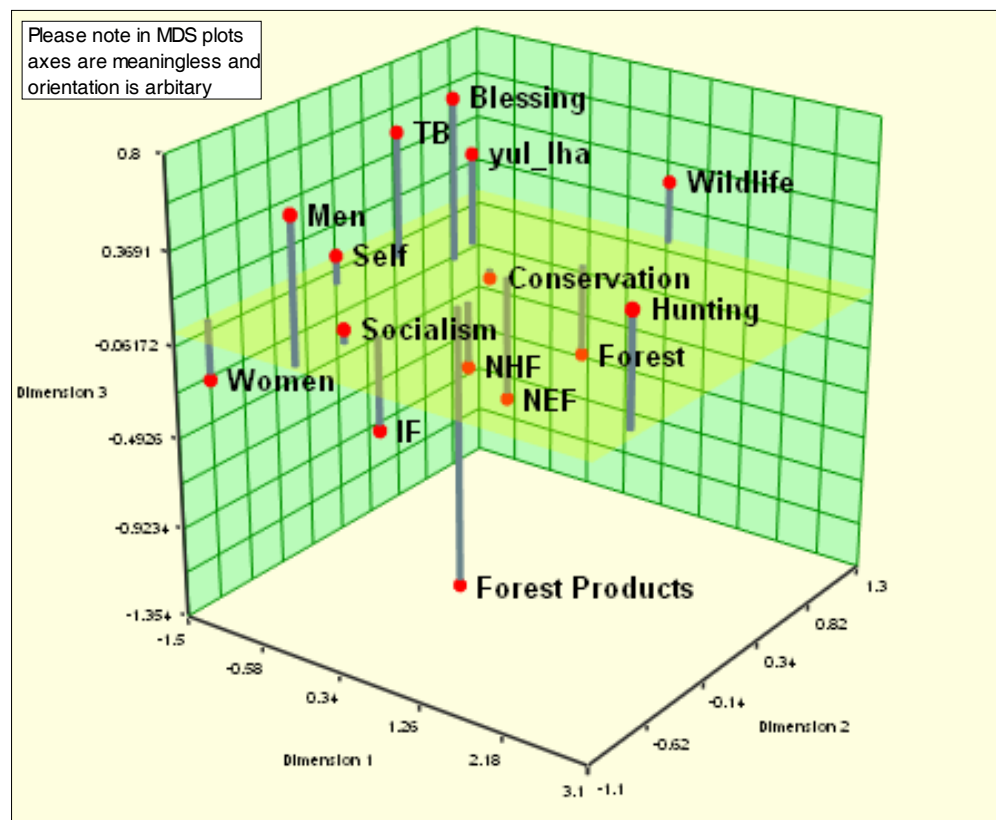
8.2.3 Multidimensional Scaling

In case, the reader has forgotten MDS attempts to arrange objects (in this case forest values) in Reimann space (See Figure 6-2) with a particular number of dimensions so as to reproduce mean distances or dissimilarities. As a result, we can 'explain' the distances in terms of

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underlying clusters (or domains¹³⁷¹), dimensions, and paradigms. In this study, MDS plots were constructed based on mean distances¹³⁷² between all 15 values (Plot 8-2) or 17 values (Plot 8-3) and based on the number of dimensions¹³⁷³ chosen to ensure acceptable levels of stress¹³⁷⁴ (i.e. less than 0.05). Although several dimensions are sometimes required to reduce stress and maximize fit, (r^2) two dimensions (Plot 8-2) are often adequate to identify the main dimensions and clusters. In this study, however two dimensions did not fully explain 'hunting' so a third dimension was used (Plot 8-1). See explanation of hunting in section 8.2.4 and Plot 8-4.

Plot 8-1 Cognitive map of Eastern Kham showing 15 values in 3 dimensions



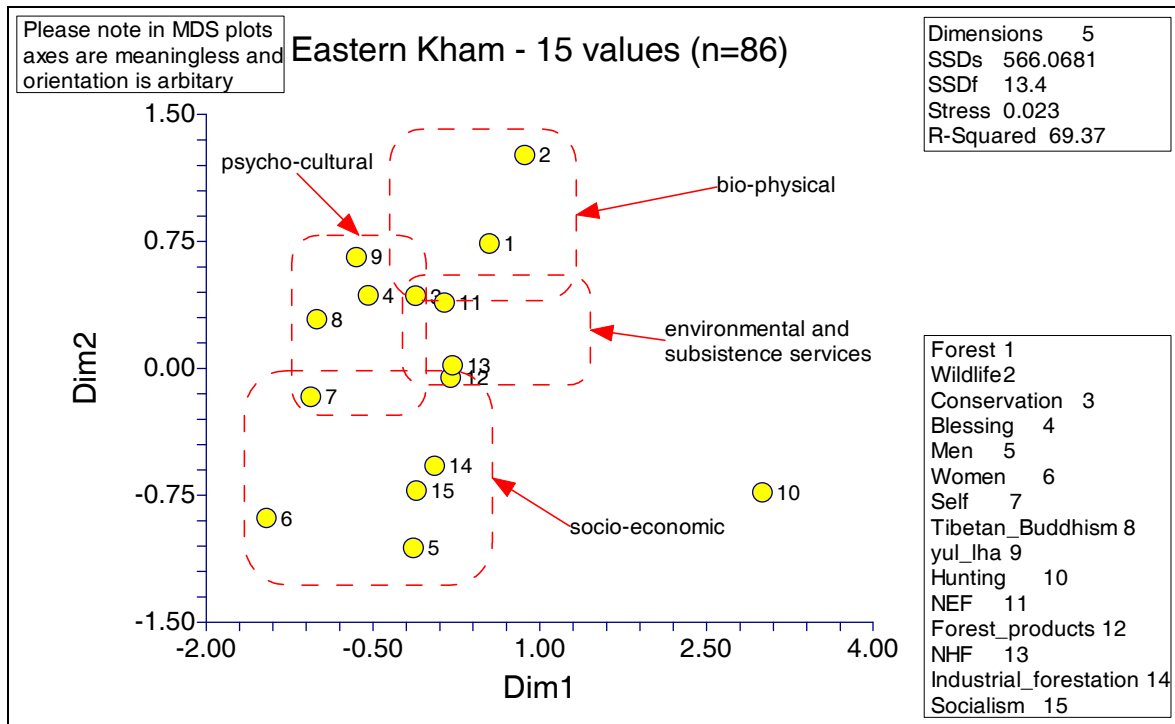
1371 Domains are most typically introduced to circumscribe exclusive realms or sets -- i.e., they serve as categorization constructs for sorting out unities and phenomena. <http://www.imprint.co.uk/thesaurus/domain.htm> accessed 5th October 2005.

1372 or dissimilarities between the investigated objects (in this case forest values).

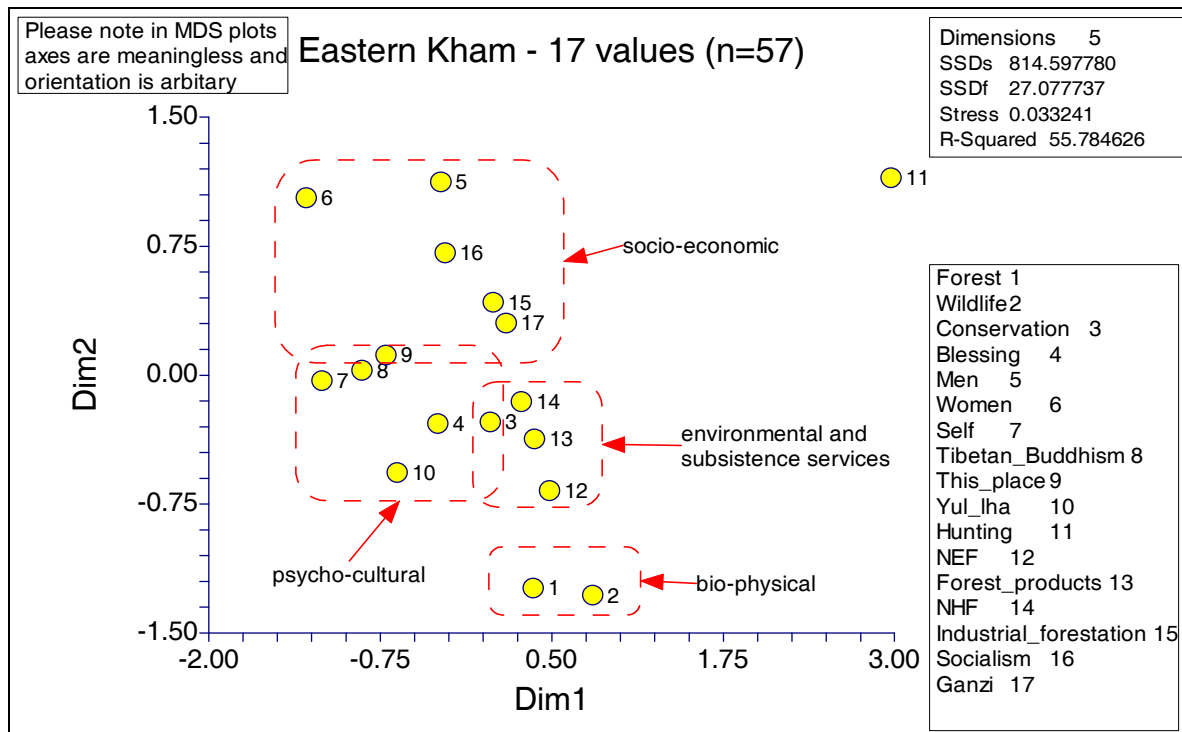
1373 A common way to decide how many dimensions to use is to plot the stress value against different numbers of dimensions. A stress value below 0.05 is acceptable and value below 0.01 is considered good.

1374 a statistical term used to measure MDS goodness-of-fit.

Plot 8-2 Cognitive map of Eastern Kham showing 15 values in 2 dimensions



Plot 8-3 Cognitive map of Eastern Kham showing 17 forest values in 2 dimensions



It would appear from MDS (Plot 8-1 and 8-2) that, in common with field-testing in Deka in chapter 6 section 6.6.2, there are four clusters, one singleton ('hunting') and two dimensions. Based on hierarchical cluster analysis¹³⁷⁵ and my subjective knowledge of the region the four clusters suggest the existence of four cognitive domains¹³⁷⁶ namely; socio-economic, psycho-cultural, environmental and subsistence¹³⁷⁷ services, and biophysical domains, which are distributed along two axis or dimensions (1=Natural 2=Human). Other poles or partitions may also be possible and while the data may not be inconsistent with the identified groups, their existence is by no means equivocal.

In case it is not clear all 86 respondents were asked to distance 15 values and of them 57 were asked to distance 2 additional values (i.e. 17 values) in order to understand the relative importance of place attachment. It appears that on the basis of 15 values (Plot 8-2) that 'self' is located in both the 'psycho-cultural' and 'socio-economic' domain, 'forest products' in the 'environmental and subsistence services' and 'socio-economic' domains and conservation in the 'environmental and subsistence services', 'psycho-cultural' and 'bio-physical'.

In contrast with 17 values (Plot 8-3) 'self' it is only located in the 'psycho-cultural' domain 'forest products' in the 'environmental and subsistence services' domain, conservation in the 'environmental and subsistence services' and 'psycho-cultural' domains and 'place' in the 'socio-economic' and 'psycho-cultural' domain. This appears to suggest that the latter respondents (from 2003) are more traditional and do not closely identify with the 'socio-economic' domain. There is some need for caution though given the low levels of r^2 .

In the following sections we will explore forest values: based on their domain placement suggested in the cognitive mapping (8.2.4); on the basis of disaggregation (8.2.5); that were excluded from cognitive mapping (8.2.6); that were addressed in contextual studies (8.2.7)

1375 Hierarchical cluster analysis is a statistical method for finding relatively homogeneous clusters of cases based on measured characteristics. It does not, however address dimensionality.

1376 Domains are most typically introduced to circumscribe exclusive realms or sets -- i.e., they serve as categorization constructs for sorting out unities and phenomena. <http://www.imprint.co.uk/thesaurus/domain.htm> accessed 5th October 2005.

1377 This has some relevance in the New Forest because of commoners rights but it has little relevance to day visitors.

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and secondary sources. Based on the evidence presented below it would appear that the constellations of forest values may well constitute forest value paradigms (8.2.8) as defined in chapter 2 section 2.2 which might provide templates for forest stewardship.

8.2.4. Forest Values Included in the Cognitive Mapping

Life support values

In Eastern Kham the environmental life-support provided by forests is generally located (Plot 8-2) in the 'environmental and subsistence services' domain and was expressed during the forest value survey in terms of preventing 'large-scale downstream flooding', a view supported through much of 'High Asia'¹³⁷⁸. This view is supported by the MDS where the 'natural' role of forests in life support i.e. 'forest', "natural hydrological function", and "natural environmental function" are all in relatively close proximity and at Lugu Lake referred to in chapter 6 (See Table 6.5) where life-support values ranked 1st out of 13 values and represented 14% of total economic value¹³⁷⁹. It was incorrectly assumed¹³⁸⁰ that many life-support services were largely independent of human agency and to emphasize their independence they were prefixed with 'natural'. In spite of this, respondents continued to place 'self' close to "natural hydrological function" and "natural environmental function" (Plot 8-2). It must be assumed that from the perspective of those surveyed they see every living and non-living thing in the world as being interrelated and interdependent and they typically embed nature in society¹³⁸¹.

Conservation values

Respondents from Eastern Kham recognize the conservation value of forests which they locate in the 'environmental and subsistence services', 'bio-physical' and 'psycho-cultural' domains and expressed in the forest value survey in terms of 'ecosystem support' and

1378 <http://bostonglobalaction.net/UK/landslide.html> accessed 5th July 2005

<http://bostonglobalaction.net/UK/chipko.html> accessed 7th July 2005

1379 The sum of use and non-use values with due consideration of any trade-offs or mutually exclusive uses or functions of the resource/habitat in question. Source: Global Biodiversity Assessment GBA

http://europa.eu.int/comm/research/biosociety/library/glossarylist_en.cfm?Init=T accessed 15th Jul 2005.

1380 Based on a western mindset.

1381 Sahtouris 1995

'ecological importance do not, however readily recognize the role of society or that of the Chinese government in forest conservation.

These views were supported at Lugu Lake where 'biodiversity' represented 7% of total economic value and by MDS with evidence of 'natural conservation' (i.e. conservation without human agency)¹³⁸², 'endogenous conservation' (conservation with local human agency or identification)¹³⁸³ and little evidence of 'exogenous conservation' (conservation by the state or international NGO)¹³⁸⁴. The only exception in the last case being 'old' respondents¹³⁸⁵ (Plot 8-10) and respondents from 'Yajiang County' (Plot 8-11). This may have resulted from a 'politically corrected' response from the old who can remember the occupation by the Peoples Liberation Army and the Cultural Revolution and forestry extension in Yajiang County.

For the Tibetans the spiritual significance of conservation¹³⁸⁶ appeared more important than the ecological significance. Khamba respondents are evidently similar to some other indigenous people¹³⁸⁷, in that they are not deliberate conservationists or ecologists, but they manifest an ethical attitude¹³⁸⁸ by locating 'self' and 'conservation' in the 'psycho-cultural' domain (Plot 8-2) close to 'blessing', 'yul-lha' and 'Tibetan Buddhism'. These findings were supported in informal discussions at Bengda (See 6.6.2), Dengko (See 6.5.1) and Lugu Lake (See 6.5.2) about forest conservation and treatment of sacred areas (i.e. no gathering, hunting, wood chopping or cultivation) during the forest value study, the PRA study and ethnoforestry study.

Spiritual and sacred values

Khamba views of spiritual values are in sharp contrast to the UK where no one mentioned a spiritual dimension as a forest value in field-testing¹³⁸⁹. It would appear that the "de-souling of nature"¹³⁹⁰ by John Locke and his successors is still a dominant view among forest day-visitors

1382 'conservation' is in the 'bio-physical' and 'environmental and subsistence services' domain in Plot 8-2.

1383 'conservation' is in the 'psycho-cultural' domain in Plot 8-2.

1384 'conservation' is not in or close to the 'socio-economic' domain in Plot 8-2.

1385 age 51+

1386 'conservation' is closer to 'yul-lha', 'Tibetan Buddhism' and 'blessing' than 'forest' and 'wildlife'.

1387 Callicott 1982

1388 Normative guidelines governing man's attitudes, behaviour, and action toward the natural environment.

1389 with the exception of wilderness and therapeutic values: which do appear in some typologies as "spiritual" values.

1390 Banuri and Marglin 1993 page 18 and 19

and professional foresters in the UK¹³⁹¹. 95% of respondents in Eastern Kham recognized a spiritual dimension¹³⁹² in the forest value survey¹³⁹³, which is generally located in the 'psycho-cultural' domain (Plot 8-2). In discussion with the respondents in Bengda, the link between their animistic-shamanistic beliefs was expressed in 'blessing' by the local divinity¹³⁹⁴, in response to their care of the natural world of the divinity¹³⁹⁵. The nature of this link appeared to be much more dynamic and personal than with Tibetan Buddhism¹³⁹⁶, which was more associated with what the monks and monasteries did¹³⁹⁷.

These views were supported by the contextual studies at Dengko and at Lugu Lake where spiritual values represented 5% of total economic value, among Pumi men, it ranked second out of 13 values and the findings suggest that sacred sites provide very good exemplars of conservation and bio-diversity, backed by religious sanction¹³⁹⁸. In common with the peoples of Bengda¹³⁹⁹, Gongga Shan¹⁴⁰⁰, Dengko¹⁴⁰¹ and Deqin¹⁴⁰² the Lugu Lake respondents were able to identify sacred mountains, trees, animals, and springs.

The Musuo and Pumi detailed¹⁴⁰³ the measures required to placate local numina, with the

1391 Lee 2001 and personal communication 28/4/2003 weblog

1392 blessing, Tibetan Buddhism and yul-lha.

1393 In field testing in Kham see chapter 6 section 6.6.2.

1394 yul-lha ཡུལ་ལྷ།

1395 i.e. the locale over which he presided.

1396 Tibetans commonly draw a distinction between three religious traditions, Tibetan Buddhism ལྷ་ཆོས། *lha chos*, Bon བོན་ཆོས། *bon chos* and Mi chos མི་ཆོས།. *mi chos* is a literary term and not used by illiterate farmers, who are more familiar with *yul-lha* ཡུལ་ལྷ། the territorial/community divinities. There are three phases of *bon*, although modern *bon* can be regarded as the fifth school of Tibetan Buddhism, with certain differences of vocabulary, but no major difference in content (Samuel 1993a.).

1397 Tree planting and the prevention of hunting.

1398 Laird 1995, Martin 1999, Pei Shengji 1993

1399 In Bengda District there are three sacred mountains:- *Nyowyee*, *Nyaji Drawgu*, *Sawara*.

1400 In the area around Gongga Shan *Capricornis sumatraensis* (in Latin, the serow in English, the ལྷ་ཆོས།

sha(waza) raga(ya) in Tibetan) are rarely hunted because they are sacred to the 'lord of the mountain' (Bleisch and Wong 1990).

1401 Studley et al 1995 and Table 6-2

1402 Pei 1999, TNC 2005

1403 Around Lugu Lake (Studley 1999a + b, 2004c..d).

help of a shaman¹⁴⁰⁴/priest, and make restitution with the local community, when trees or animals were killed in sacred areas¹⁴⁰⁵. Typically, among all these groups access to sacred territory is restricted by "social fencing"¹⁴⁰⁶ affected by taboos, codes and custom to particular activities and members of a community¹⁴⁰⁷. In common with the people of Bengda the respondents at Lugu are very aware of the boundaries¹⁴⁰⁸ of the territory where gathering, hunting, wood chopping and cultivation are strictly prohibited. They believe that these activities will make the local gods angry and bring misfortune and disaster upon the community¹⁴⁰⁹.

While access to sacred areas is restricted, the same sanctions do not apply to non-sacred areas. More research is required to determine the sacred/non-sacred categories recognized by the peoples of Eastern Kham. What is known is that the Sherpas¹⁴¹⁰ do not extend the same degree of conservation consciousness to non-sacred forest. Some of their forests are carefully managed to provide sustainable sources of highly valued products such as house beams, but most timber and fuel-wood is obtained from unprotected unmanaged local forests and woodlands. Oral traditions of historical degradation and clearing of these heavily used areas contrast sharply with the extraordinary respect with which sacred forests are protected¹⁴¹¹.

1404 Both shaman and priests were heavily persecuted during the Cultural Revolution and although some priests and Yi *bimo* were allowed to practice again from the early 1980s the shaman had to wait until the mid 1990s, because their beliefs and practices were viewed as 'superstitious'. As a result in local areas this tradition has almost died out and there are only two *daba* left among the Mosuo people and only one that is familiar with all three daba traditions (Ritual and rite of passage prayers, divination, shaman/healer (Cai Hua 2001)). Attempts have been made to train and mentor more shaman but the lure of tourism proved too much (Studley 2004c..d, Yang Fuquan 2003). Although in the region there is a revival among the Pumi *hangui* and Yi *bimo* there are local shortages. For the Pumi who live next to Lugu Lake the nearest *hangui* live in Sichuan and for the Yi the nearest *bimo* lives 40 km away, although he does visit the area regularly.

1405 Intentionally or by mistake.

1406 <http://www.teriin.org/teriscope/resupdates/foresters4is.htm> accessed 20th July 2005

1407 Kothari and Das 1999

1408 personal communication Blondeau 4/2/2003 weblog

1409 Pei Shengji 1993 and 1999

1410 Who are of Tibetan ethnic origin, possibly from Kham http://www.khandro.net/place_Nepal.htm accessed 5th July 2005.

1411 Stevens 1993

Forest products

In Eastern Kham, respondents recognized the importance of 'Forest Products' in their subsistence lifestyle. Their importance was especially recognized in Dengko¹⁴¹² and Bengda where during the forest value study they ranked higher than any other value. This is supported by MDS where 'Forest Products' is recognized as a component of the 'environmental and subsistence services' and 'socio-economic' domain (Plot 8-2) and at Lugu Lake¹⁴¹³ where subsistence value represented 10 % of total economic value compared to 'commercial value'¹⁴¹⁴ which is only 5%. Forest Products are crucial especially in times of famine or disaster but have largely been ignored by the Chinese state in recent forest policies.

Industrial forestation

Industrial forestry is located in the 'socio-economic' domain and identified closely with 'socialism'. It is not considered to be close to 'conservation' or to 'blessing', 'yul-lha' or 'Tibetan Buddhism'. It was not examined in any other study.

Socialism

Although socialism was not identified during the forest value survey it was selected for cognitive mapping because it represents an alien set of values (or ideals) that provides a platform for political and socio-economic development, natural resource intervention, and the Hanification of China's minority peoples.

Although the Han values of the nation-state are underpinned by a mixture of Confucian, Communist, traditional and market values when China's President, Hu Jintao, took over in early 2003 he signalled no sharp departures from the policies of his predecessor. Citing the "huge strides" China has made since the communist revolution, Hu pledged to stay the course and reiterated that "Only socialism can save China, and China can develop only under

¹⁴¹² See Table 6-2

¹⁴¹³ Studley et al 2005

¹⁴¹⁴ This is often the only value used by economists, which not only ignores subsistence but most other forest values.

socialism with Chinese characteristics"¹⁴¹⁵. Consequently most organs of government officially continue to operate under the aegis of a socialist paradigm. It is important, in terms of this study, to understand if socialism provided a 'moral' platform for nature conservation, given that the Khamba Tibetans have never fully accepted its tenets¹⁴¹⁶. Until very recently it has been difficult to judge its importance in terms of cognitive mapping, because any criticism was not tolerated by any sector of society¹⁴¹⁷ and it is evident that in spite of the emergence of an environmental consciousness in Han China vestiges of this legacy remain. When asked to scale socialism many respondents gave an embarrassed laugh and clearly decided that they had better err on the politically safe side. In spite of this one translator, who was Minyak¹⁴¹⁸, but had been in the army, became concerned when respondents gave 'honest' responses.

On the basis of the 'politically corrected' data, 'socialism' is generally located in the 'socio-economic' domain (Plot 8-2) and it is quite distant from the 'psycho-cultural', 'environmental and subsistence services', and 'bio-physical' domain. Due to its distance from the 'psycho-cultural' domain it does not appear to provide the optimum platform for conservation advocacy.

Hunting for foreign exchange

Hunting was not identified during the forest value survey conducted in Kham during field testing (See 6.6.2) but it was included in cognitive mapping because of local government plans to introduce it as a means of securing foreign exchange. Although some authors¹⁴¹⁹ would have us believe otherwise the Tibetans in common with most "pre-modern"¹⁴²⁰ peoples actively exploit the natural environment, in spite of their beliefs, and this appears to include hunting¹⁴²¹. Hunting however is illegal and discouraged by Tibetan Buddhism and vigilante monks.

1415 BBC 18/3/03 <http://news.bbc.co.uk/1/hi/world/asia-pacific/2859367.stm> accessed 15th July 2003

1416 The Tibetans have been told that there is 'only one sun in the sky so they can't be Buddhist and socialist' and that "Buddhism must conform to socialism and not socialism to Buddhism" UNCHR 1998.

<http://www.scienceblog.com/community/older/archives/L/1998/A/un980436.html> accessed 25th May 2004.

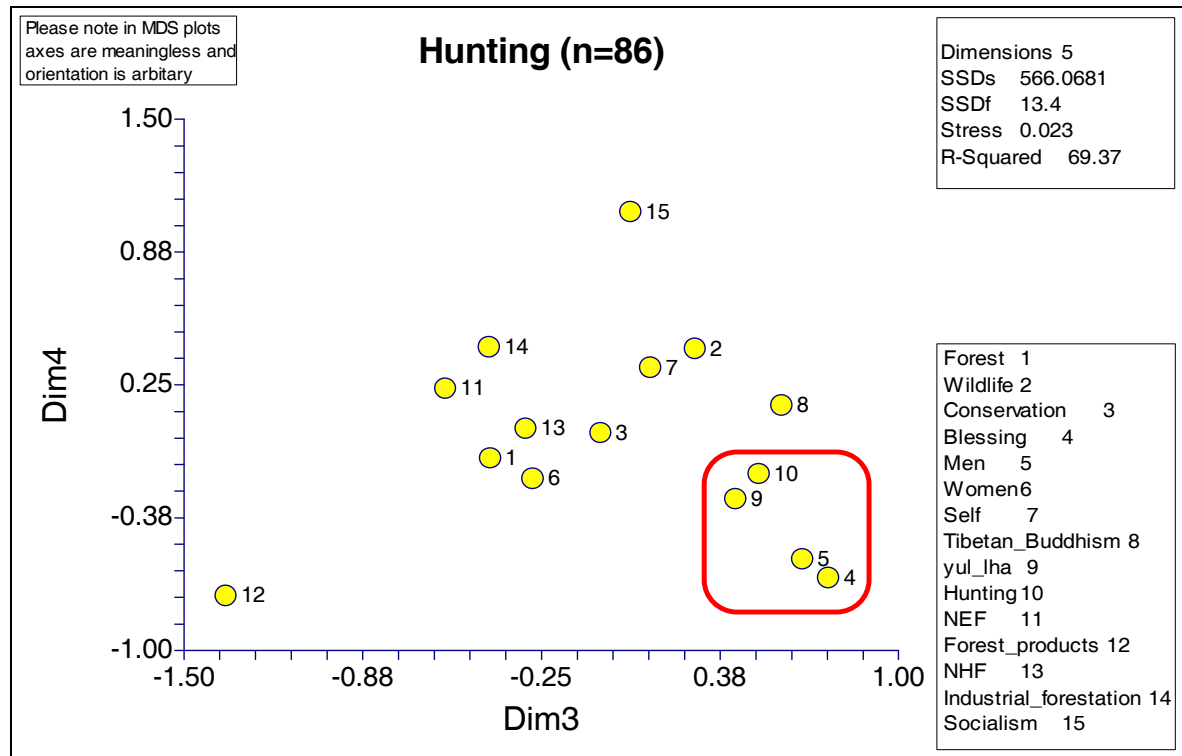
1417 Gao and Jin 1980

1418 Qiangic speaking 'Tibetan'.

1419 Vigoda 1989

1420 Gibson 1997

1421 Huber 1991

Plot 8-4 Cognitive map of Eastern Kham showing Dimension 3 and 4

These disparate views are reflected in the MDS plots where 'hunting' is a singleton and appears to be very distant from all values in Plot 8-2¹⁴²² but close to 'men', 'blessing', and 'yul-lha' in Plot 8-4¹⁴²³. Although these findings are consistent with Khamba custom and culture further field research is required in terms of establishing what dimension three and four represents from a Khamba perspective.

Many respondents who were aware of the prohibition, but unsure of my agenda, 'distanced' themselves from hunting but others¹⁴²⁴ situated themselves at close proximity to hunting. Some of the respondents indicated that hunting should only take place under the following conditions:- a) only predatory animals¹⁴²⁵ b) only when life is endangered c) as a survival strategy for the very poor d) only in certain non-sacred locations. Respondents also mentioned the role of monks in preventing hunting in site specific locations.

¹⁴²² Dimension 1 and 2.

¹⁴²³ Dimension 3 and 4.

¹⁴²⁴ Who judging by their response hunted.

¹⁴²⁵ Wolves and Bears.

Although Tibetan Buddhism teaches that life is sacred and the Buddhist purgatory includes a special cold hell for souls who have killed animals the Tibetans have always been avid hunters although they have accepted some restrictions on locations and species. Hunting appears to have been accepted by the establishment when game was plentiful¹⁴²⁶, if there was a demand for furs in the monasteries or from the elite¹⁴²⁷, or for trading purposes in Eastern Kham¹⁴²⁸. Ancient dramas, such as '*Dunyudunju*'¹⁴²⁹ are still performed depicting the hero's learning the art of hunting and Tibetan nomads still seek the blessing and protection of their territorial gods when they go hunting¹⁴³⁰.

Place attachment values

Although the Khamba respondents did not specifically volunteer 'place attachment' or 'cultural identity' in the forest value survey conducted in Kham during field testing (See 6.6.2) it was noted in general discussions that respondents had a strong sense of place attachment that is more evident among the old than the young¹⁴³¹ (See Age in section 8.2.5). 'Place' was included in cognitive mapping from 2003 and is generally located in the 'psycho-cultural' domain, and 'Ganzi Town', included for comparison, is generally located in the 'socio-economic' domain (Plot 8-3). There is evidence that the Tibetans are enhancing their cultural identity¹⁴³² and place attachment¹⁴³³, in the face of domination by the Han Chinese. In common with other indigenous peoples in China¹⁴³⁴ the Khambas are obviously continually reconstructing localized identity and place from the space made available by the broader systems of political economy and in common with indigenous peoples globally by bolstering their 'ecologies of the heart'.

8.2.5 Disaggregated Cognitive Mapping

Thus far we have gained an overview of forest values and their placement in the cognitive domains of the peoples of Eastern Kham, but perhaps more importantly, in terms of this study, we will examine, in this section, disaggregated forest values. A comparison of MDS plots on

1426 See Norbu 1960

1427 Richardson 1986

1428 Combe 1926, Tsgrong 1990

1429 དུན་ཡུ་དུན་ཇུ། *dunyudunju*

1430 Bleisch and Wong 1990

1431 16-25 years of age.

1432 Goldstein and Kapstein 1998, Schwartz 1994a

1433 Buffetrille and Diemberger 2002, Epstein and Wenbin 1998, Huber 1999a, Karmay 1994

1434 Oakes 1993

the basis of disaggregation appears to suggest different constellations of forest values in terms of domain placement which suggests different paradigms. In common with other MDS studies addressing forest values¹⁴³⁵ the most apposite basis for disaggregation appeared to be by ethnicity, gender, age, county, and water catchment and if applicable a combination.

Ethnicity

There are evidently some differences between Khamba and Qiangic speakers (See Map 8-2 and Map 8-5) in terms of cognitive domains.

The Khambas locate 'self' in both the 'socio-economic' and 'psycho-cultural' domain, 'conservation' in the 'environmental and subsistence services', 'psycho-cultural' and 'bio-physical' domain (Plot 8-5), and 'forest products' only the 'environmental and subsistence services' domain. There is some need for caution though given the low levels of r^2 in plot 8-5.

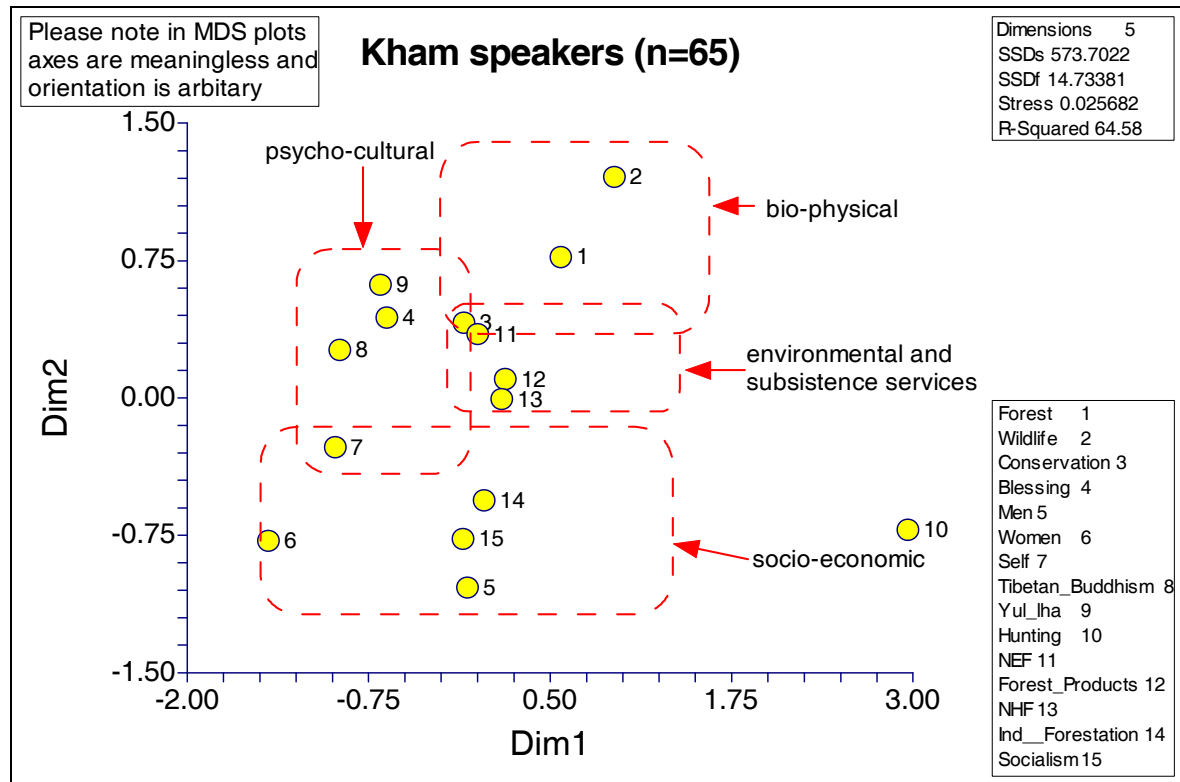
This contrasts with Qiang speakers (Plot 8-6) who locate 'self' in the 'psycho-cultural' domain, 'forest products' in the 'environmental and subsistence services' and 'socio-economic' domain and 'conservation' in the 'environmental and subsistence services' and 'psycho-cultural' domain.

This suggests that although the Khambas identify more closely with the 'socio-economic' domain than the Qiang, 'forest products' are part of the subsistence economy. By contrast the Qiang identify with the 'psycho-cultural' domain but 'forest products' are part of the market economy.

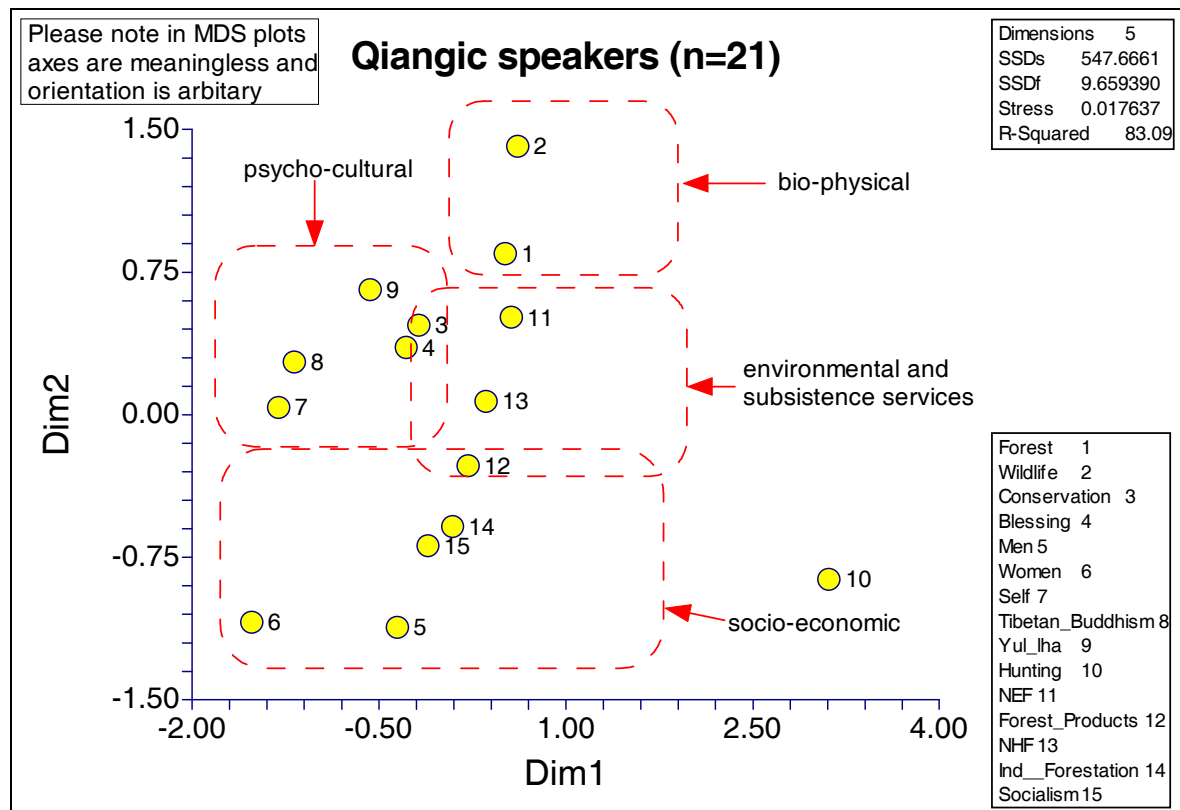
The Qiangic speakers live closer to Han China than the Khamba speakers and firewood supply and or forest cover appears to be more critical. Differences between the Khamba and Qiangic speakers will be explored further in 9.4.2 and 9.4.3.

1435 Colfer et al 1996

Plot 8-5 Cognitive mapping of 15 forest values among Kham speakers



Plot 8-6 Cognitive mapping plot of 15 mean forest values of Qiangic speakers



Gender

The MDS plots appear to show, in common with similar studies conducted in Indonesia¹⁴³⁶, that there are only minor differences in cognitive clustering or environmental perception between men and women.

Men (Plot 8-7) do locate; 'forest products' in the 'environmental and subsistence services' and 'socio-economic' domain, 'conservation' in the 'psycho-cultural' and 'environmental and subsistence services' domain, and both 'self' and 'conservation' in the psycho-cultural domain. In contrast women (Plot 8-8) locate 'forest products' and 'conservation' only in the 'environmental and subsistence services' domain.

This suggests that men identify forest products more with the market than subsistence, they identify with conservation and associate it with humankind.

The findings, in common with research in West Kalimantan¹⁴³⁷, appear to contradict studies that suggest that there are major differences in environmental perception between the sexes¹⁴³⁸ and that women¹⁴³⁹ are more 'environmentally sensitive'¹⁴⁴⁰ than men.

1436 Colfer et al 1996

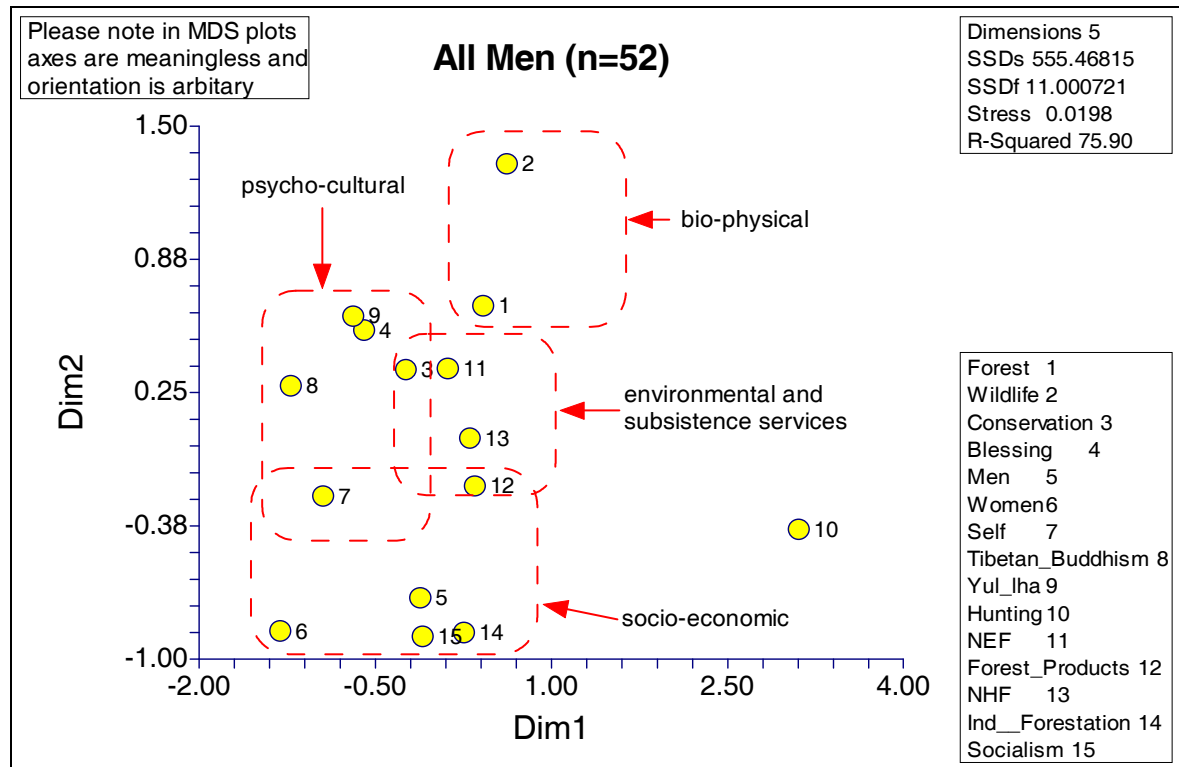
1437 Colfer et al 1996

1438 Newton 1977, Newton, Buck and Woelfel 1984

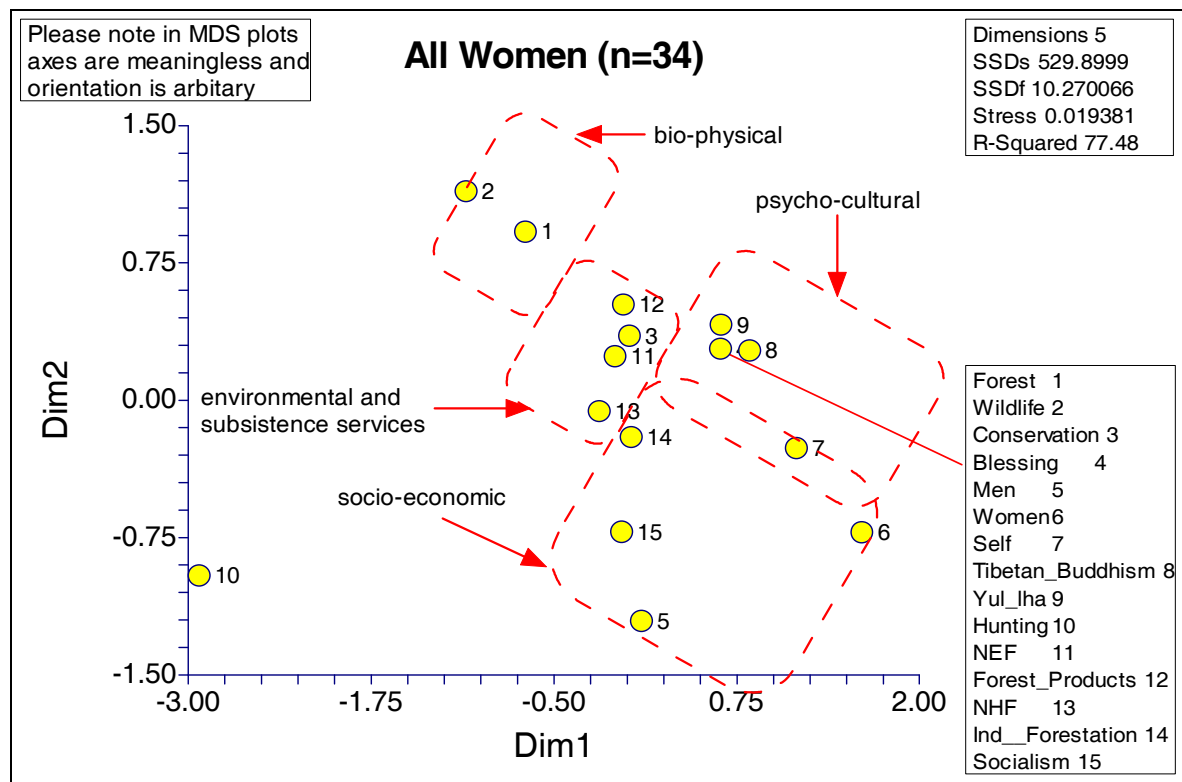
1439 e.g. Diamond and Orenstein 1990, Gomes and Kanner 1995, Roszak 1995

1440 That is a predisposition to take an interest in learning about the environment, feeling concern for it, and acting to conserve it on the basis of formative experience (Chawla 1998).

Plot 8-7 Cognitive mapping of 15 forest values for all men



Plot 8-8 Cognitive mapping of 15 forest values for all women



Although the MDS data does not provide evidence of major differences in environmental perception, environmental sensitivity or gender stereotyping found in some studies¹⁴⁴¹ the contextual studies, referred to in chapter 6 section 6.5.3, suggests gender differences between forest values by ranking¹⁴⁴² (Table 8-2) and alternative roles and relations to the forest in Dengko¹⁴⁴³ and among the Mosuo¹⁴⁴⁴ and Naxi¹⁴⁴⁵ and other ethnic minorities in Yunnan¹⁴⁴⁶. Women in the region have developed a direct relationship with the forest because of their requirements for firewood, water, animal bedding, fodder, herbs, medicinal plants, grass, mushrooms and bamboo, and involvement in planting and vernacular forest management¹⁴⁴⁷

Table 8-2 Forest values (n=54 ♀=26) at Lugu Lake by gendered rank order

Forest Values	Men	Forest Values	Women	Forest Values	All groups
Life sustaining	14.75	Life sustaining	13.33	Life sustaining	14.14
Subsistence	12.5	Therapeutic	11.33	Intrinsic	11.29
Intrinsic	12	Future	11.00	Subsistence	10.43
Aesthetic	10	Intrinsic	10.33	Aesthetic	9.43
Learning	8.25	Aesthetic	8.67	Therapeutic	9.29
Biodiversity	8	Subsistence	7.67	Future	9.00
Therapeutic	7.75	Learning	7.33	Learning	7.86
Future	7.5	Commercial	6.33	Biodiversity	6.71
Cultural	4.75	Spiritual	6.00	Commercial	5.29
Commercial	4.5	Biodiversity	5.00	Spiritual	4.43
Historic	4	Historic	4.67	Cultural	4.43
Spiritual	3.25	Recreational	4.33	Historic	4.29
Recreational	2.75	Cultural	4.00	Recreational	3.43

Gender differences will be explored further in chapter 10 section 10.1.3.

Age

It was noted during cognitive mapping interviews that young respondents¹⁴⁴⁸, who had received some education appeared to have little 'place attachment' and to despise traditional values. This was supported by the MDS plots of 17 values where 'self' is located distant to all

1441 Colfer 1981, 1983, Davison and Sutlive 1991, Drake 1991, Mashman 1991, Sutlive 1991, Tsing 1993

1442 Pearce 1990

1443 Studley et al 1995

1444 He Zhonghua 2003

1445 Yang Fuquan and Xi Yuhua 2003

1446 Govind Kelkar and Phuntshok Tshering 2002, Kelkar et al 2003

1447 He Chong Hua 2000

1448 16-26 years of age.

the values in the 'psycho-cultural' domain among the young (Plot 8-9). This might be an indicator of the impact of Hanification and/or modernity and as a phenomenon is typical of the negative influences of 'western' education, development, films and TV on traditional societies and resonates with similar processes of alienation among young Tibetans in Ladakh¹⁴⁴⁹.

In terms of other forest values, young respondents locate 'conservation', 'industrial forestation' and 'Ganzi' in the 'environmental and subsistence services' domain and 'place' in the 'psycho-cultural' and 'environmental and subsistence services' domain.

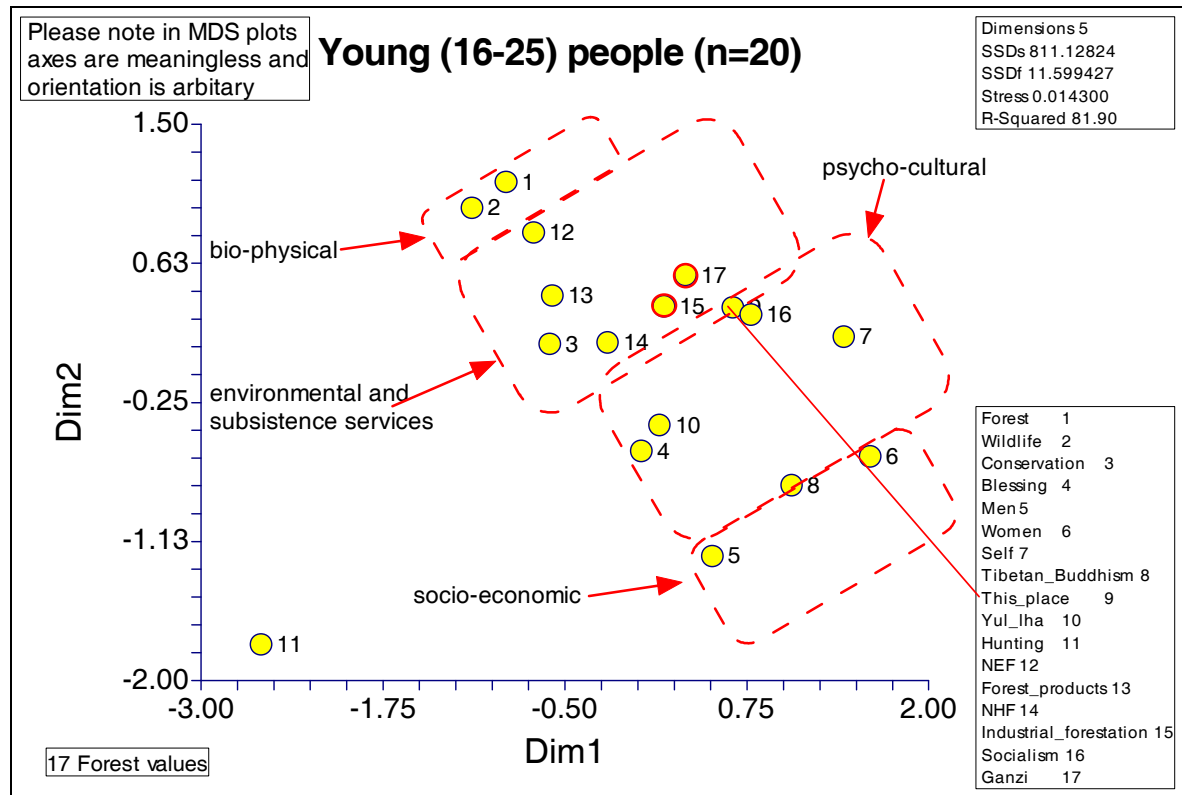
In contrast old respondents¹⁴⁵⁰ place 'self' close to all the values in the 'psycho-cultural' domain, and 'industrial forestation' and Ganzi in the 'socio-economic' domain. There is however some need for caution given the low levels of r^2 in plot 8-10.

Notwithstanding my comments about politically corrected scaling used for socialism it is interesting to note that all respondents (Plot 8-3) located 'socialism' in the 'socio-economic' domain old respondents locate it in the 'environmental and subsistence services' domain and young respondents in the 'psycho-cultural' domain. This appears to suggest that young people identify with socialism more than other respondents.

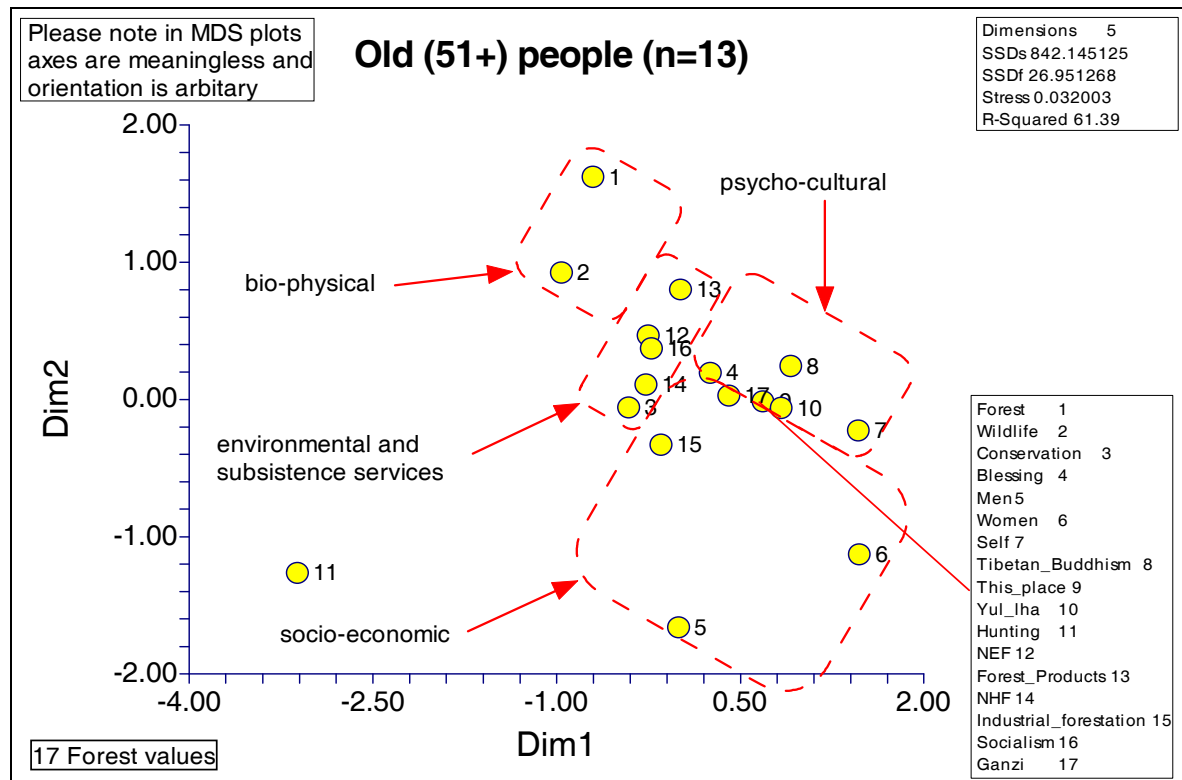
¹⁴⁴⁹ See Norberg-Hodge 1992

¹⁴⁵⁰ 51+ years of age.

Plot 8-9 Cognitive map of 17 forest values of young respondents



Plot 8-10 Cognitive map of 17 forest values of old respondents

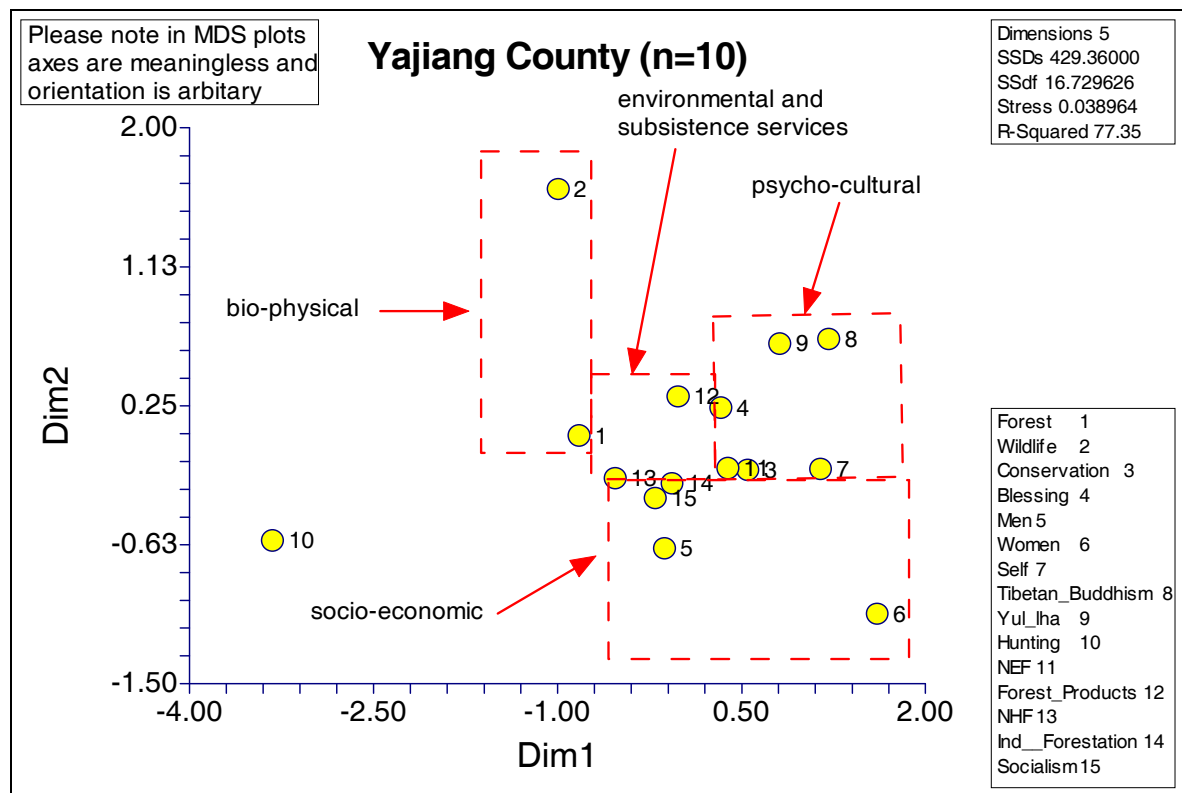


Counties

A superficial examination of mean matrix data by county suggested that Zhongdian county (See Map 8-4) had higher than average means and Yajiang (See Map 8-4) had lower than average means.

It would appear from the MDS plots that in Yajiang County 12 (of 15) forest values are in close proximity and respondents identify with conservation ('self' and 'conservation' are in the 'psycho-cultural' domain). This suggests that they have a positive view of their culture, environment and external interventions.

Plot 8-11 Cognitive mapping plot of 15 values in Yajiang County



In Zhongdian (Plot 8-12), by comparison, values are situated much further apart (especially 'blessing', 'industrial forestation', and 'forest products') 'self' is located in both the 'psycho-cultural' and 'environmental and subsistence services' domain and 'conservation' is located in both the 'bio-physical' and 'environmental and subsistence services' domain. There is however some need for caution given the low levels of r^2 in plot 8-12.

Further research is required to explain the differences between Yajiang and Zhongdian County but there appear to be a number of reasons for this. It would appear that the people of Zhongdian feel alienated from their culture and environment and that Industrial Forestation has not been well received. The Tibetan population in Zhongdian is (41%) much smaller on a % basis than Yajiang (89%) and it is on the southern periphery of ethnographic Tibet. It fares poorly economically in comparison to other Tibetan areas, to other counties in Yunnan and to China as a whole. Tree felling has been conducted until recently on the basis of the same unequal dynamic as seen in other lumber-rich Tibetan areas; the removal of timber out of the region with few benefits accruing to the local Tibetans. As a result of the tree felling ban in 1998 the emphasis changed to nature conservation and 'ecotourism', but these were imposed on the local Tibetan population without adequate consultation often ignoring their sacred and anthropogenic landscape. Chinese development and profound levels of Hanification have changed the economic and matrilineal patterns of the region but the main beneficiaries are the Chinese state and Chinese immigrants, which leaves the Tibetans as secondary players in the economic cultural and political fields. The amalgamation of this multi-ethnic area into a single administrative unit leaves the Tibetans as a demographic minority within their supposedly 'autonomous' prefecture¹⁴⁵¹. It is not known what the role China's first environmental NGO¹⁴⁵² had in shaping views of conservation or industrial forestation in Zhongdian in their advocacy over Zhongdian's endangered golden monkeys¹⁴⁵³. In contrast although Yajiang has been heavily deforested it is surrounded by other Tibetan counties, it has been less Hanified, outside the county town the population is almost entirely Tibetan, and there appears to have been both a 'successful' large scale state reforestation programme and local reforestation projects¹⁴⁵⁴. There has not been the same level of infrastructure development as counties further east, and consequently Chinese immigration is low, and there is still a strong regional Tibetan identity¹⁴⁵⁵.

1451 Marshall and Cooke 1997

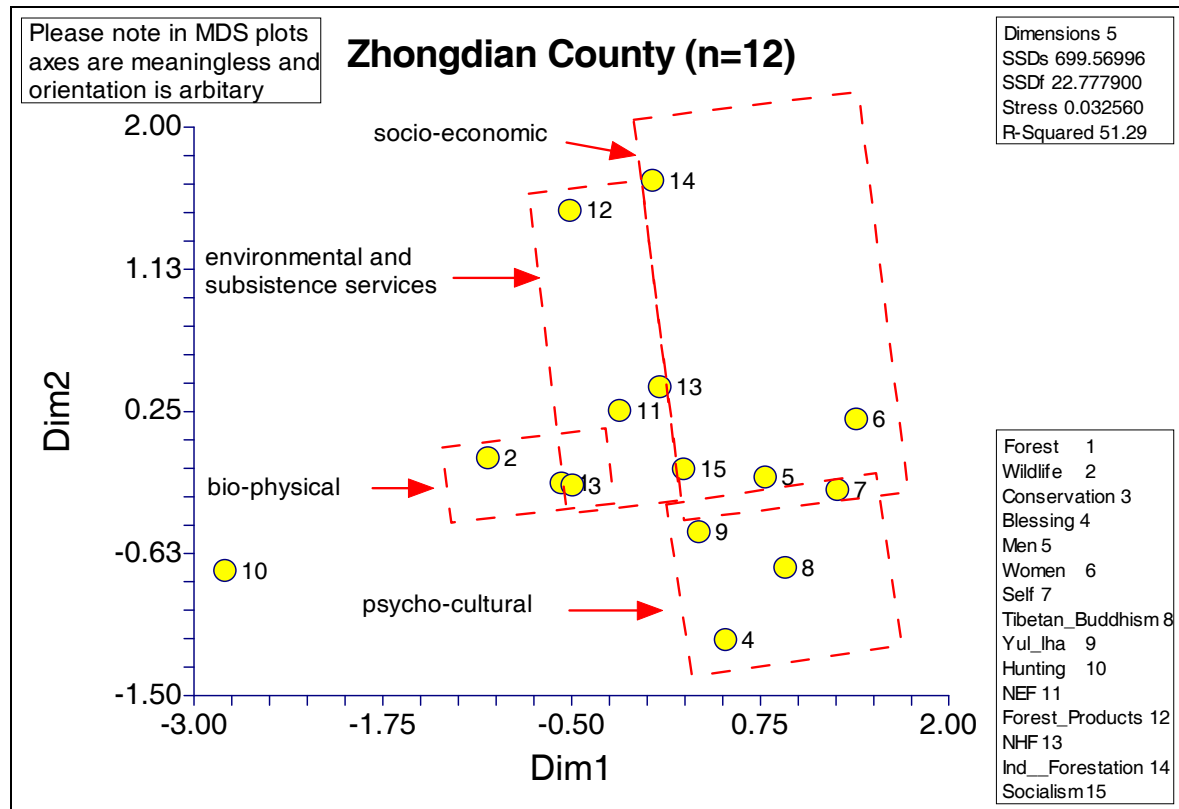
1452 Friends of Nature.

1453 *Rhinopithecus roxellana* (in Latin, golden monkey in English, སེ་ཁྲོན་གྱི་སྒྲེལ་སེར། *si khron gyi spral ser* in Tibetan and 四川金丝猴 *si4 chuan1 jin1 si1 hou2* in Chinese (*si* is 4th tone, *chuan*, *jin* and *si* are 1st tone and *hou* in 2nd tone))

1454 eg Pamaling Monastery.

1455 Marshall and Cooke 1997

Plot 8-12 Cognitive map of 15 forest values in Zhongdian County



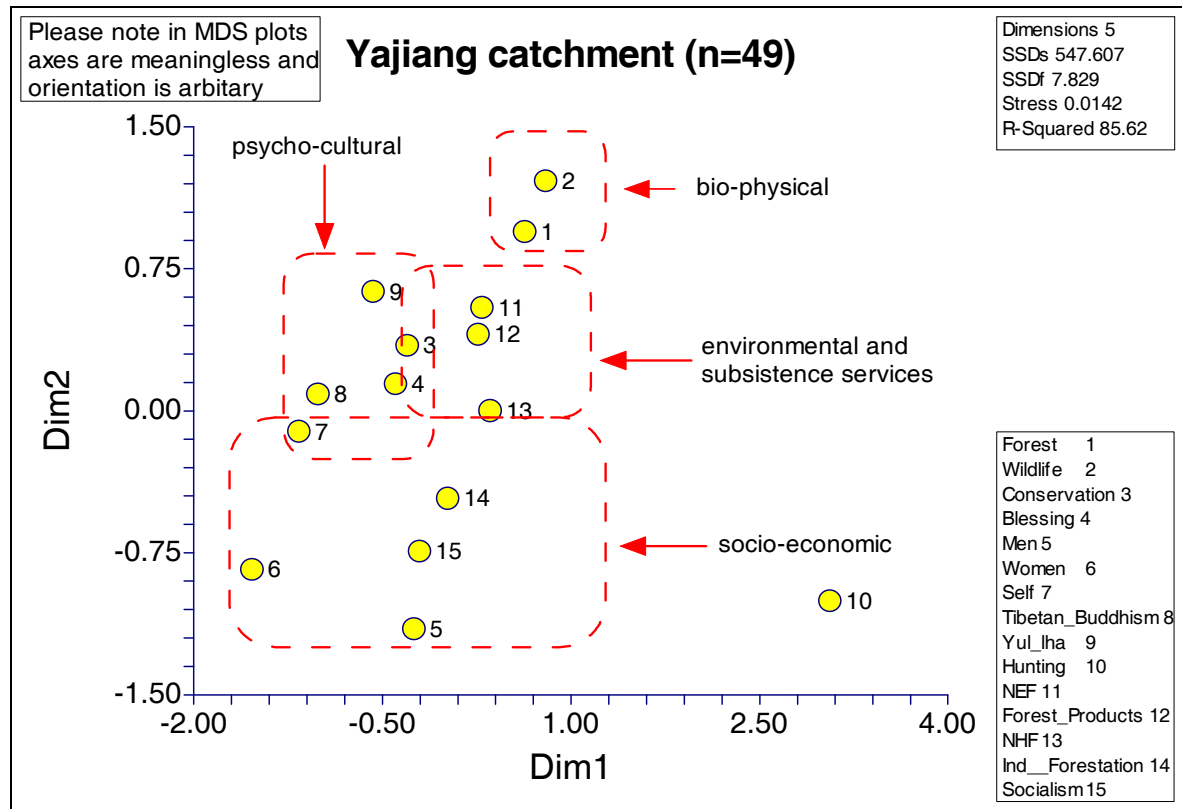
Water catchments

Respondents in the Yajiang catchment appear to identify with conservation and locate 'self' close to 'psycho-cultural' and 'socio-economic' domain values and to the 'bio-physical' and 'environmental and subsistence services' domains.

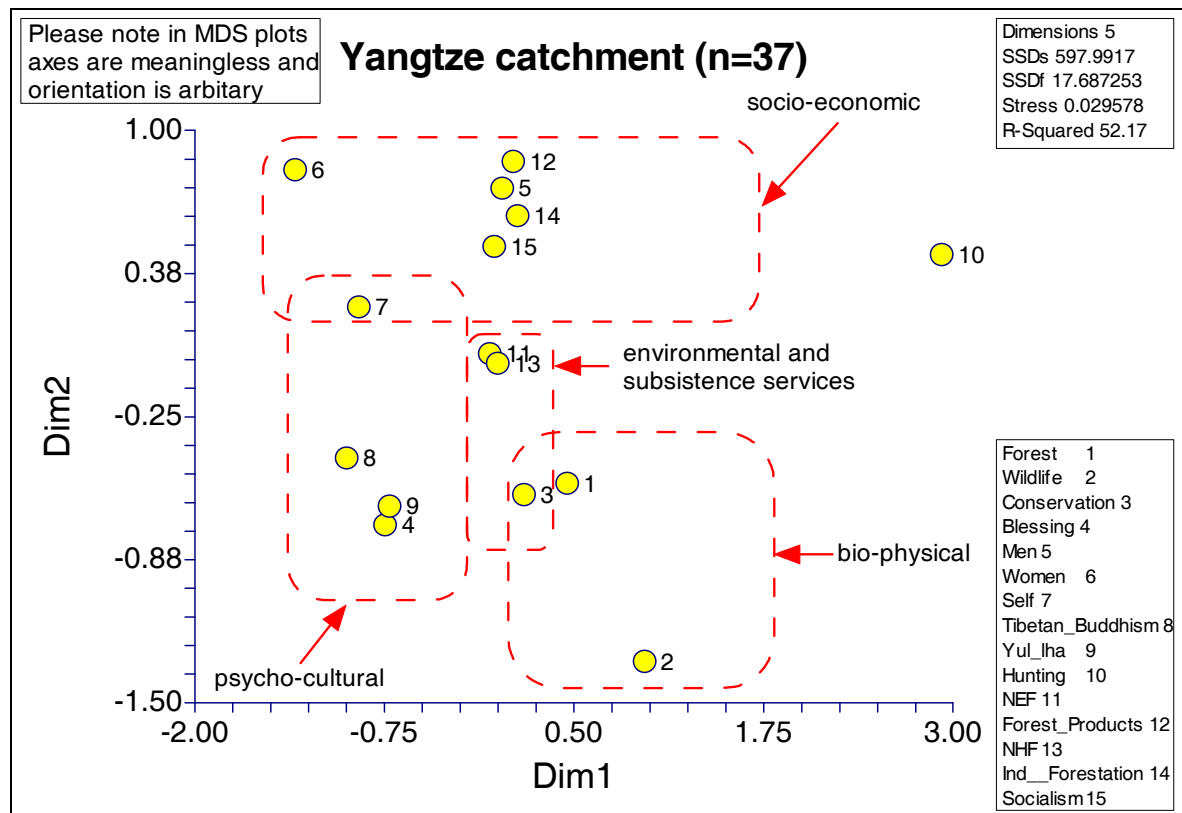
By comparison respondents in the Yiangtze catchment do not identify with conservation, locate 'self' far from most values, and place 'forest products' in the 'socio-economic' domain. There is however some need for caution given the low levels of r^2 in plot 8-14.

Notwithstanding the caution it would appear as if the respondents living in the Yangtze catchment feel alienated from their culture and environment and consider that 'forest products' are part of the market economy. This subject is discussed further in chapter 9 section 9.3.2.

Plot 8-13 Cognitive map of 15 forest values in the Yajiang catchment



Plot 8-14 Cognitive map of 15 forest values in the Yangtze catchment



The Khambas living in the Yajiang catchment

Although there is evidence¹⁴⁵⁶ that mountain ranges can prevent the spread of language and dialect, and anecdotal evidence that every valley in Kham has its own dialect it was important to understand if the forest values of the Khamba speakers living in the Yajiang valley were similar to their Khamba speaking kinsmen, but separated by 5000m mountain ranges, in the Yiangtze valley, or their Qiangic speaking neighbours (See Map 8-5). In order to provide a comparison Plot 8-15 was contrasted with Plot 8-5 (Kham Dialect), Plot 8-6 (Qiangic Dialect) and 8-14 (Yiangtze catchment). It would appear that the Khambas in the Yajiang catchment (Plot 8-15), in common with their Qiangic speaking neighbours (Plot 8-6) locate 'conservation' in the 'psycho-cultural' and 'environmental and subsistence services' domain, and 'self' in the 'psycho-cultural' domain. Their views, however, contrast with Kham speakers (Plot 8-5) and the Yiangtze catchment (Plot 8-14) where 'self' is located in both the 'psycho-cultural' and 'socio-economic' domain, and 'forest products' is located in the 'socio-economic' domain.

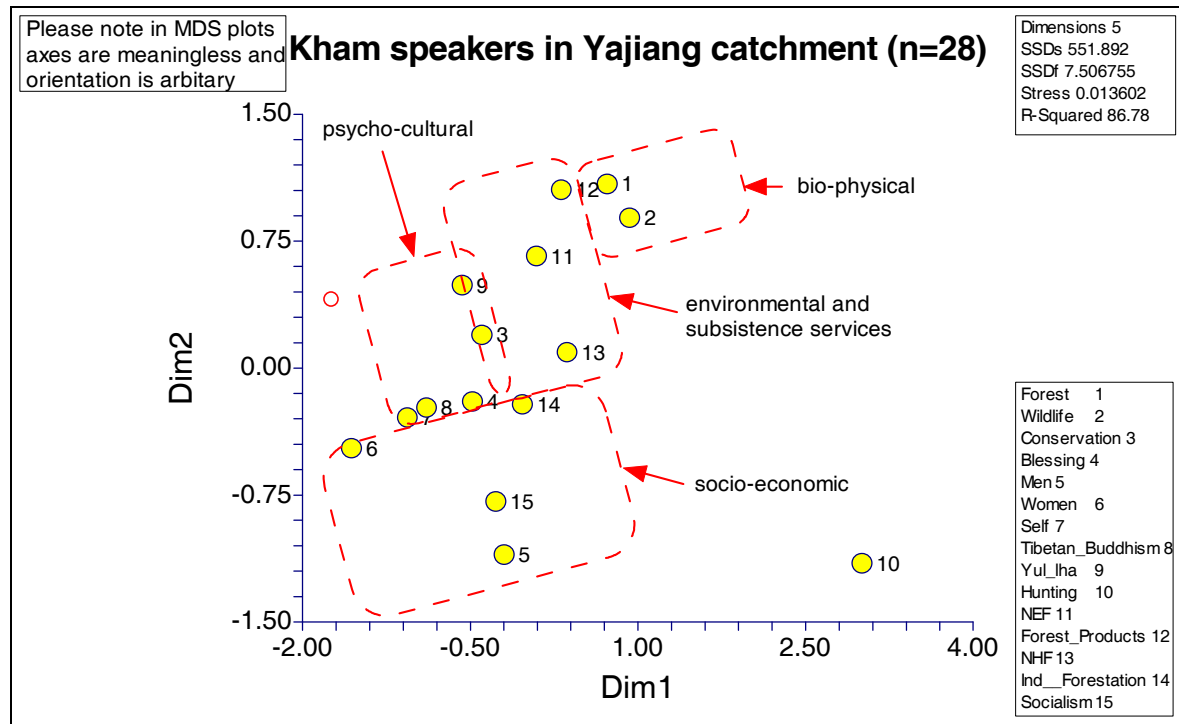
Their views, however, are not identical to their Qiangic neighbours who locate 'forest products' in the 'environmental and subsistence services' and 'socio-economic' domain and locate 'women' further away from the 'psycho-cultural' and 'environmental and subsistence services' domains. The latter finding is surprising given that the Qiangic peoples have a matrilineal tradition which is often associated with natural resource stewardship¹⁴⁵⁷.

¹⁴⁵⁶ http://www.yamasa.org/acjs/english/location/location_environs.html accessed 19th October 2005

<http://kiri.ling.cam.ac.uk/mark/HistLing5.pdf> accessed 19th October 2005

¹⁴⁵⁷ Kelkar et al 2003

Plot 8-15 Cognitive mapping of Kham speakers in the Yajiang catchment



It does appear that the Khamba speakers of the Yajiang catchment have more in common with their Qiangic neighbours than the Khambas who live in the Yangtze catchment. On the basis of MDS plots alone it is difficult to determine if forest values among the Khamba speakers is determined by culture or topography, which will be explored further in the following chapters.

8.2.6. Values Identified in the Forest Value Survey but not Included in Cognitive Mapping

Thus far we have considered the forest values addressed in cognitive mapping and in this section we will discuss forest values excluded from cognitive mapping¹⁴⁵⁸ that often appear in forest value typologies.

Commercial values

During the forest value study only one respondent mentioned commercial values although another mentioned it in relation to agricultural support. For this reason it was not included in

¹⁴⁵⁸ because they were mentioned by 3 respondents or less during field testing in UK or China.

the cognitive mapping study. This level of response resonated with a study at Lugu Lake¹⁴⁵⁹ where commercial value only ranked 8th out of 13 forest values and only represented 5% of total economic value. Clearly some care must be taken not to over-interpret these results, but overall they do suggest that forestry projects that typically use commercial or market values only capture a small part of the total economic value of the forest to local people.

Cultural, historic, symbolic and emotional values

Although some Khamba respondents did identify aesthetic values in the forest value study conducted in Kham during field testing (See 6.6.2) no one specifically identified cultural, historic or therapeutic values. They did, however, mention tree stories (See Table 6-2), spiritual values, sacred forest and mountains (Table 6-2), territorial cults and special locales where they would pay their respects to Buddha and local divinities. There is evidence that all four values do exist in the region¹⁴⁶⁰ and that at Lugu Lake cultural values represent 5 % of total economic value, historic values 5% of total economic value, aesthetic values 10% of total economic value, and therapeutic values 9% of total economic value. There is also evidence that the territorial cults that revived in eastern Kham in the 1980's are similar to cults found in India and Africa. They are characterised by, well defined locales (including protected forests and mountains) dedicated to territorial spirits (*yul-lha*), where political unity and community identity may, as in this case, be reworked in a culture of resistance¹⁴⁶¹.

Wilderness values

Wilderness values were not mentioned by Khamba respondents in the forest value study because 'wilderness' and its mainstream paradigms¹⁴⁶² are alien to them in common with most indigenous people¹⁴⁶³. They were, however, identified in the UK forest value survey (See 6.6.1) and are being increasingly included in forest value typologies and recognized by a number of

1459 Studley et al 2005

1460 Studley et al 2005

1461 Blondeau 1998, Buffertrille and Diemberger 2002, Diemberger 2002, Elst 2000, Epstein and Peng 1998, Huber 1999a, Karmay 1994, Parajuli 2001a+b, Ramble 1998, Schwartz 1994a Stuart et al 1995,

1462 anthropocentric or biocentric (Nash 1982).

1463 Klein 1994

NGOs working in the region. Traditionally the Chinese State has adopted a Lockean anthropocentric paradigm, but with the arrival of the new 'green world order' an alternative paradigm is being introduced that has uncanny similarities to the scientific forestry paradigm¹⁴⁶⁴. A coalition of international ENGO's¹⁴⁶⁵ are currently trying to 'save' the regions biodiversity on the basis of what appears to be a 'biocentric' model¹⁴⁶⁶. This model is usually characterised by elite knowledge¹⁴⁶⁷ and 'wilderness enclosures' that exclude the local people and their knowledge, with an agenda to permanently transfer trusteeship "of the major world resources to massive eco-holding"¹⁴⁶⁸ cartels¹⁴⁶⁹. Although these groups were invited into China and agreed not to adopt a 'biocentric' model¹⁴⁷⁰ there is evidence that they are doing so elsewhere¹⁴⁷¹ and are evidently part of an "eco-imperialistic"¹⁴⁷² or "extreme environmental"¹⁴⁷³ movement. From this view "the collective needs of non-human species must take precedence over the needs and desires of humans"¹⁴⁷⁴. Even if ENGOs have not adopted their usual model there is evidence that China has adopted a similar form of 'ecological colonialism' as nature reserves have been forcefully established in indigenous minority areas, ignoring their rights, culture, values and knowledge¹⁴⁷⁵ and resulting in impoverishment. There is anecdotal evidence that the cadres hope the displaced people will drift into the local cities, find jobs, and make a contribution to China's market economy.

8.2.7 Forest Values Identified in the Contextual Studies

Thus far we have addressed pertinent forest values included in cognitive mapping or identified by respondents in Kham and UK during field testing. In this section will discuss forest values that were only alluded to during the forest value study that were addressed at Lugu Lake and appear in forest value typologies. These values because they are the most difficult to articulate are often the least understood from a western worldview.

1464 Guha 1996, 1997

1465 The Nature Conservancy (USA), Conservation International, and World Wildlife Fund.

1466 Kitossa 2000

1467 Guha 1997

1468 Abraham 1990 Chapter 3 <http://www.lawfulpath.com/ref/greening.shtml#3> accessed 5th Dec 2004

1469 Abraham and Sanders 1993, Coffman 1998, Keeler 2002, Kitossa 2000, Krug 1994, McMaken 2001

1470 personal communication He ShaoYing 5/7/2003

1471 Brannan 1996, Keeler 2002, Noss 1995

1472 Kitossa 2000 page 24

1473 <http://www.fee.org/vnews.php?nid=4116#3> accessed 5th July 2005

1474 Brannan 1996 page 6, Noss 1995 page 20

1475 AhoraNow 2000, Bonner 1994, Kitossa 2000)

Learning values (or ways of knowing)

Although the Khamba respondents did not include 'learning value' in the forest value study they did mention tree stories (Table 6-2) that had been passed down to them, and the specialized knowledge of priests and shaman. This resonated with the research at Lugu Lake where 'learning value' represented 8 % of total economic value and ethnic 'epistemologies of nature' were identified among the Tibetans, Naxi, Mosuo, Pumi, and Yi.:

The Tibetans, as we discovered in chapter 7 section 7.3.4 have two categories of sacred landscape, *neri*¹⁴⁷⁶ mountains part of a Tibetan Buddhist tradition¹⁴⁷⁷ and locales which are embodied by a divinity¹⁴⁷⁸ with human personality¹⁴⁷⁹. These local divinities (*yul-lha*) are honoured and appeased through the building of *lartse*¹⁴⁸⁰ which are wooden or stone cairns on mountain or hilltops which are annually constructed in ceremonies varying according to the lunar calendar. This is one of the oldest Tibetan customs and is found in all regions inhabited by Tibetans and has continued to the present day without interruption. The *yul-lha/ gzhi-bda* and other folk divinities are part of Tibet's animistic/ shamanistic tradition. This is especially the case among Tibet's lay peoples who continue to display leanings towards folk religion. The *yul-lha* and other 'gods of the past' theoretically 'tamed' by Buddhism are closer to them in both geography identity and in sensed presence. In the world of the lay Tibetan many landscape features point back to the worship of ancient gods. They are not only conscious of the constant scrutiny of the *yul-lha* but when nomads go hunting¹⁴⁸¹ but engage in folk-religious rituals and place demands on their gods¹⁴⁸² for protection and success in hunting, trading, travel, farming, forestry, and nature conservation. In common with the Sherpa Tibetan villages¹⁴⁸³ most Tibetans appear to

1476 རེ་རི། *neri*

1477 Huber 1999a

1478 གཞི། *gzhi bda* or ཡུལ་ལྷ། *yul lha* - These terms can be used interchangeably although *yul-lha* appears to be a literary term.

1479 Blondeau et al 1998, Karmay 1994, Ramble 1998, Stuart et al 1995,

1480 ལར་ཙེ། *lartse*

1481 Nomads go hunting more frequently than other Tibetans.

1482 Often mediated through a shaman.

1483 Stevens 1993, 1997

recognize several different categories of forest stewardship from sacred and untouched to unmanaged and overexploited.

The Naxi people have a numina named *shu* who is responsible for governing nature. Each year the people worship *shu* and pray for blessings for their offspring, favourable weather for agriculture, prosperity and longevity of the community. They make offerings to this spirit usually at a spring or pond mediated through a *dongba*¹⁴⁸⁴ as a means of repayment for the non timber forest products collected from the woods and reconciliation with nature. This ensues not only that they live in harmony with the spirit world but receive environmental and social 'blessing'¹⁴⁸⁵.

The Mosuo are animistic/shamanistic and this is most directly expressed through the veneration of *gan mu*¹⁴⁸⁶ embodied by Lion Mountain¹⁴⁸⁷ and by *shin ami*¹⁴⁸⁸ embodied by Lugu Lake¹⁴⁸⁹. The people believe that animals and trees are innocent and do not kill them without reason. They also have sacred trees¹⁴⁹⁰ and wells and they appease the spirits of these locales either at local altars or during major festivals. The Mosuo *daba* play a major role as intermediaries between the human-natural-spirit domains in nature conservation and environmental education but they are almost extinct due to persecution during the Cultural Revolution¹⁴⁹¹.

The Pumi have traditionally conserved forests plants fish and wild animals and have sacred lakes mountains animals and trees. They have taboos about polluting sacred lakes or the deliberate or accidental killing of animals/trees in sacred areas. Those who transgress are expected to:-

- Butcher a ploughing animal for the village to eat

1484 'shaman'.

1485 Yang Fuquan 2003, Xu et al 2004

1486 The goddess of Love.

1487 A sacred mountain.

1488 The mother goddess.

1489 A sacred lake.

1490 Often *Juglans regia*.

1491 Cai Hua 2001, Studley 2004c..d, Yang Fuquan 2003

- Go to a Tibetan Buddhist Lama or 'Local Lama'¹⁴⁹² or
- Go to a *hangui* to appease the spirits and restore topocosmic harmony¹⁴⁹³.

Lake Lugu is embodied by a Pumi goddess *tai an yan soo* and was created from the tears of the goddess of Lion Mountain, *gan mu*. They believe that if they pollute the lake *tai an yan soo* will punish them and they traditionally used a system of zoned fishing by family. They have several sacred mountains¹⁴⁹⁴ several sacred animals¹⁴⁹⁵ and several sacred trees¹⁴⁹⁶. They believe that if the black footed crane¹⁴⁹⁷ returns to the Lake it will bring prosperity.

Although the Yi at Lugu Lake are not Tibetan and do not constitute an ethnic group *stricto sensu*¹⁴⁹⁸ they live in Kham as defined by the Tibetan government-in-exile. It would appear that some groups categorized as Yi¹⁴⁹⁹ are animists with a tradition of sacred landscapes nature conservation and totemism¹⁵⁰⁰ especially the tiger¹⁵⁰¹ and some groups¹⁵⁰² are more often associated with environmental degradation¹⁵⁰³. Those interviewed¹⁵⁰⁴ were not aware of any tradition of nature conservation or sacred landscape and mentioned that historically they were a hunting minority and that the *bimo* visited them mostly to perform 'rites of passage'¹⁵⁰⁵. The *bimo* appear to be clerics in the 'high-religious' tradition¹⁵⁰⁶ and also village intellectuals. The *bimo* offers the community a system of complex procedures focusing on avoiding disaster bringing fortune and establishing a harmonious relationship between humans, nature, and spiritual beings. While they are knowledgeable about flora and fauna their worldview does not appear to include any animistic paradigms of explicit

1492 For their own karma.

1493 Bourdieu 1972, Robert 1999, Studley 2004c..d, Wellens 2002 and personal communication 21/11/2003 weblog

1494 Including *thuwa*, *lhagon* and *zutsay*.

1495 Animals including Wild Frogs [an Uncle] Cranes [a Lama] and Magpies.

1496 Often large walnut trees.

1497 *Grus* spp

1498 In the strict sense <http://www.fishbase.org/Glossary/Glossary.cfm?TermEnglish=sensu%20stricto> accessed 5th July 2005

1499 In Chuxiong, for example.

1500 Symbolic association between a social group (eg, a lineage or clan) and a kind of bird, plant, or natural phenomenon. In 'classic' forms, a member of the social group has some special religious relationship (eg, a food taboo) toward members of the natural species. <http://www.modernhumanorigins.com/> accessed 25th July 2005.

1501 Liu et al 1999, Liu et al 2000, Xu et al 2004

1502 In Liangshan.

1503 Vermander 2000

1504 Around Lugu Lake (Studley 2004c..d).

1505 van Gennep 1960

1506 Allison 1984, Marriott 1955, Mendelbaum 1964, Hiebert 1982 a + b, Redfield 1955

nature conservation. Within the region there are 5000 to 8000 youngsters who are engaging in a special education so they can offer their services to the community¹⁵⁰⁷.

Intrinsic values

Intrinsic¹⁵⁰⁸ value is a central tenet of many religious beliefs¹⁵⁰⁹ where "everything on earth is inherently valuable because it has been created by a divine being"¹⁵¹⁰. There is compelling evidence¹⁵¹¹ given their spiritual values, animistic/shamanistic beliefs, and worldview that the peoples of Eastern Kham recognize the intrinsic values of forests.

Although intrinsic value was not volunteered in the forest value study¹⁵¹² it is recognized at Lugu Lake¹⁵¹³ where intrinsic value represented 11 % of total economic value, and ranked second out of thirteen values. The peoples of Eastern Kham in common with other indigenous people¹⁵¹⁴ appear to have a common belief that:-

- Life is 'inspired'¹⁵¹⁵ and thus sacred with an innate, intrinsic value and all of creation is vested with spirit, meaning, and purpose.
- All elements of the sacred whole are interconnected, interdependent, interrelated at the deepest levels...and all should be treated as our relatives¹⁵¹⁶.

This view resonates with many religions¹⁵¹⁷ that consider everything on earth to be inherently sacred, and thus, intrinsically valuable and humans are responsible to care for and respect these creations¹⁵¹⁸.

1507 Bamo Ayi 2001 page 118

1508 An **intrinsic** good is something valuable in and of itself (Harman 2000).

1509 Callicott 1986, 1999, Ip 1983, Naess 1984, Zimmerman 1988

1510 Lavery and Sterling 2004 <http://cnx.rice.edu/content/m12160/latest/#Callicott> accessed 5th July 2005

1511 e.g. <http://www.tibet.com/Eco/Green97/biodiversity.html> accessed 7th July 2005

1512 It proved to be a difficult concept to articulate in UK and China and to translate into Chinese.

1513 Studley et al 2005

1514 The Saami of Scandinavia and the Australian Aborigine (Hardin 2003).

1515 To instill courage or life into <http://www.answers.com/inspiredandir=67> accessed 5th July 2005.

1516 Earthyouth 2003 <http://earthyouth.takingitglobal.org/issues/forests.html> accessed 15th July 2005.

1517 Christianity, Judaism, Islam, Buddhism, Jainism, Baha'i, Daoism, Hinduism.

1518 Callicott 1999, Lavery and Sterling 2004

Future values

The importance of 'future' forest values (or 'intergenerational access to forest resources') for indigenous peoples has been recognized¹⁵¹⁹ and debated in numerous studies¹⁵²⁰. Although the Tibetans have repeatedly asked the Chinese for guarantees of forest access¹⁵²¹ 'future value' was not volunteered as a value by the Khamba respondents. It is, however, recognized at Lugu Lake¹⁵²² where 'future value' represented 9 % of total economic value, and ranked 7th out of thirteen values¹⁵²³. The meaning of *intergenerational* is quite clear in the Tibetan context; the forest resources in question are for the benefit of both the present and subsequent generations¹⁵²⁴.

Recreation and tourism

Although the recreational role of China's forests is recognized¹⁵²⁵ and the respondents indicated they would welcome tourists to the area and their homes, they were concerned about the impact of tourism on their culture language and religion. Although it was not volunteered in the forest value study it must be assumed that some forest based activity may have an element of recreation. This view is recognized at Lugu Lake¹⁵²⁶ where 'recreation' represented 3.5 % of total economic value¹⁵²⁷ and ranked 7th out of 13 for Mosuo women¹⁵²⁸. The Eastern Kham region has recently been designated as the "China Shangri-la Ecological Tourism Zone" which will comprise 50 counties and result in an increase in tourism and forest recreation.

8.2.8 Cognitive Domains and Forest Value Paradigms

Although I have discussed domains and paradigms in chapter 2 section 2.2 and chapter 5 section 5.7.3 and referred to discourses throughout this study I will remind the reader again of their meaning, given their importance in this study.

1519 Colfer et al 1995, Logo 2002, Prabhu et al 1996, 1998,

1520 Besley 1995, Fortmann and Bruce 1988, Lueck 1995, Lynch and Alcorn 1994, Ostrom 1990.

1521 DIIR July 2003

1522 Studley et al 2005

1523 For Yi men they ranked 1st out of 13 and for Yi women 3rd out of 13.

1524 See Becker 1997 for a brief philosophical discussion of this issue.

1525 Liu Jihan and Dowling 1991, Newby and Hong Tao 1991, Sofield and Li 1998, Tisdell 1996, Yiping Li and Hinch 1998

1526 Studley et al 2005

1527 and ranked 10th out of 13 forest values.

1528 The Mosuo come from similar genetic stock as the Khamba Tibetans (see Figure 8-1).

Cognitive domains or sub domains most typically describe exclusive realms or sets within thought processing which serve as categorization constructs for sorting out unities and phenomena. Alternative terms used in the literature on knowledge structure include sub paradigms, or schemata. The literature on MDS suggests that each cluster is a domain or sub domain which should be analyzed individually¹⁵²⁹. I am suggesting that in this case that the four clusters or domains revealed in the MDS plots represent forest value paradigms. If a paradigm is a constellation of concepts, values, beliefs, perceptions, methodological assumptions and practices shared by a community then a forest value paradigm could be defined as follows:-

A forest value paradigm is a constellation of concepts, values, domains, beliefs, perceptions, methodological assumptions about trees and forests and forestry stewardship practices shared by a community.

'Discourse', etymologically derives from the Latin '*discursus*' meaning running to and fro. In its modern usage we can distinguish between two related senses of 'discourse' in the literature as conversation, and as the textual treatment, regulation and management of a subject (both written and spoken).

In the first sense of conversation, utterances in a language 'run to and fro' between speakers implying transaction and interaction, a mobility of stable forms of meaning between stable and unitary actors.

In the second sense of the textual treatment, regulation and management of a subject, ideas, concepts and terms 'run to and fro' between each other as text and between texts, the course of their trajectories establishing the subject. This sense implies synchronic¹⁵³⁰ transmutation, a transformation of unstable forms of signification (signifiers) into meaning by virtue of the simultaneity of their appearance and deference to each other.

1529 <http://www.analytictech.com/borgatti/mds.htm> accessed 19th October 2005

1530 at a specific point in time.

Much of sociolinguistic analysis uses the first sense which is also connected to the message model of communication, while social theory issuing from Foucault seems to use the second sense which is connected with the semiotic¹⁵³¹ model¹⁵³².

I like other authors¹⁵³³ do not consider paradigm (in its post-modern meaning) and discourse to be synonymous although I recognize close links between them, exemplified in chapter 7 section 7.2.2. with fengshui discourses. Discourses are often regarded as "power paradigms"¹⁵³⁴ because they are privileged¹⁵³⁵ on certain paradigms, such as the scientific discourse paradigm¹⁵³⁶. They can, however also be used to challenge dominant paradigms¹⁵³⁷ such as the discursive strategies used by the James Bay Cree referred to in chapter 3 section 3.3.3. Additionally some authors consider that paradigms are constructed¹⁵³⁸, limited and shaped through discourse while others have used discourse analysis to reveal¹⁵³⁹, for example the paradigms of those alleging cannibalism in Mexico in the 15th century

I will argue in this section that the different constellations of forest values used by different populations of respondents in eastern Kham represent distinct forest value paradigms, which could be used as templates for foresters planning forestry stewardship based on local values.

On the basis of both multidimensional scaling and cluster analysis and my subjective knowledge of the region there appears to be four domains of forest values namely:- the psycho-cultural, socio-economic, environmental and subsistence services, and bio-physical domain.

1531 is the study of signs and sign systems.

1532 <http://www.ausis.com.au/polsim/power/Lec3.html> accessed 20th October 2005.

1533 Best and Kellner 1997

1534 <http://www.ausis.com.au/polsim/power/Lec3.html> accessed 20th October 2005.

1535 <http://www2.ncsu.edu/ncsu/aern/muwangap.html> accessed 20th October 2005.

1536 <http://www.pmcguire.demon.co.uk/scientifparadigmgramutgram.html> accessed 20th October 2005.

1537 <http://www.devserve.co.za/Lecture%201%20Discourses%20of%20development.ppt> accessed 20th October 2005.

1538

<http://www.kent.ac.uk/wramsoc/conferencesandworkshops/conferenceinformation/berlinconferenc/paradigmshiftandlabourmarketreform.pdf> accessed 20th October 2005.

1539 <http://www.jqjacobs.net/anthro/cannibalism.html> accessed 20th October 20005

Using disaggregated data, however not only does the juxtaposition of forest values within each domain change but different populations locate values in different domains (See Table 8-3) which suggests they use alternative paradigms. It was interesting to note, for example that when the 2 new values were introduced in 2003 'place' was located in the 'psycho-cultural' and 'socio-economic' domain, 'Ganzi' in the 'socio-economic' domain and 'self' in the 'psycho-cultural' domain¹⁵⁴⁰. Although we discussed the acceptance or rejection of new phenomena into paradigms in chapter 2 section 2.2 we did not mention the subsequent domain reconfiguration that may result.

On the basis of the results analyzed there are evidently 12 forest value paradigms in Eastern Kham. Although three are identical on the basis of domain configuration, namely; Kham speakers, Zhongdian County and Yajiang catchment, they are not identical to the value set they are paired with; Qiangic speakers, Yajiang County and Yiangtze catchment.

In terms of local level forest stewardship the paradigms that are most apposite are based on ethnic groups, county or catchment (paradigms 3, 4, 8-12). The ethnic group paradigms, however, are only suitable for local forest management if there is a clear sub-division of territory by ethnic group and would not apply in multi-ethnic areas.

Paradigms 6 (young) and 7 (old) are not very useful for forest management purposes but they do demonstrate the impact of external interventions such as education, Hanification, socialism or modernity on forest values and paradigms. As a result they could be used for monitoring forestry extension programmes.

The domain names were selected by the author and more field research is required in order to establish if the names identified by the author are similar to the cognitive categories used by the peoples of Kham.

¹⁵⁴⁰ See paradigm 2.

Table 8-3 Forest value cognitive domains and paradigms

Forest value paradigms		Cognitive domains			
#	Name	Bio-physical	Psycho-cultural	Environmental and subsistence services	Socio-economic
1	All (86) 15 values	Forest Wildlife Conservation	Blessing TB yul-lha Self Conservation	Conservation NEF FP NHF	Men Women IF Socialism Self FP
2	All (57) 17 values	Forest Wildlife	Blessing Self TB yul-lha This place Conservation	Conservation NEF FP NHF	Men Women IF Socialism Ganzi This place
3	Kham speakers	Forest Wildlife Conservation	Blessing TB yul-lha Self Conservation	Conservation NEF FP NHF	Men Women IF Socialism Self
4	Qiangic speakers	Forest Wildlife	Blessing TB yul-lha Self Conservation	Conservation NEF FP NHF	Men Women IF Socialism FP
5	Male	Forest Wildlife	Blessing TB yul-lha Self Conservation	Conservation NEF FP NHF	Men Women IF Socialism Self FP
6	Old 17 values	Forest Wildlife	Blessing Self TB yul-lha This place	Conservation NEF FP NHF Socialism	Men Women IF Ganzi
7	Young 17 values	Forest Wildlife	Blessing Self TB yul-lha This place Socialism	Conservation NEF FP NHF IF Ganzi This place	Men Women
8	Yajiang County	Forest Wildlife	Blessing TB yul-lha Self Conservation NEF	FP NHF	Men Women IF Socialism
9	Zhongdian County	Forest Wildlife Conservation	Blessing TB yul-lha Self	Conservation NEF FP NHF	Men Women IF Socialism Self
10	Yangtze catchment	Forest Wildlife Conservation	Blessing TB yul-lha Self	Conservation NEF NHF	Men Women IF Socialism Self FP
11	Yajiang catchment	Forest Wildlife	Blessing TB yul-lha Self Conservation	Conservation NEF FP NHF	Men Women IF Socialism Self
12	Kham speakers in Yajiang catchment	Forest Wildlife	Blessing TB yul-lha Self Conservation	Conservation NEF FP NHF	Men Women IF Socialism

In this chapter cognitive mapping among the peoples of Eastern Kham has enabled us to recognize; the importance of up to 20 forest values, the existence of four cognitive domains and of up to 12 forest value paradigms. Although this information is useful in that it helps us understand forest perception from a local perspective for forestry stewardship it fails to address the geospatial dimension required for forestry stewardship. In the next chapter we will use the same data plus site coordinates to explore the distribution of forest values and paradigms across Eastern Kham, in order to identify homogenous areas of forest values, and the coincidence of change in forest value with cultural or bio-physical phenomena.

CHAPTER 9 SPATIAL AND BOUNDARY ANALYSIS

In the last chapter we recognized on the basis of cognitive mapping the existence of up to 12 forest value paradigms that were determined by value set, age, gender, county, catchment, dialect and a combination of elements. We concluded, however that only paradigms based on county, catchment, and dialect appeared suitable for forest management.

In this chapter we will determine; if any of these cognitive paradigms are replicated geospatially across Eastern Kham and the influence of socio-cultural or biophysical phenomena on forest values, and, if applicable, their origin (e.g. Beijing, Chengdu or Qinghai province). It is important to remind ourselves at this stage that the purpose of this study was not only the identification of multiple forestry paradigms (cognitively and geospatially) but the impact of external interventions such as socialism, conservation and industrial forestation on local forest values. There is no single geostatistical technique that will address these aims so a suite of three geostatistical tools referred to in chapter six section 6.3.2 and 6.3.3 will be used, namely geostatistical analysis (kriging), spatial analysis and a range of barrier analysis techniques.

9.1 GEOSTATISTICAL ANALYSIS

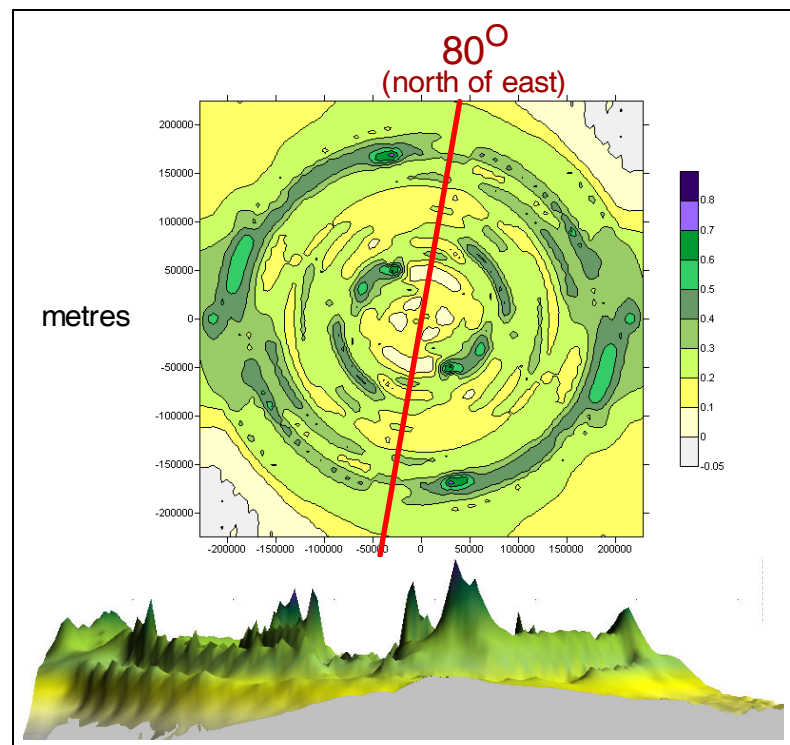
Geostatistical analysis in this study comprises four stages and its object is to create a map, by interpolation, of forest values distributed across eastern Kham in order to identify homogenous areas. The four stages include 1) semivariance mapping to examine spatial bias in the data set, 2) semivariogram fitting, 3) interpolation (kriging), and 4) krig threshold (categories) determination. This technique only allows for one Z variable (in addition to the coordinates) and so a mean figure from each of the 86 sites used for cognitive mapping was adopted.

If a data set exhibits spatial bias or spatial dependency this needs to be considered during interpolation in order that the kriged map will resemble reality. This is very important, for example, in studies examining the spread of disease or genetic migration. One method of examining bias is to produce semivariance surface maps. In our study GS+7, Surfer 8 and

Idrisi¹⁵⁴¹ were used to create a surface map from cognitive mapping site means and their coordinates. Surface maps provide a visual picture of semivariance in every compass direction.

Figure 9-1 shows that the direction of maximum spatial continuity or lowest semivariance¹⁵⁴² to be at 80° (θ) north of the polar axis (East) and along this axis alone semivariance is below 0.3. This is known as the principal axis and is used for determining the anisotropic semivariogram model used for kriging.

Figure 9-1 Anisotropic semivariance surface map and profile of mean forest values



It proved difficult, due to the small sample size, to produce meaningful semivariance surface maps with GS+7 and Idrisi Kilimanjaro¹⁵⁴³ and Figure 9-1 was only produced by Surfer 8¹⁵⁴⁴

1541 Eastman et al 1987-2004, GDS 1989-2004, GSI 2002

1542 0 = low and 1 = high

1543 Eastman et al 1987-2004, GDS 1989-2004

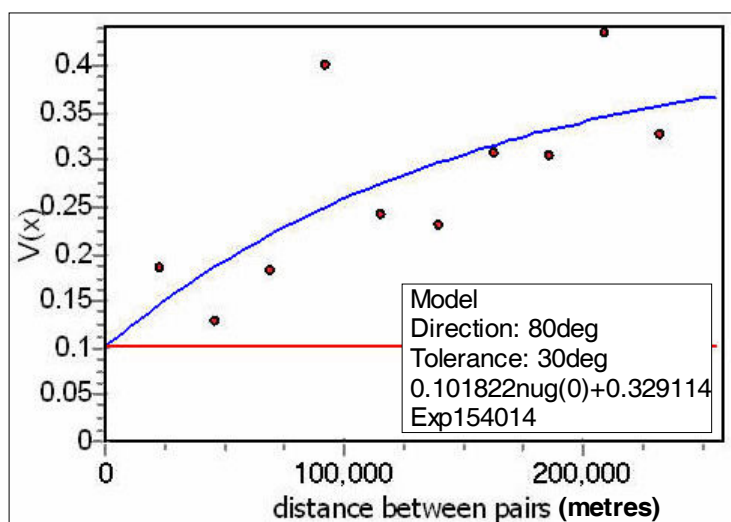
1544 GSI 2002

Chapter 9 Spatial and Boundary Analysis
 after a lot of work¹⁵⁴⁵. This suggests that in this study the anisotropic model should be considered with some caution.

Semivariograms¹⁵⁴⁶ are computer models which predict what's going on in un-sampled locations and provide a probability of values between the sampled locations. They display half the average difference in Z values of two data points (or pairs) as a function of the separation distance between the points. If there is no spatial bias in a data set an omnidirectional or isotropic model is determined and if there is bias an anisotropic model is determined based on the principal axis.

In our study the surface map produced by Surfer 8¹⁵⁴⁷ indicates the direction of lowest semivariance to be at 80° (θ) north of the polar coordinate (East) and a semivariogram based on an anisotropic¹⁵⁴⁸ model was determined (Figure 9-2). For comparison a semivariogram based on an isotropic model (Figure 9-3) was also determined.

Figure 9-2 Anisotropic model of mean forest value data

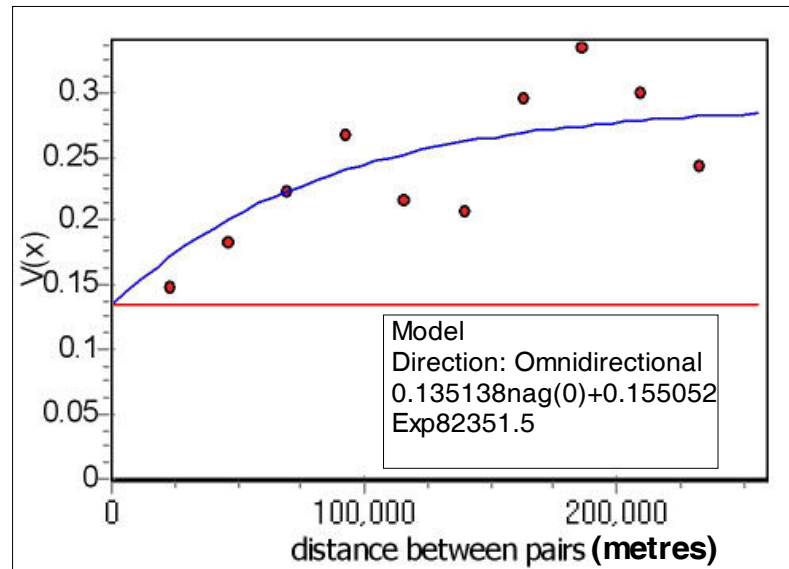


1545 72 spreadsheet calculations.

1546 often referred to as the variogram.

1547 GSI 2002

1548 means 'independent of direction'.

Figure 9-3 Isotropic model of mean forest value data

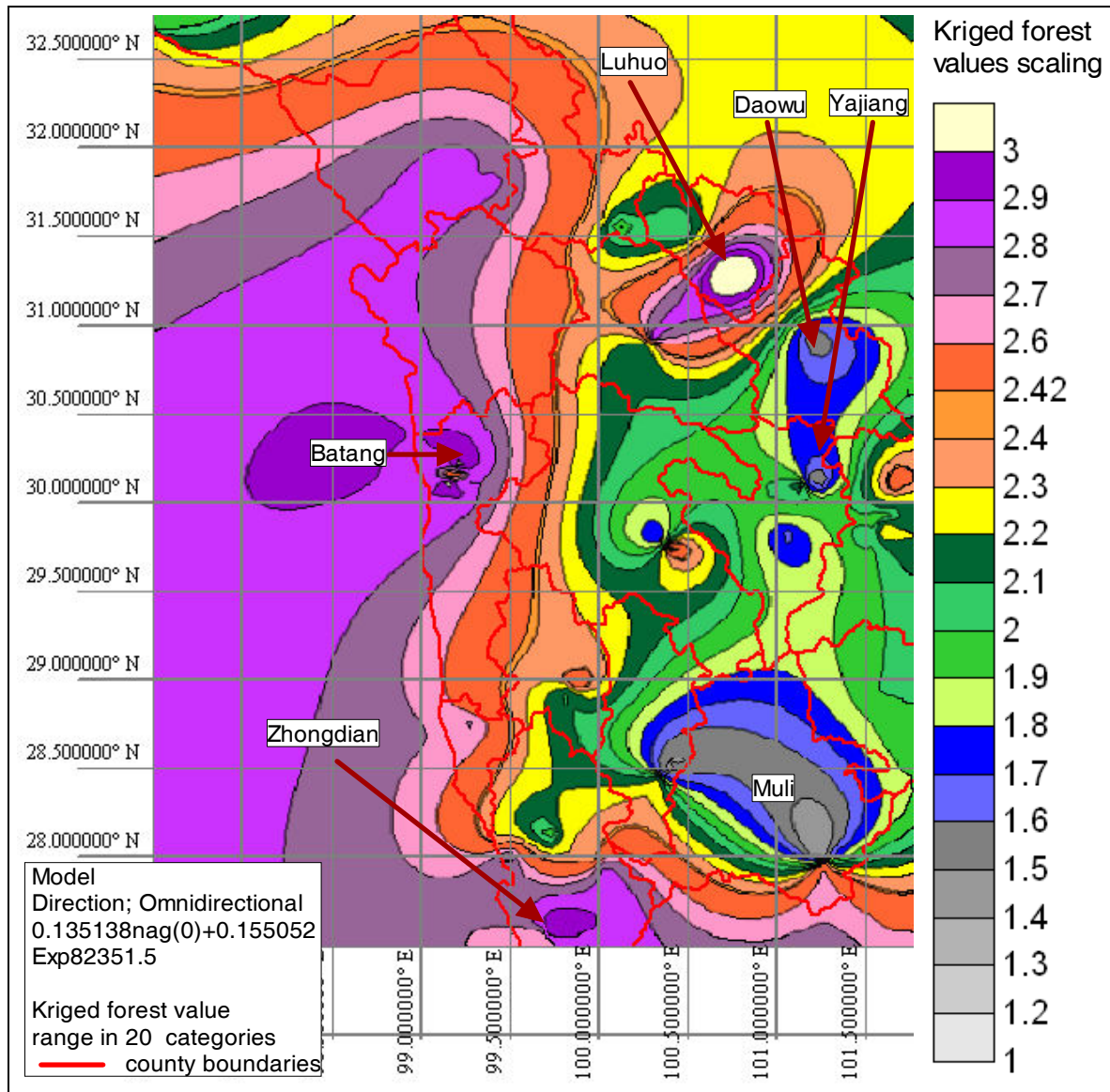
Kriging not only interpolates across a study area but highlights homogeneous areas, areas that have 'high' or 'low' Z values, and zones of rapid change. The kriged forest values in this study were interpolated from the cognitive mapping site means and their coordinates and both the anisotropic (Fig 9-2) and isotropic model (Fig 9-3). The isotropic model was eventually selected for two reasons, the two krig maps produced (isotropic and anisotropic) were almost identical and due to my concerns over the surface map given that GS+7 and Idrisi¹⁵⁴⁹ had difficulty producing a meaningful map. Although both the surface map and the anisotropic model proved superfluous in this study they were retained to demonstrate the stages involved.

Initially isotropic kriging was conducted using GS+7 and Idrisi¹⁵⁵⁰ and subsequently by Surfer 8¹⁵⁵¹ which, by default, produced a map on the basis of 20 incremental categories in kriged forest value from 1.276 to 3.342. Map 9-1 shows that Zhongdian, Batang, and eastern Luhuo County include areas with kriged forest values of 2.9+ and that Muli, Daowu and Yajiang County have kriged forest values below 1.7. The differences between Zhongdian and Yajiang were discussed in chapter 8 section 8.2.5.

1549 Eastman et al 1987-2004, GDS 1989-2004

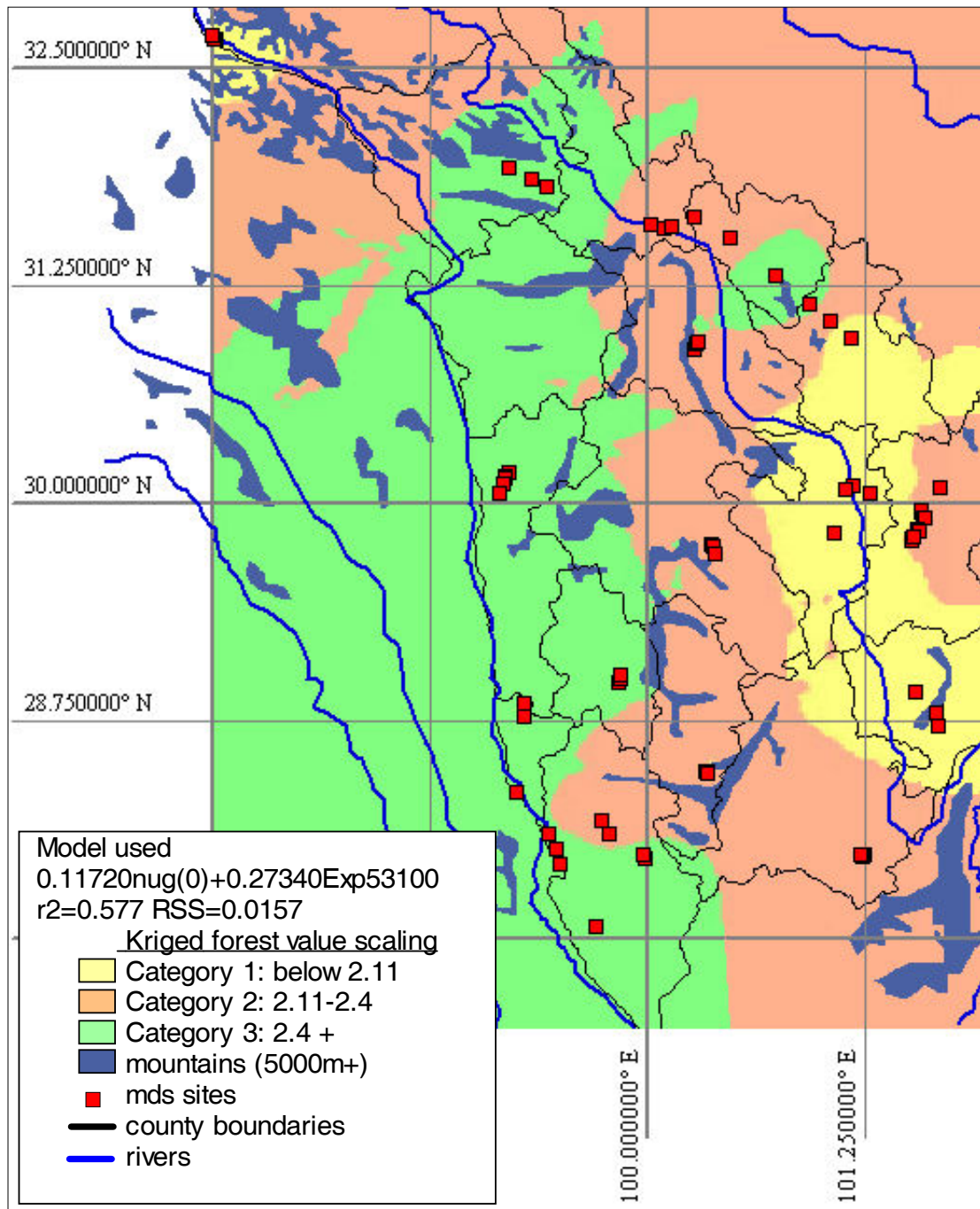
1550 Eastman et al 1987-2004, GDS 1989-2004

1551 GSI 2002

Map 9-1 Isotropic krig plot of 15 forest values displayed in 20 categories

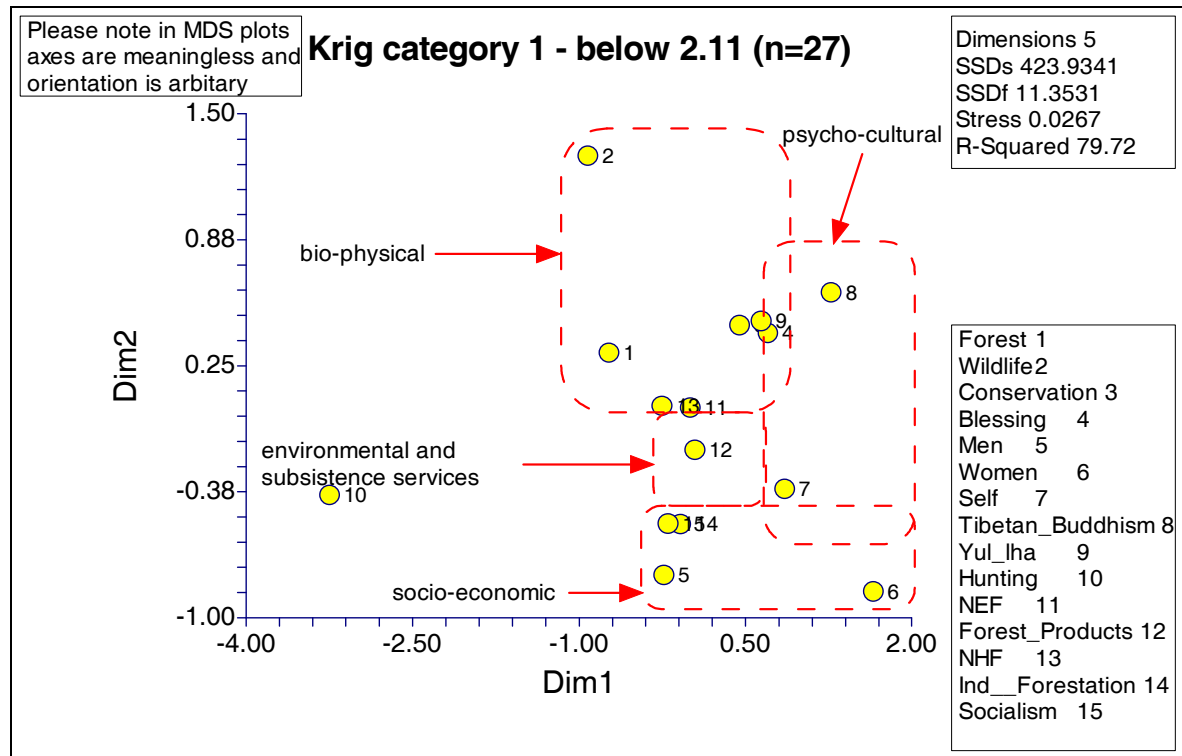
Many of the category areas identified, however, did not appear to coincide with any recognizable features (county, ethnic or watershed boundaries) and so the incremental thresholds between 1.276 and 3.342 were altered to 3 categories rather than 20.

Map 9-2 is based on 3 incremental categories of kriged forest values (below 2.11, 2.11-2.4, 2.4+) and was adopted because it identified areas that appeared to coincide with both socio-cultural and bio-physical features. Category 1 (below a kriged forest value of 2.11) evidently corresponds with Qiangic speakers in the Yajiang catchment and category 3 (above a kriged forest value of 2.4) with Khamba speakers in the Yangtze catchment.

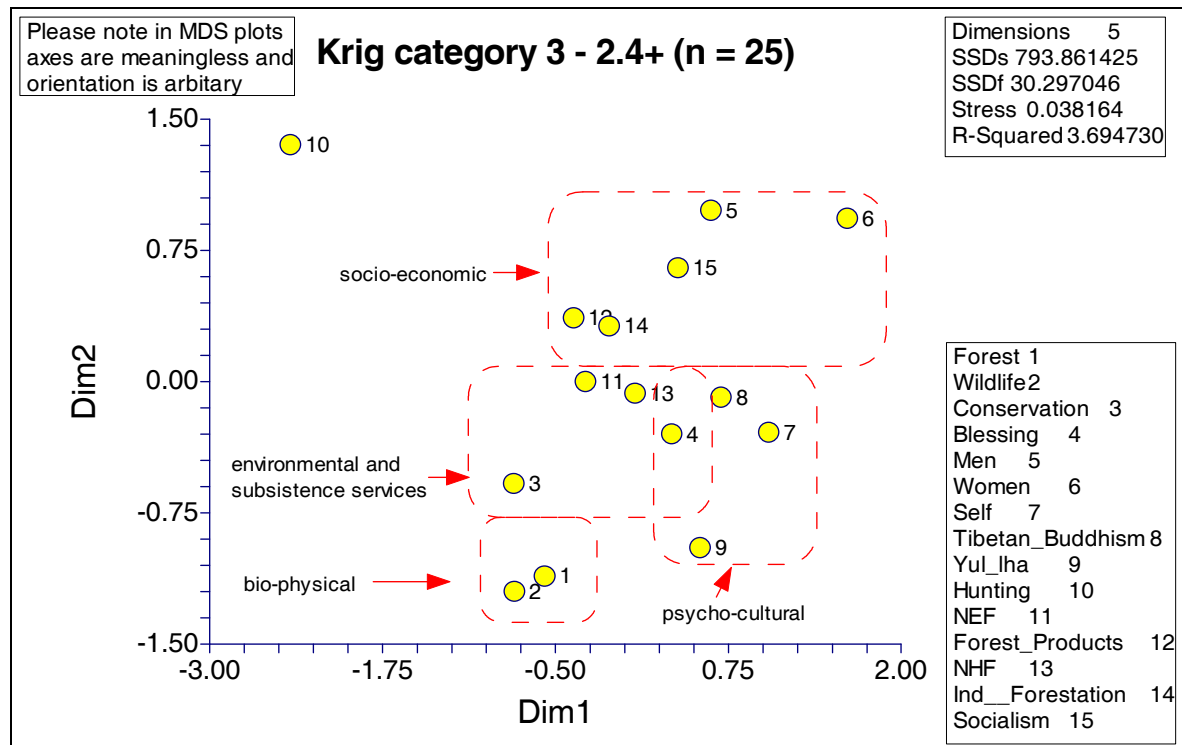
Map 9-2 Isotropic krig plot of 15 forest values (3 categories)

In order to confirm these findings MDS plots were created for category 1 and 3 (Plot 9-1 and 9-2).

Plot 9-1 Cognitive map of kriged forest values below 2.11 in category 1 areas.



Plot 9-2 Cognitive map of kriged forest values of 2.40+ in category 3 areas



In Cat 1 area (Yajiang) 'self' is in the 'psycho-cultural' and 'socio-economic' domain and 'conservation' in the 'psycho-cultural' and 'bio-physical' domain. This contrasts with the Cat 3 area (Yiangtze) where 'self' is in the 'psycho-cultural' domain, 'conservation' is in the 'environmental and subsistence services' domain and 'blessing' in the 'psycho-cultural' and 'environmental and subsistence services' domain. Although the peoples of Cat 1 identify with conservation and the 'psycho-cultural' and 'socio-economic' domain the peoples of Cat 3 appear to regard the 'environmental and subsistence services' domain as a blessing.

It appears as if the peoples within the areas defined by kriging not only have different forest values but different forest value paradigms which we will explore further in spatial analysis, wombling and overlap analysis.

9.2 SPATIAL ANALYSIS

Spatial analysis is based on the distances between the 105 forest value pairs ((15x15)-15/2) used for cognitive mapping at 86 sites and will be used to examine directional bias in forest values and the origins and spatial trends of any spatial phenomena (e.g. Beijing, Chengdu, migration pattern trends). The results are produced either for forest value pairs or the average of all the pairs. This should not be confused with kriging or barrier analysis which use cognitive mapping site/respondent means of all the values.

Spatial analysis offers a number of analytical tools not found in the other methods used in this study. It is able to analyze between data distances, geographic distances and direction. It is able to provide statistical evidence of spatial patterns, spatially significant coefficients, directional trends in forest values and clines¹⁵⁵² in forest values.

The purpose of spatial analysis was to identify directional trends and clines in the forest value data and discuss and analyze the implications the findings have for this study. We have

¹⁵⁵² from the Greek κλίω, to lean .A cline is a gradual change in a character or feature across the distributional range of a species or population, usually correlated with an environmental or geographic transition <http://www.answers.com/topic/cline> accessed 10th Nov 2005.

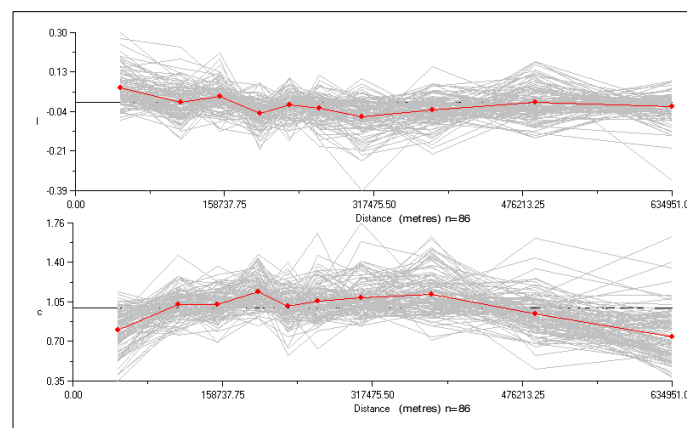
Chapter 9 Spatial and Boundary Analysis adopted a suite of spatial analysis techniques available in Passage¹⁵⁵³ and referred to in chapter 6 section 6.3.2. The four tools used all demonstrate different aspects of spatial analysis; correlograms demonstrate the statistical significance of the data set, bearing analysis provides the direction of maximum correlation between data distances and geographic distances, windrose correlograms provide directional correlation from data distance and direction, bearing correlograms provide clinal direction for data distances and direction, and angular correlograms provide angular correlation for individual values.

9.2.1 Correlograms

Correlograms are one of the most common forms of spatial autocorrelation in geography. The upper figure is Moran's I and the lower figure Geary's c. The red line is the mean and solid red circles represent significant coefficients, and open circles nonsignificant.

Plot 9-3 shows the spatial correlograms for forest values. It shows a pattern typical of a gradient¹⁵⁵⁴, with the magnitude of Moran's I declining linearly with distance. 46 out of 105 forest value pairs using Moran's I and 48 out of 105¹⁵⁵⁵ forest value pairs using Geary's c are significant to $p < 0.05$.

Plot 9-3 Correlogram analysis of all forest value pairs (105 pairs)



1553 Rosenberg 1998-2004

1554 Sokal 1979

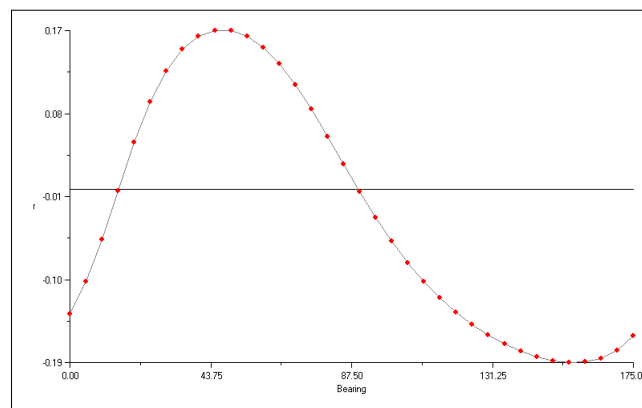
1555 The cognitive mapping was based on distancing between 105 pairs $((15 \times 15) - 15/2)$.

It was crucial for this study to understand if the geospatial distribution of forest value data across eastern Kham was typical for spatially distributed data and significant not only for spatial but barrier analysis. This analysis confirmed that the data set used in this study was typical of a gradient¹⁵⁵⁶ with statistically significant averages. Only about half of forest value pairs were significant which probably explains some of the anomalies with regression analysis, which was not eventually included in this study. It does suggest that calculations based on insignificant forest value pairs should be treated with some caution. Probably the only alternative to ensure higher numbers of significant forest value pairs would have been to take more samples but this proved impossible given time, resource and access constraints referred to in section 1.5..

9.2.2 Bearing Analysis

Bearing analysis is a method of determining the direction of greatest correlation between data distances and geographic distance. The correlation is computed for a series of set angles, in an anticlockwise direction from 0 deg (East) to 180 deg (West) using 36 fixed bearings. While not as informative as some of the other anisotropy methods, this method can be applied with small sample sizes.

Plot 9-4 Bearing analysis of average forest value pairs for Khamba speakers (n=65)



Plot 9-4 shows the results of the bearing analysis for forest values for Khamba speakers. The data shows the direction of greatest correlation (See Map 9-3) to be at 44° (0) north of the

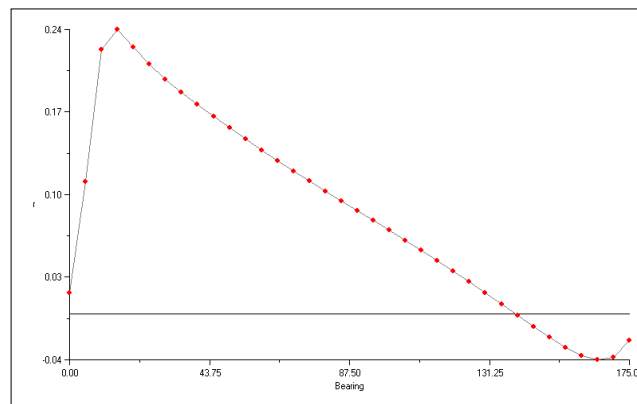
¹⁵⁵⁶ See Rosenberg 2001 for more on the significance of typical gradients.

polar axis (East)¹⁵⁵⁷ and the direction of least correlation to be 150° (θ) north of the polar axis (East)¹⁵⁵⁸. This indicates the direction of greatest change.

There may be a number of explanations for this including processes of assimilation, acculturation or 'extension' from the Sichuan Provincial capital (Chengdu) which is located at roughly 75° from the centre of the research area and by Khamba genetic, linguistic or cultural diffusion and transmission from Qinghai and Gansu Province. This will be explored further in chapter 10 section 10.1.2.

Plot 9-5 shows the results of the bearing analysis for Qiangic speakers. The plot shows the direction of greatest correlation (See Map 9-3) to be at 10° (θ) north of the polar axis (East)¹⁵⁵⁹ and the direction of least correlation to be 170° (θ) north of the polar axis (East)¹⁵⁶⁰. This indicates the direction of greatest change (See Map 9-3).

Plot 9-5 Bearing analysis of average forest value pairs for Qiangic speakers (n=21).



There may be a number of explanations for this including processes of assimilation, acculturation or 'extension' from the Sichuan Provincial capital (Chengdu) which is located at roughly 75° from the centre of the research area and by Qiangic genetic, linguistic, or cultural

1557 46 degrees as an azimuth.

1558 300 degrees as an azimuth

1559 80 degrees as an azimuth.

1560 280 degrees as an azimuth.

Chapter 9 Spatial and Boundary Analysis
diffusion and transmission from Henan Province.. This will be explored further in chapter 10
section 10.1.2.

9.2.3 Windrose Correlograms

Windrose correlograms are another technique that can be used to see if forest value data is anisotropic but unlike the other methods it aggregates observations into independent distance and direction classes with each having its own weight matrix.

A windrose correlogram consist of multiple rings or annuli with each annulus representing a distance interval. The outer radius of the i^{th} annulus is determined by

$$r_i = Ci^2 + Di + E$$

and the inner radius of the i^{th} annulus is determined by the previous annulus. The number of bins or classes in the i^{th} annulus is determined by

$$n_i = Ai - 2$$

and the width of each segment in degrees is $360/n$.

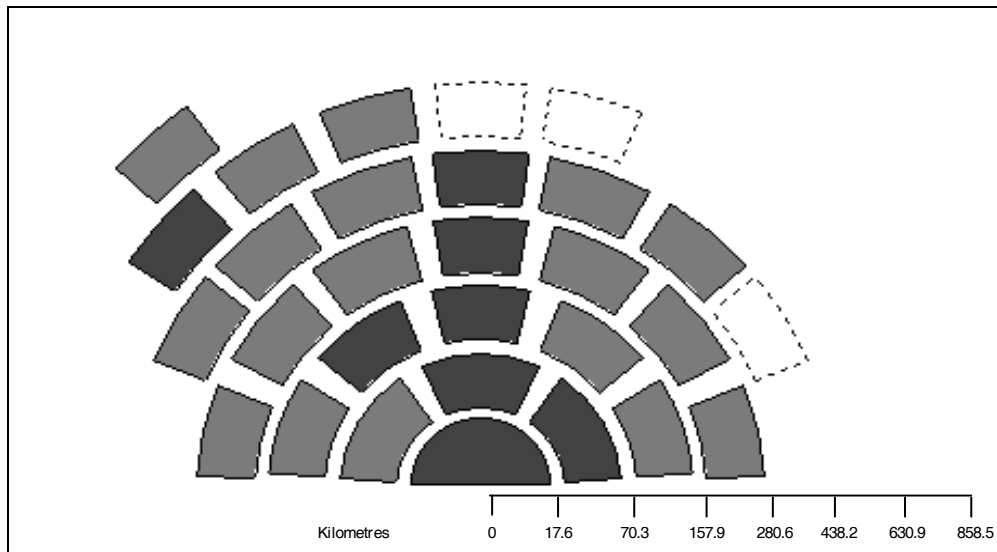
In Plot 9-6¹⁵⁶¹ the size of the sector indicates significance (Oden and Sokal 1986) and dashed sectors contain less than 20 pairs of points. Light colours indicate negative autocorrelation, dark colours positive autocorrelation. Full sectors are significant ($p > 0.05$) and half sectors are not significant¹⁵⁶². The seven annuli represent distance intervals up to 17.6, 70.3, 157.9, 280.6, 438.2, 630.9 and 858.5 km respectively. Plot 9-6 shows average forest value data with the direction of greatest positive autocorrelation¹⁵⁶³ to be between $90^{\circ}(\theta)$ - $100^{\circ}(\theta)$ north of the polar axis (East)¹⁵⁶⁴, and the direction of greatest negative autocorrelation running roughly from west to east . 57 of 105 windrose correlograms are significant.

¹⁵⁶¹ which is based on $C=17500$, $D=100$, $E=0$ and $A=4$.

¹⁵⁶² there are no half sectors.

¹⁵⁶³ at the 5th annulus.

¹⁵⁶⁴ 350 - 10 degrees as an azimuth.

Plot 9-6 Moran's I windrose correlogram for average forest value pairs (n=86).

There may be a number of reasons for this, including topography with the main river valleys running¹⁵⁶⁵ mostly at 345° and 5000m + ridges separating valleys (See Map 9-2) and Khamba genetic, linguistic, or cultural diffusion and transmission from Qinghai and Gansu Province. These findings will be explored below in chapter 10 section 10.1.2.

9.2.4 Bearing Correlograms

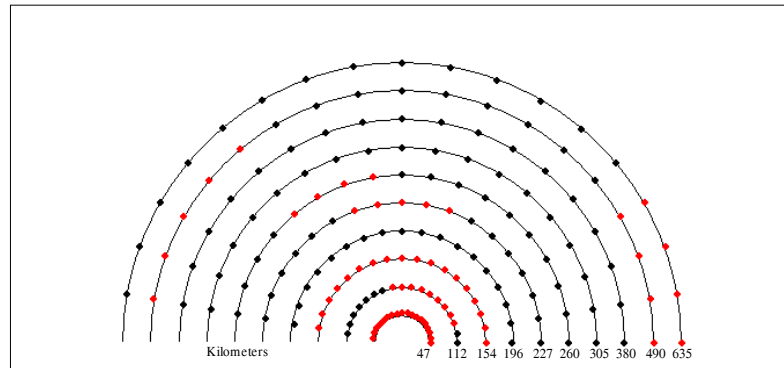
Bearing correlograms are similar to normal correlograms, except that the weights are scaled to indicate direction as well as distance¹⁵⁶⁶.

Plot 9-7 shows the bearing correlogram for average forest values. Red circles indicate significant positive values of Moran's I, black significant negative and grey nonsignificant values. Each arc represents a successively farther distance class (from 47km to 635km). The change from positive to negative autocorrelation occurs (See Map 9-3) most quickly between 40° (θ)- 70° (θ) from the polar axis (East)¹⁵⁶⁷ which is the direction of a cline in value. Positive autocorrelation exists in all directions in the 1st distance class and negative autocorrelation in the 4th, 7th and 8th distance class.

1565 South of 31.5°N both the Yajiang and Yiangtze flow roughly in a 345° direction although north of 31.5°N they flow roughly in a 315° direction.

1566 Rosenberg 2000

1567 between 20° - 50° degrees as an azimuth.

Plot 9-7 A bearing correlogram for average forest value pairs (n=86).

There may be a number of reasons for this, processes of assimilation, acculturation and 'extension' from the Sichuan Provincial capital (Chengdu) which is located at roughly 75° from the centre of the research area and by genetic, linguistic or cultural diffusion and transmission. These findings will be explored further in chapter 10 section 10.1.2.

9.2.5 Angular Correlograms

Angular correlograms determine the degree of anisotropy in a data set. This method does not calculate average correlation for all forest value pairs. It does, however, calculate the distance between individual pair points projected onto a vector in a specified direction and the differences in the values associated with those two points¹⁵⁶⁸. Although this tool is not very useful for researchers addressing forest value sets its very useful for examining individual values. A complete range of pairings was examined but forest-Tibetan Buddhism was selected because as a traditional value it was more statistically significant¹⁵⁶⁹ than forest-yul-lha or forest-blessing and it was important to understand if there was anisotropy and if so in what direction.

Plot 9-8 shows the angular correlation¹⁵⁷⁰ or the direction of maximum cline (See Map 9-3) for Forest-Tibetan Buddhism and on the basis of polar coordinates (θ and r)¹⁵⁷¹ to be at 18° (θ)

¹⁵⁶⁸ Simon 1997

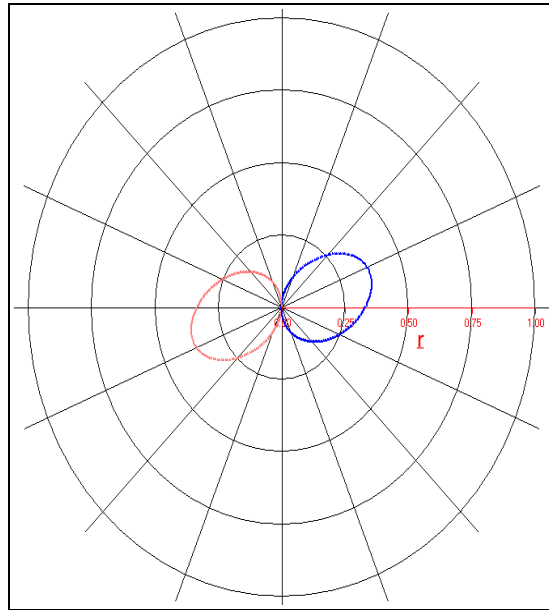
¹⁵⁶⁹ $p = 0.000$

¹⁵⁷⁰ $\max r = 0.3678$ $p = 0.0000$

¹⁵⁷¹ A way to describe the location of a point on a plane. A point is given coordinates (r, θ). r is the distance from the point to the origin. θ is the angle measured counterclockwise from the polar axis to the segment connecting the point to the origin.

degrees north of the polar axis (East)¹⁵⁷². Blue circles indicate positive r and pink negative r .

Plot 9-8 Angular correlation for forest-Tibetan Buddhism (n=86).



There may be a number of reasons for this, but the findings are not inconsistent with traditional values being perceptually closer with distance from Chengdu (at 75 degrees).

9.2.6 Conclusions

It would appear on the basis of three correlation measures¹⁵⁷³ and one semivariance measure¹⁵⁷⁴ that most of the directional trends, biases and clines are between 350°-50° (See Map 9-3). There may be a number of reasons for this: processes of assimilation, acculturation and 'extension' from Chengdu¹⁵⁷⁵ although this is located at roughly 75° from the centre of the research area; genetic, linguistic, and cultural diffusion and transmission which is consistent with Khamba origins in Qinghai and Gansu; topographic influences with the main river valleys running NNW-SSE¹⁵⁷⁶ with 5000m + ridges separating valleys (See Map 9-2).

1572 or 72 degrees as an azimuth.

1573 bearing analysis for Khamba speakers, windrose correlograms, bearing correlograms.

1574 the direction of maximum spatial continuity or lowest semivariance values See Fig 9-1

1575 The Sichuan Provincial capital.

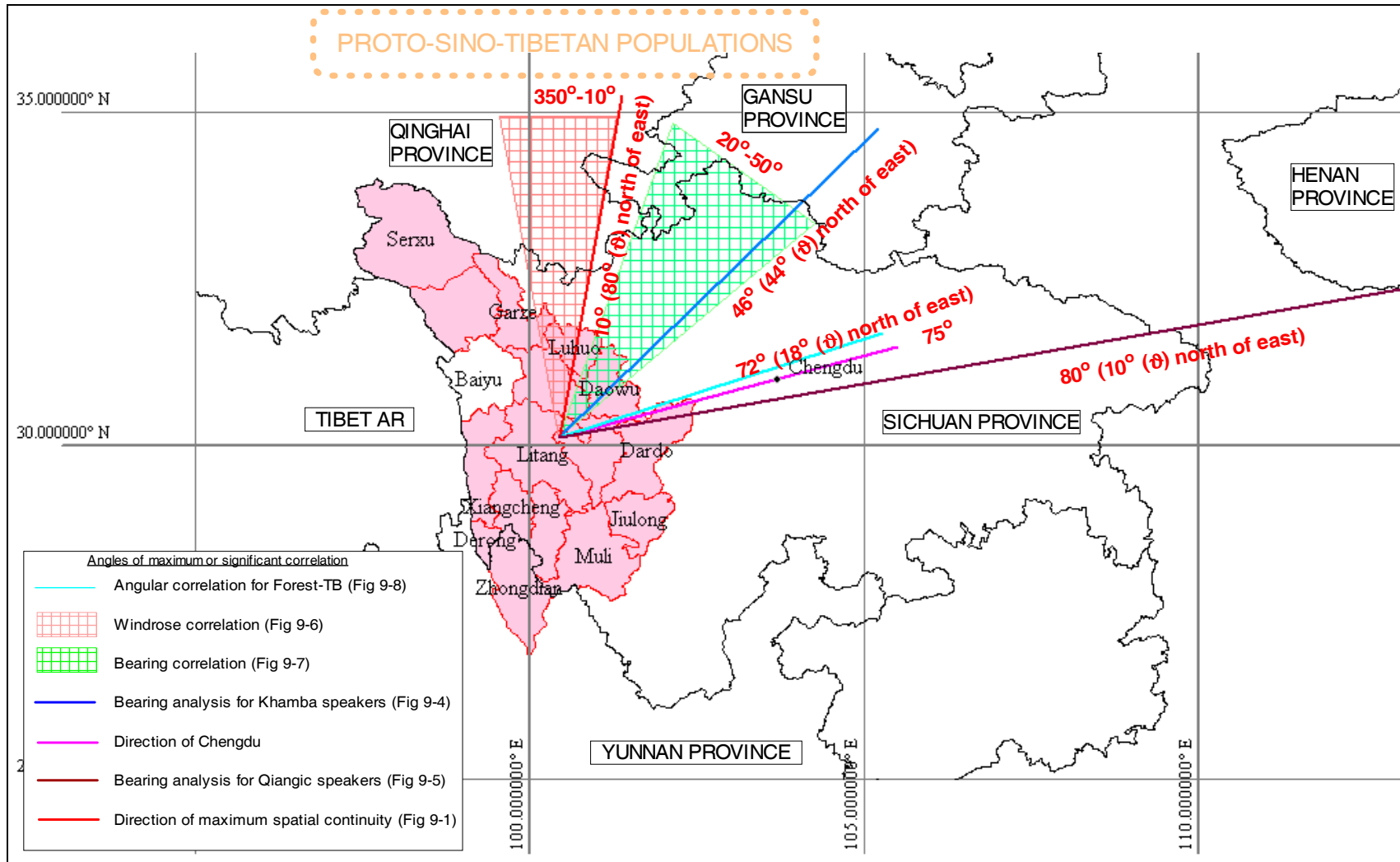
1576 South of 31.5°N both the Yajiang and Yiangtze flow roughly in a 345° direction although north of 31.5°N they flow roughly in a 315° direction.

The only exception is the bearing analysis for Qiangic speakers where the maximum correlation between data distance and geographic distance is at 10^0 (0°) north of the polar axis (East)¹⁵⁷⁷. There may be a number of reasons for this:-. processes of assimilation, acculturation and 'extension' from Chengdu¹⁵⁷⁸ which is located at roughly 75^0 from the centre of the research area or genetic, linguistic, and cultural diffusion and transmission which is consistent with Qiangic origins in Henan Province. These findings will be explored further in chapter 10 section 10.1.2.

1577 80° as an azimuth.

1578 The Sichuan Provincial capital.

Map 9-3 showing directional trends and clines from spatial analysis



9.3 BOUNDARY ANALYSIS

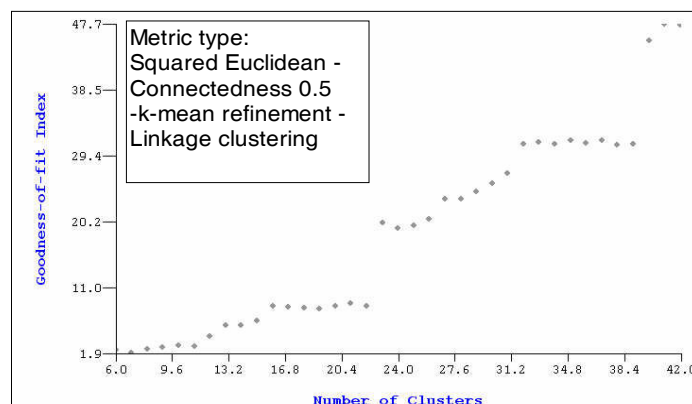
Barrier analysis, based on the mean of 105 forest value ((15x15)-15/2) distances at 86 sites provided during cognitive mapping survey, will be used for constrained clustering, wombling, sub-boundary identification and overlap statistics. . The suite of tools will be used to identify changes in forest value data and their coincidence with socio-cultural or biophysical phenomena.

Thus far we have identified several homogenous areas of forest values in Eastern Kham and directional trends in the data set. Boundary analysis will build on these findings by demarcating the homogenous regions (constrained clustering) and zones of rapid change in mean forest values (wombling) and their coincidence (overlap analysis) with bio-physical¹⁵⁷⁹, ethno-linguistic¹⁵⁸⁰, and socio-political phenomena¹⁵⁸¹. The suite of tools adopted for this analysis, available in BoundarySeer¹, was discussed in chapter 6 section 6.3.3.

9.3.1 Spatially Constrained Clustering

Spatially constrained clustering identifies homogenous areas and then delineates closed areal boundaries along their edges. The clustering is spatially constrained in that two locations can be assigned to the same cluster only if they are adjacent in geographic space. BoundarySeer (Jacquez and Maruca 2001) agglomerates clusters until it reaches the optimum cluster number identified using a goodness-of-fit model.

Figure 9-4 Goodness-of-fit model used for constrained clustering



¹⁵⁷⁹ watersheds and forests.

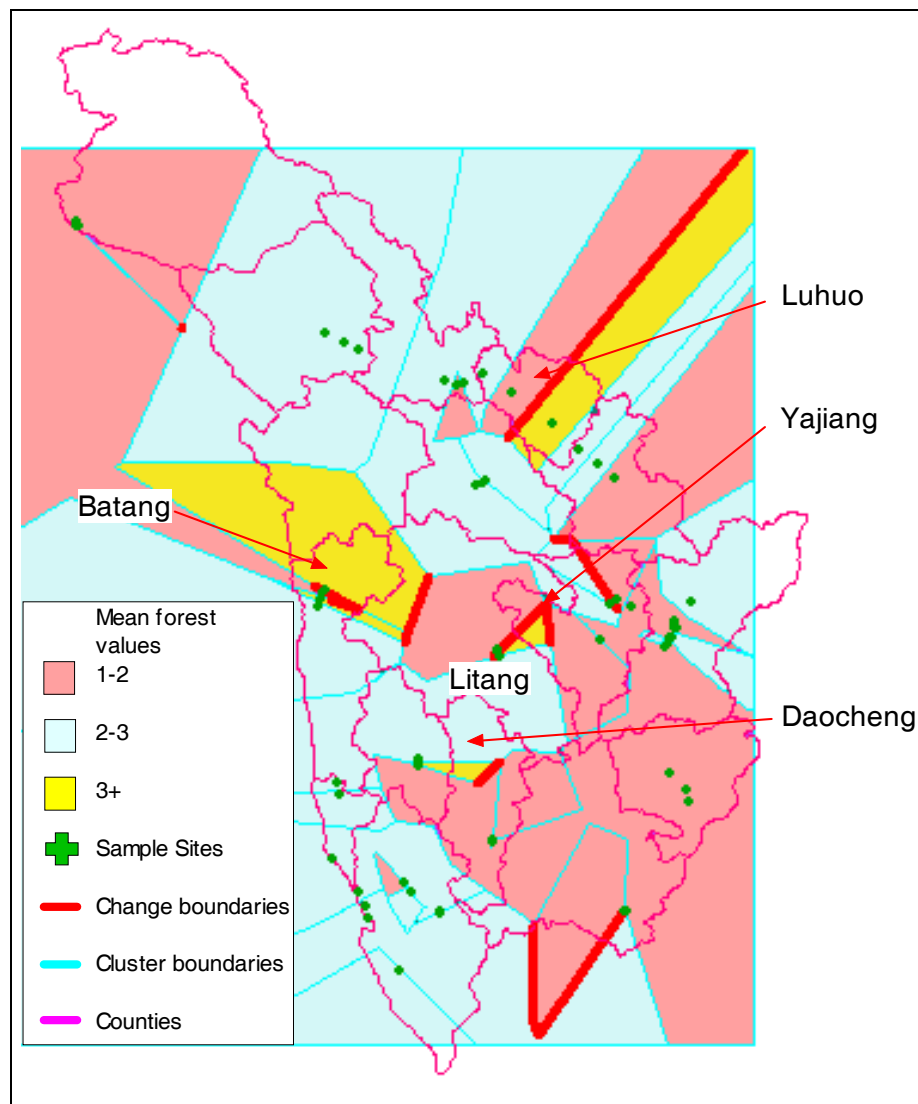
¹⁵⁸⁰ language and dialect.

¹⁵⁸¹ counties, distance from provincial capitals.

On the basis of a goodness-of-fit model (Figure 9-4) 24 clusters were selected as the optimum number for spatially constrained clustering and identified with blue boundaries on Map 9-4.

It would appear in Map 9-4 that 78% of forest value sites (green dots on Map) are located in 8 clusters. Major changes (thick red lines on Map 9-4) in mean forest values appear to occur in Luhuo, Yajiang, Litang, Batang and Daocheng counties. It would appear that the mean value categories, with the exception of Luhuo and Yajiang counties, are lower in the east than the west. The eastern area is mostly in the Yajiang water catchment and has a higher proportion of Qiangic speakers.

Map 9-4 Constrained clustering of mean forest values



Although constrained clustering does identify boundaries between forest values and the forest value distribution 'pattern' does mirror the krig map (Map 9-2) there was insufficient data to identify the 24 clusters with any socio-political or bio-physical boundaries.

9.3.2 Wombling

Methods for delineating difference boundaries were discussed in chapter 6 section 6.3.3 and are called wombling techniques after Womble (1951). Womble quantified the spatial rate of change by estimating surface gradients in a raster structure. Differences among wombling methods are related to data format (vector, raster or transect), data type (numeric or category), and boundary type (crisp or fuzzy).

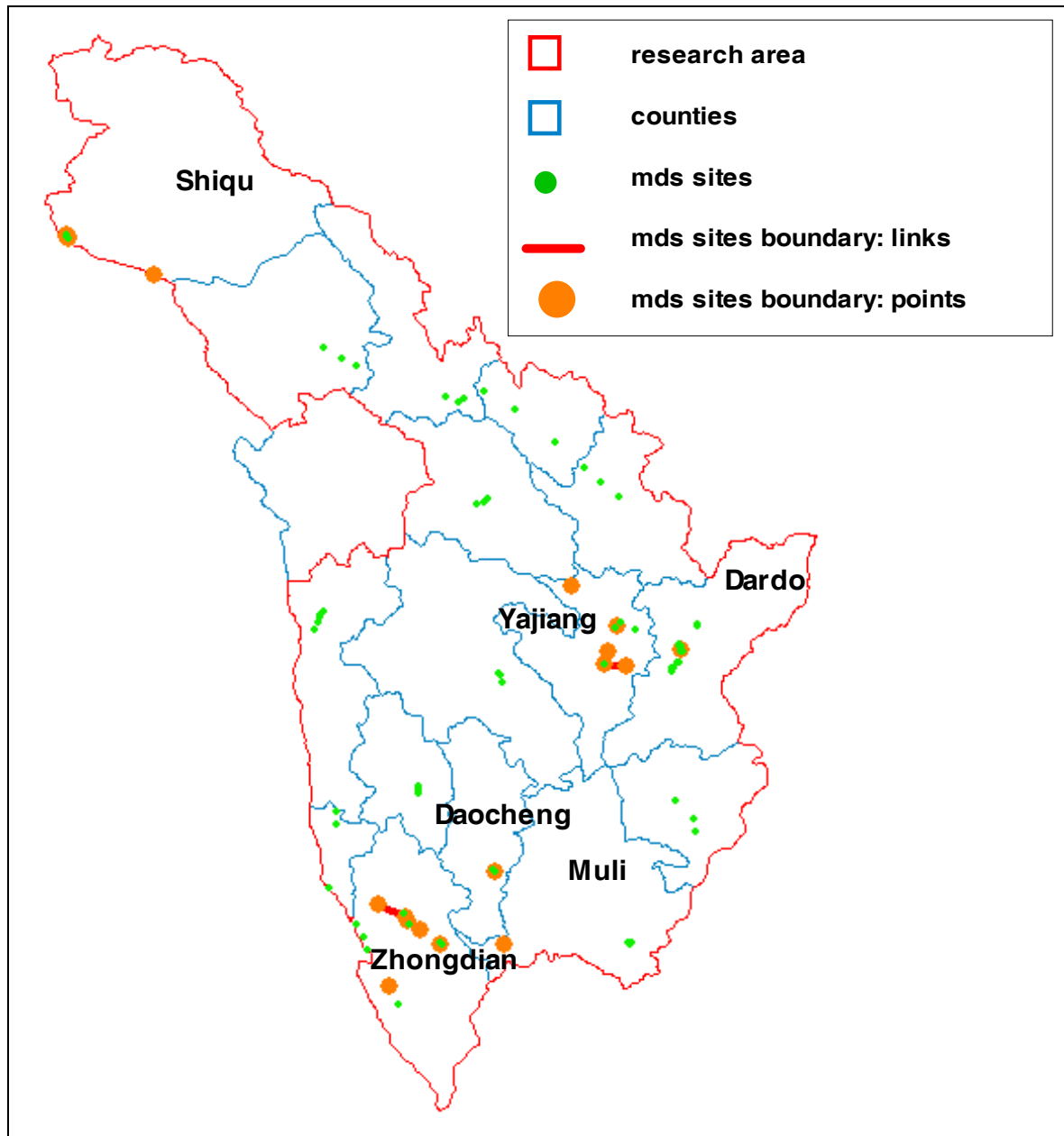
Boundary Likelihood Values (BLVs) measure the spatial rate of change and locations where variable values change rapidly are more likely to be part of a boundary. BLVs are created from gradient magnitudes with point and raster data and dissimilarity metrics for categorical and polygon data.

The purpose of wombling in this study was to identify boundary elements in forest values and the possible causes of change and the existence of spatial paradigms

Forest values

Map 9-5 shows mean forest values by point wombling and has major boundary elements in Zhongdian and Yajiang Counties and minor ones in Daocheng, Muli, Dardo (Kanding) and Shiqu County and there are no significant sub-boundary statistics. These findings are largely supported by cognitive mapping and kriging which suggest that Zhongdian County has higher mean forest values than its neighbours and that Yajiang County has lower. These findings were explored in more detail in chapter 8 section 8.2.5 and chapter 9 section 9.3.2.

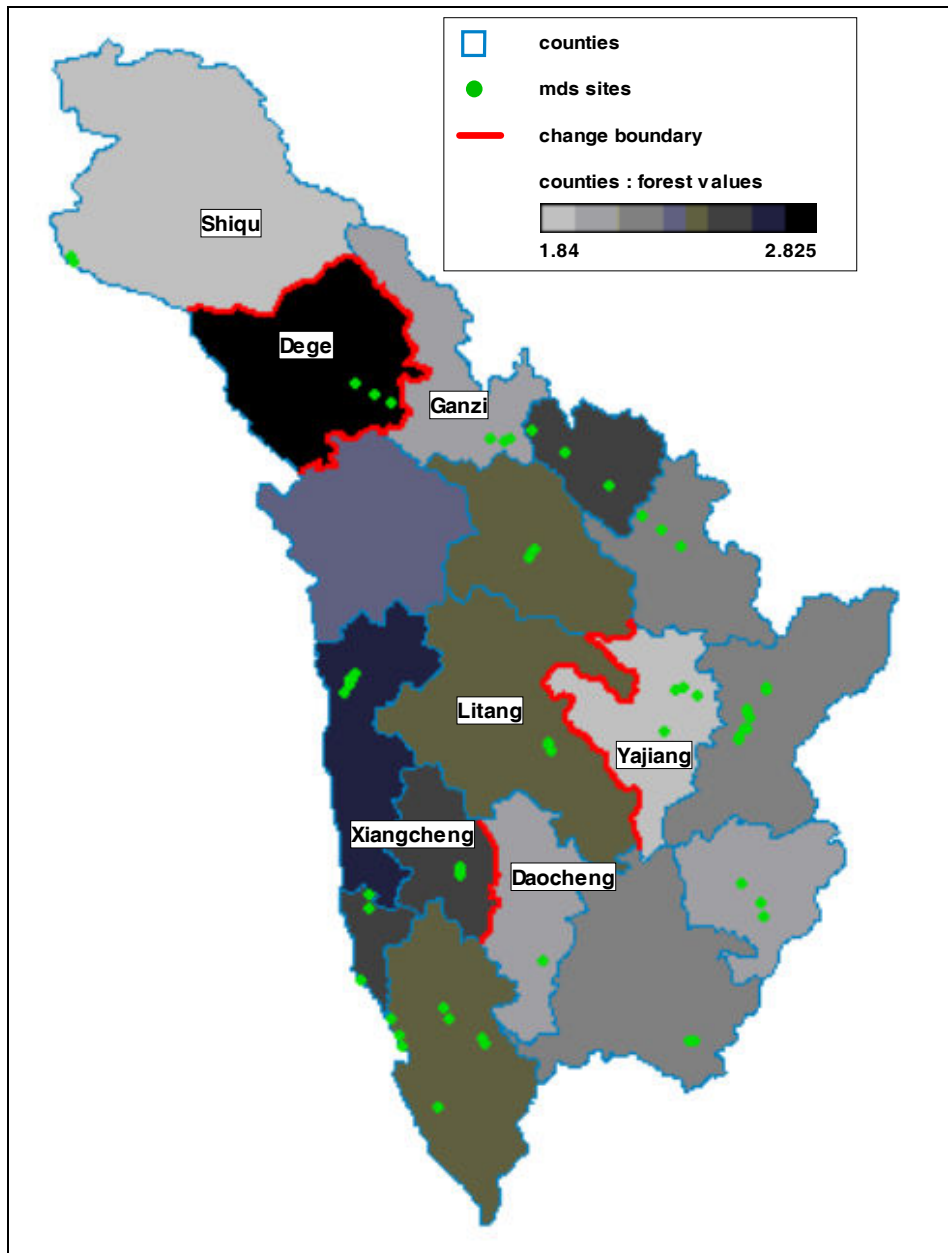
Map 9-5 Forest values (FV) point wombling



Forest values by county

Map 9-6 shows mean forest values by county using polygon wombling and has boundary elements between Dege, Shiqu and Ganzi county, Litang and Yajiang county and Daocheng and Xiangcheng county. Dege County has a high forest value mean and Yajiang and Shiqu Counties have a low mean. These findings were supported by kriging and partially by cognitive mapping. There is every reason to suggest that more county paradigms exist..

Map 9-6 Mean forest values by county polygon



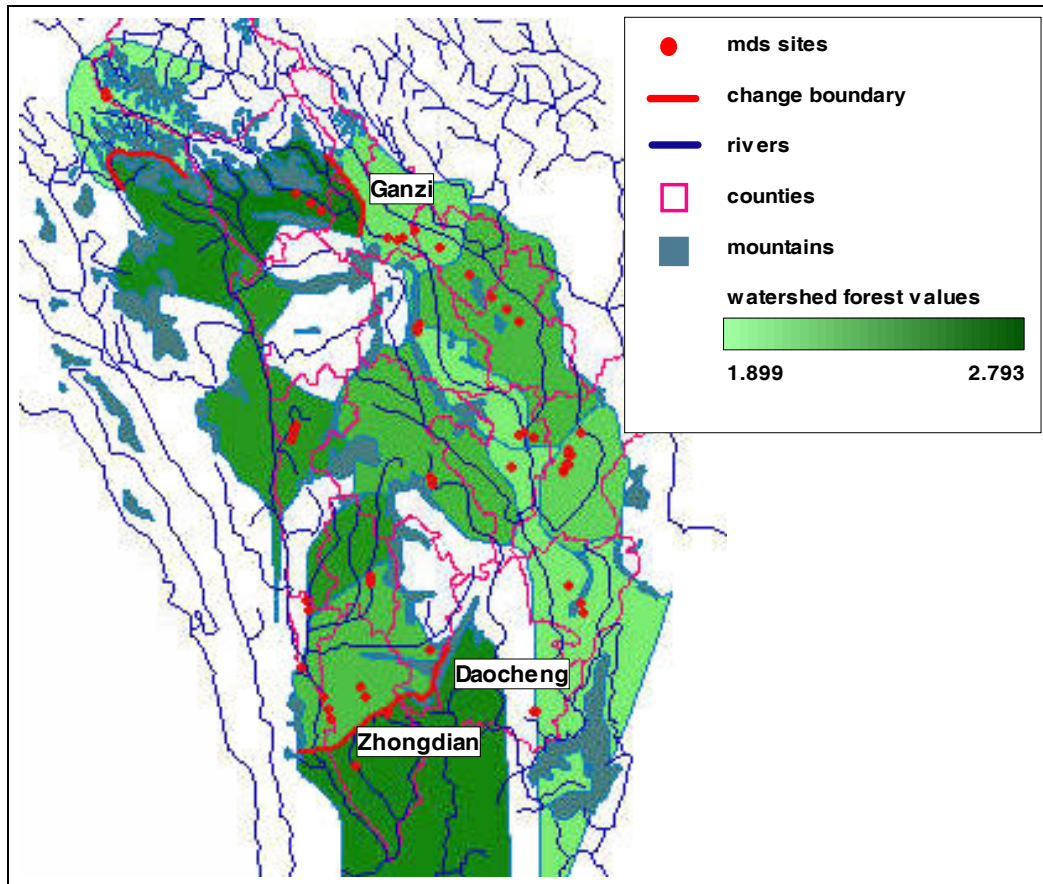
Forest values by watershed

Map 9-7 shows mean forest values by micro watershed¹⁵⁸² using polygon wobbling and has boundary elements in Zhongdian, Daocheng and Ganzi County. Although there is no other support for these findings there is every reason to suggest that up to 12 micro-catchment paradigms may exist. Mean forest values however do are evidently higher in the west (near the

¹⁵⁸² created by GIS.

Yiangtze) than the east (near the Yajiang) which is supported by cognitive mapping and kriging. Blank watersheds have no forest value survey sites.

Map 9-7 Mean forest values by micro watershed polygon

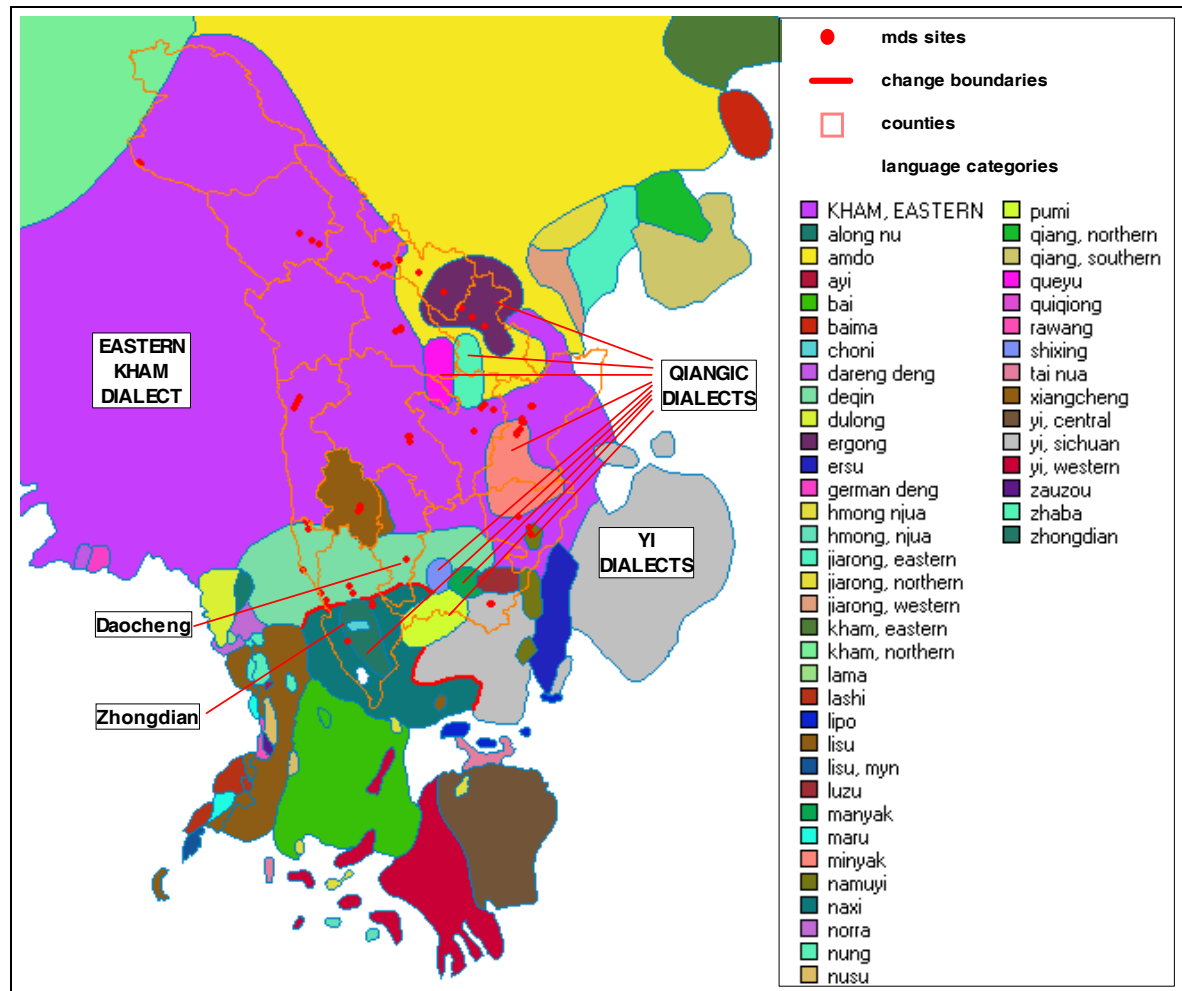


Forest values by language area

Map 9-8 shows mean forest values by language area using polygon wobbling and has boundary elements in Zhongdian and Daocheng county which coincide with dialect boundaries between the Deqin and Zhongdian dialects of Kham. Although there was no other support for these findings there was partial support from kriging and cognitive mapping which showed forest value differences between Khamba and Qiangic speakers. There is every reason to suggest that more language paradigms may exist.

The language polygons were obtained from Global Mapping International and digitized from Hattaway (2000).

Map 9-8 Mean forest values by language polygon



On the basis of wobbling there is evidence of boundary elements or zones of change in forest values in most counties. In some instances these boundaries can be explained as spatial representations of the paradigms discovered through cognitive mapping. There is every reason to suggest that most of the cognitive mapping paradigms could be replicated spatially.

9.3.3 Overlap Analysis

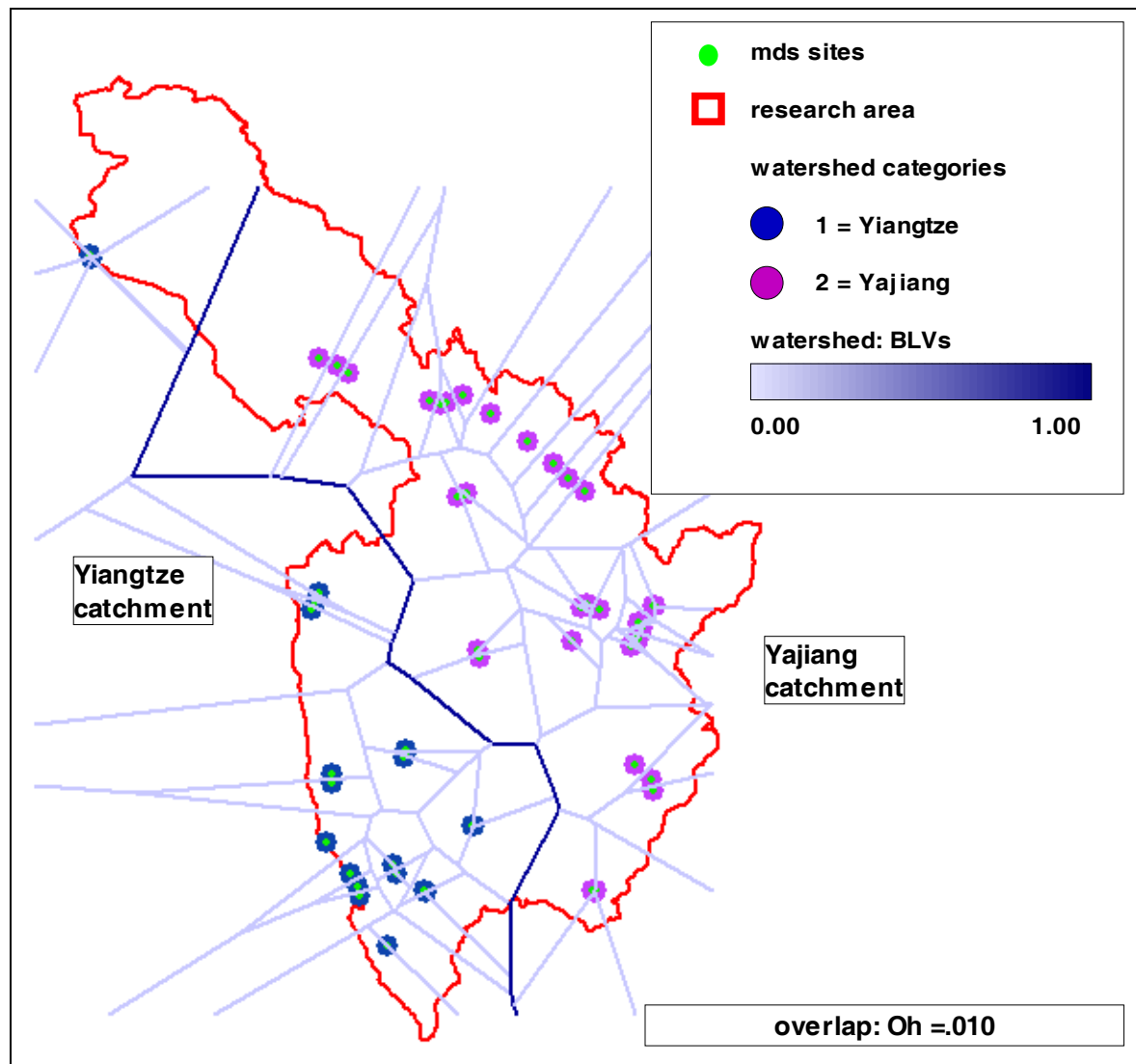
In the last section we established the locations in Eastern Kham where zones of change in forest values occurred and in this section we will use overlap statistics to examine whether boundaries in forest values coincide or overlap to a significant extent¹⁵⁸³ with bio-physical or socio-cultural phenomena.

¹⁵⁸³ Jacquez 1995

Forest values and watersheds

Map 9-9 shows a significant overlap between macro watershed categories(g)¹⁵⁸⁴ and forest values(h) and significant boundary-like sub-boundary statistics¹⁵⁸⁵. The boundary elements (in dark blue) coincide with the Yiangtze-Yajiang catchment

Map 9-9 Forest values (h) and watershed categories (g) overlap



1584 1= Yangtze and 2 = Yajiang rivers.

1585 See Jacquez and Maruca 2001 page 153

These findings are supported by the MDS catchment plots (Plot 8-14 and Plot 8-13) and kriging plots (Plot 9-1 and Plot 9-2) and appear to suggest the existence of spatial catchment paradigms.

It would appear on the basis of the barrier analysis and MDS plots that the Khambas who live in the Yangtze valley feel more alienated from their 'psycho-cultural', 'bio-physical' and 'socio-economic' world than those in the Yajiang Valley. Although they live in the heart of the Kham world they live on the periphery of Sichuan Province and the Yangtze River valley has been subject to much heavier deforestation than the Yajiang valley. There was, however, no significant overlap between forest values and micro watersheds due to insufficient data.

Forest values and dialects

Map 9-10 shows a significant overlap between dialect categories (g)¹⁵⁸⁶ and forest values (h) and significant boundary-like sub-boundary statistics¹⁵⁸⁷. The boundary elements (in blue) coincide with boundaries between Khamba speakers and Qiangic speakers.

It would appear that changes in forest value between the Khamba Tibetans and Qiangic speakers appear to coincide with linguistic and possibly genetic boundaries¹⁵⁸⁸. These findings are supported by the MDS dialect plots (Plot 8-5 and 8-6) the kriging categories (Plot 9-1 and 9-2) and spatial analysis (Plot 9-5 and 9-6) and appear to suggest the existence of spatial paradigms of forest value by dialect.

The Khamba Tibetans have been grouped under four main dialect groups:- Eastern Kham, Xiangcheng, Deqin & Zhongdian. The 'Eastern Kham' language area covers¹⁵⁸⁹ 238,403.92 km² east of 95° E and there is only:-

- anecdotal evidence that 'every valley has its own dialect'
- lexical information on 5 dialects¹⁵⁹⁰ of Eastern Kham but no dialect maps¹⁵⁹¹

1586 1 = Kham speakers and 2 = Qiangic speakers.

1587 See Jacquez and Maruca 2001 page 153

1588 LaPolla 2003

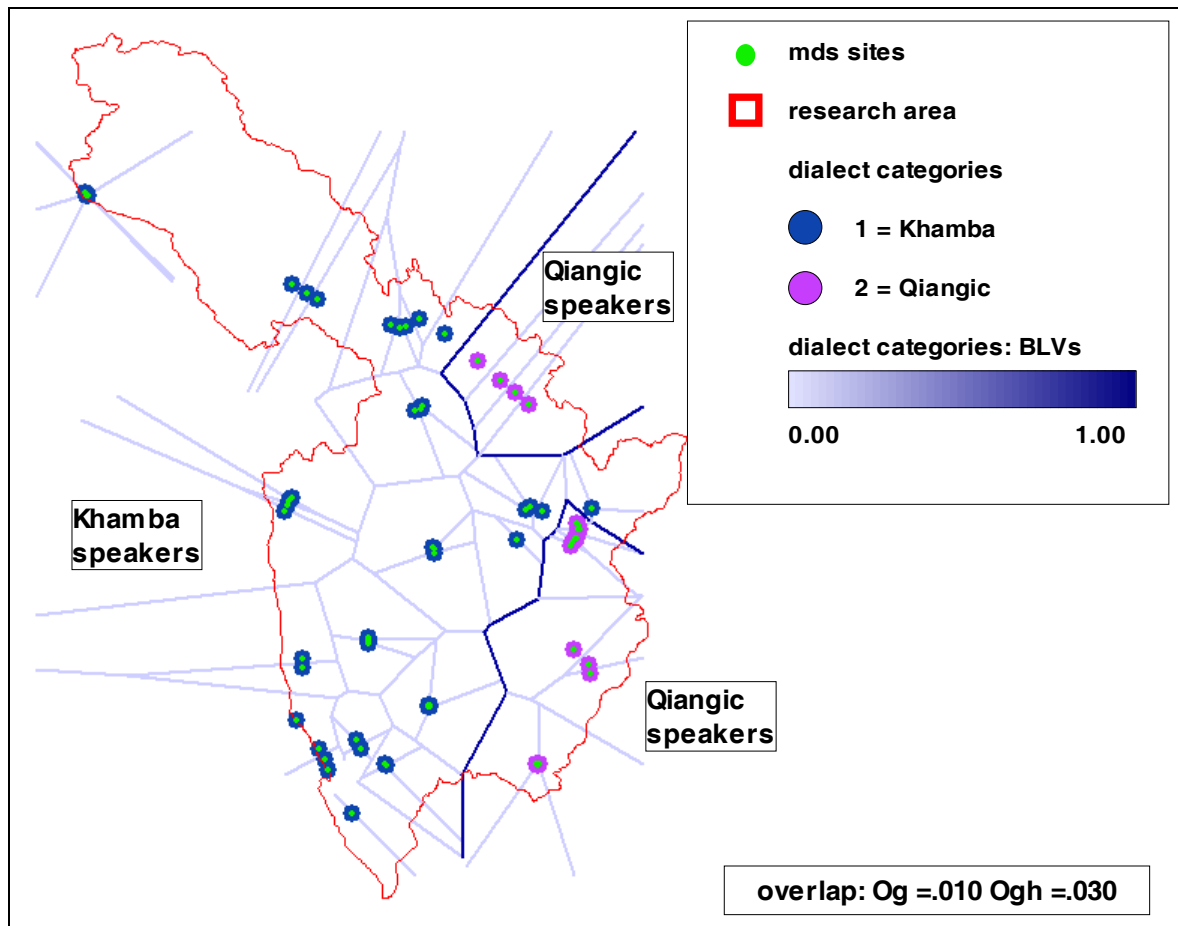
1589 GIS calculation.

1590 Dege, Ganzi, Batang, Litang and Dartsedo.

1591 personal communication Bielmeier 11/3/05 weblog

- lexical information on Deqin and Zhongdian dialects but no dialect maps¹⁵⁹²
- lists of Khamba dialects categorized as "cluster", "non-cluster", "transitional" or "unspecified"¹⁵⁹³, compiled as 'place name' dialects from the records of historic travellers that are not considered to be reliable¹⁵⁹⁴

Map 9-10 Forest values (h) and dialect categories (g) overlap



On the basis of the data collected for this study there is maximum correlation of forest values on the basis of bearing analysis at 44 degrees (θ) north of the polar axis (East). This appears to be consistent with their possible origins (See Map 9-3) in Qinghai and Gansu Province which is situated to the north and northeast of the research area,

1592 Hongladarom 1996

1593 Denwood 1999 pages 290-292

1594 personal communication Bielmeier 11/3/05 weblog

Although dialect maps exist for the Qiangic speaking groups in Eastern Kham¹⁵⁹⁵ little genetic research has been conducted among the Qiangic speakers of Eastern Kham. It would appear that on the basis of the data collected for this study there is maximum correlation of forest values, based on bearing analysis at 10 degrees (θ) north of the polar axis (East). This appears to be consistent with their possible origins in Henan Province (See Map 9-3) which is situated at about 73° from the centre of the research area or with processes of assimilation acculturation or extension from Chengdu which is situated at about 75° from the centre of the research area. This is not consistent¹⁵⁹⁶ with the N-S axis which is significant for Qiangic linguistic tonogenesis¹⁵⁹⁷. It would appear however that as tonogenesis is contact induced and increases in stability near tonal languages¹⁵⁹⁸ it is an independent phenomenon from forest values or Qiang migration patterns.

There is no significant overlap or avoidance between forest values and 'language' (Map 9-8) and while it is recognized that language boundaries often coincide with genetic and ecological boundaries¹⁵⁹⁹ firm conclusions are difficult in this case. The sample size is not large enough and there is inadequate linguistic data. Very little ethnolinguistic research has been conducted in the region and many of Chinese geneticists appear to have a political agenda in terms of "constructing the Han"¹⁶⁰⁰ and minority groups.

Forest value and forest cover

I don't know of any evidence in the literature suggesting that forest cover or type (species) is a determinant of forest values although to me it is self-evident. In the course of conducting cognitive mapping, however, I noticed that respondents that lived in or near forest tended to place 'self' close to 'forest' and 'blessing' and those that did not live close located them further apart. This is important because it suggests that loss of forest cover has an impact on forest values and not just biodiversity.

1595 Hattaway 2000 and Global Mapping International <http://www.gmi.org/> accessed 12th Feb 2003

1596 LaPolla 1998

1597 The degree to which tones are a stable and important part of the phonological system (Evans 2001).

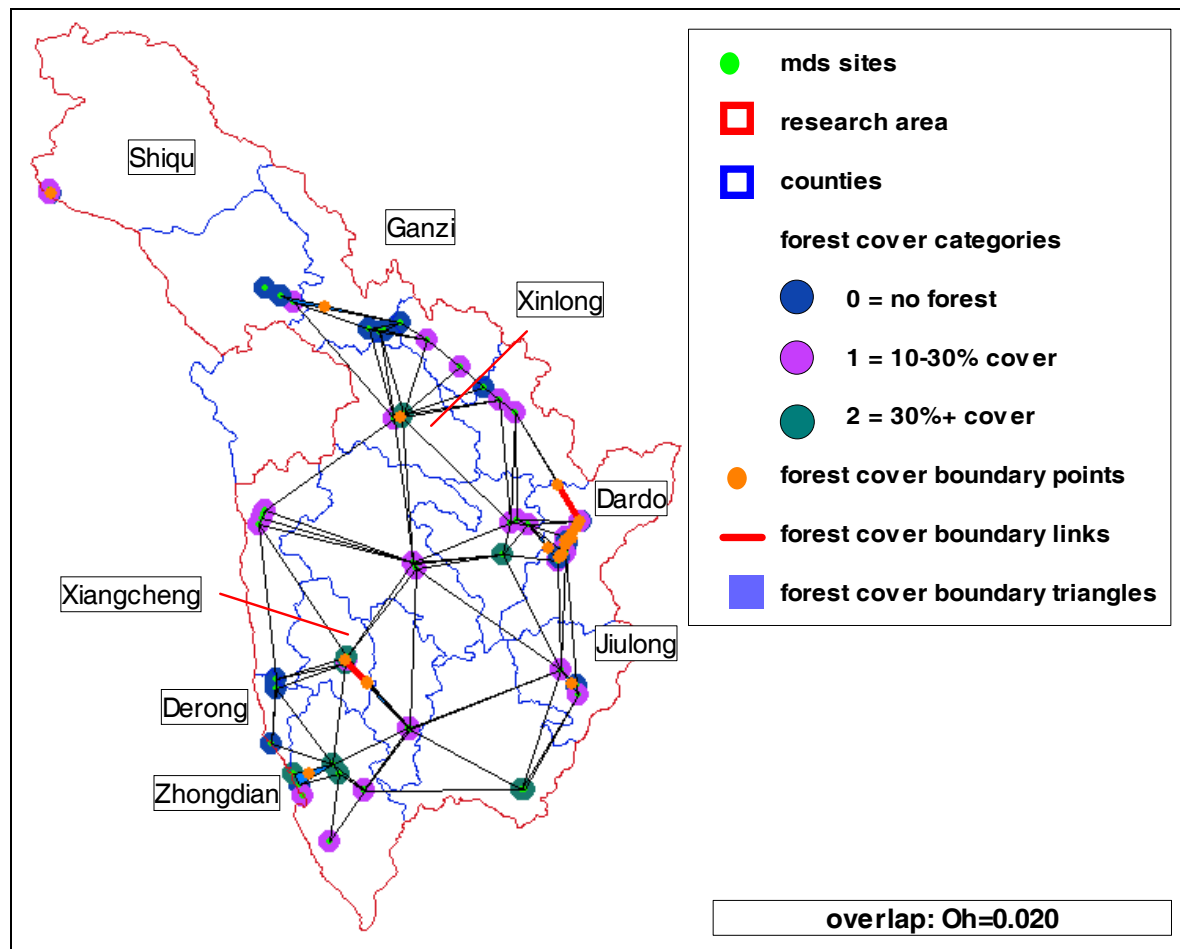
1598 In this case Sichuanhua or Sichuan Mandarin <http://www.glossika.com/en/dict/dialectm.htm> accessed 12th August 2005.

1599 Barbujani and Sokal 1990, Harmon 1996, 1998

1600 http://cio.ceu.hu/courses/CIO/modules/Module08Dikoetter/Dikoetter_index.html accessed 9th August 2005

Map 9-11 shows a significant overlap between forest cover categories (g)¹⁶⁰¹ and forest values (h) and no significant sub-boundary statistics. There are boundary elements in Zhongdian, Derong, Xiangcheng, Jiulong, Dardo (Kanding), Xinlong, Shiqu and Ganzi County. Although this is an important finding in terms of understanding the influence of forest cover on forest values it does not help us to identify spatial paradigms.

Map 9-11 Forest values (h) and forest cover (g) overlap



Forest value and forest type

Map 9-12 shows a significant overlap between forest type categories (g)¹⁶⁰² and forest values (h) and significant avoidance between forest values and forest type categories. There was no

1601 0 = no forest 1 = 10-30% tree cover 2 = 30% + tree cover.

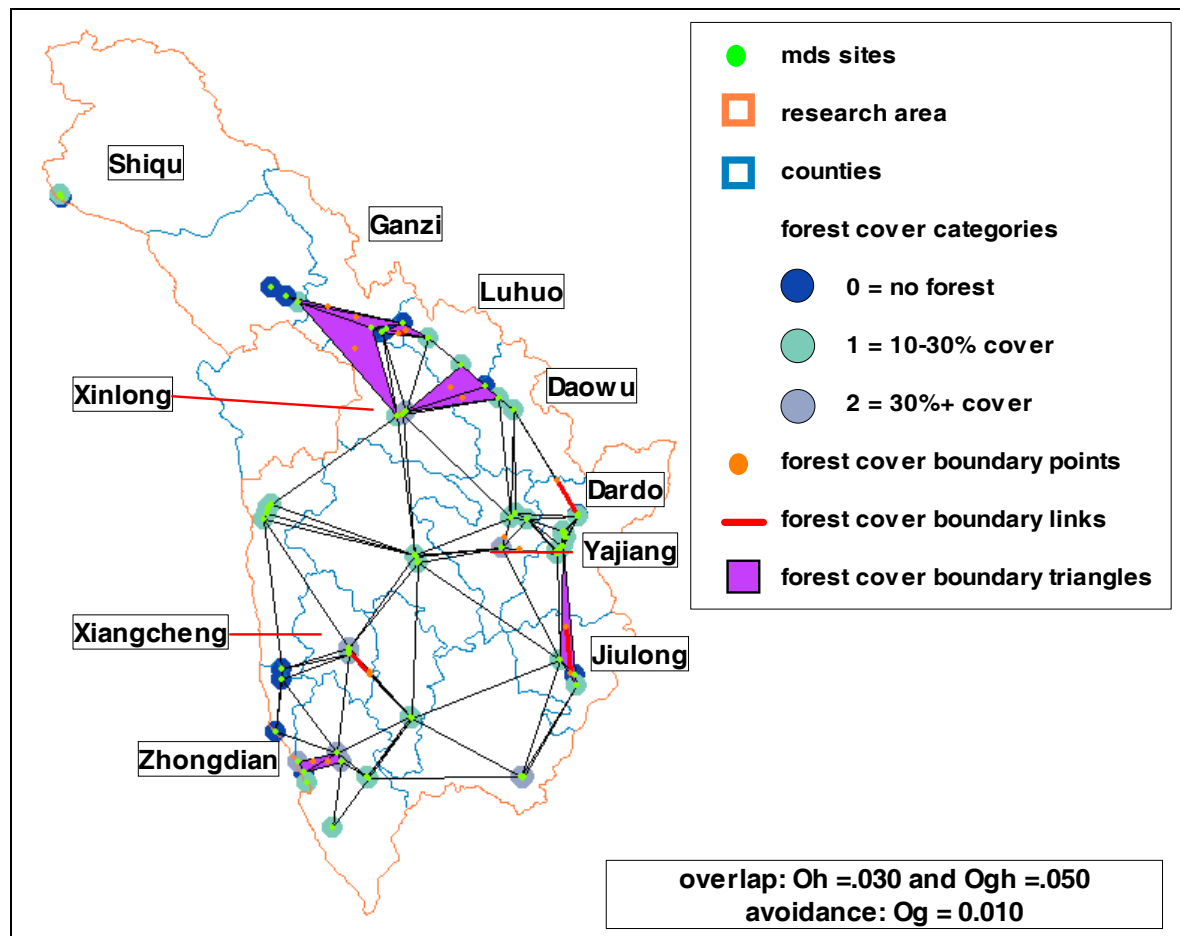
1602 0 = sparse, 188 = mixed, 215 = broadleaf.

significant sub-boundary statistics. There are boundary elements in Zhongdian, Xiangcheng, Jiulong, Dardo (Kanding), Ganzi, Xinlong, Luhuo, Shiqu, Yajiang and Daowu County.

Although there is significant overlap between 'forest cover' (g) and 'forest values' (h) (Map 9-11) this is not repeated with 'forest type' (g) (Map 9-12) where there is some evidence of avoidance.

It would appear that for the respondents of Eastern Kham 'forest cover' (its presence or absence) is more significant than 'forest type' (tree species) but neither data set provide the basis for spatial paradigms.

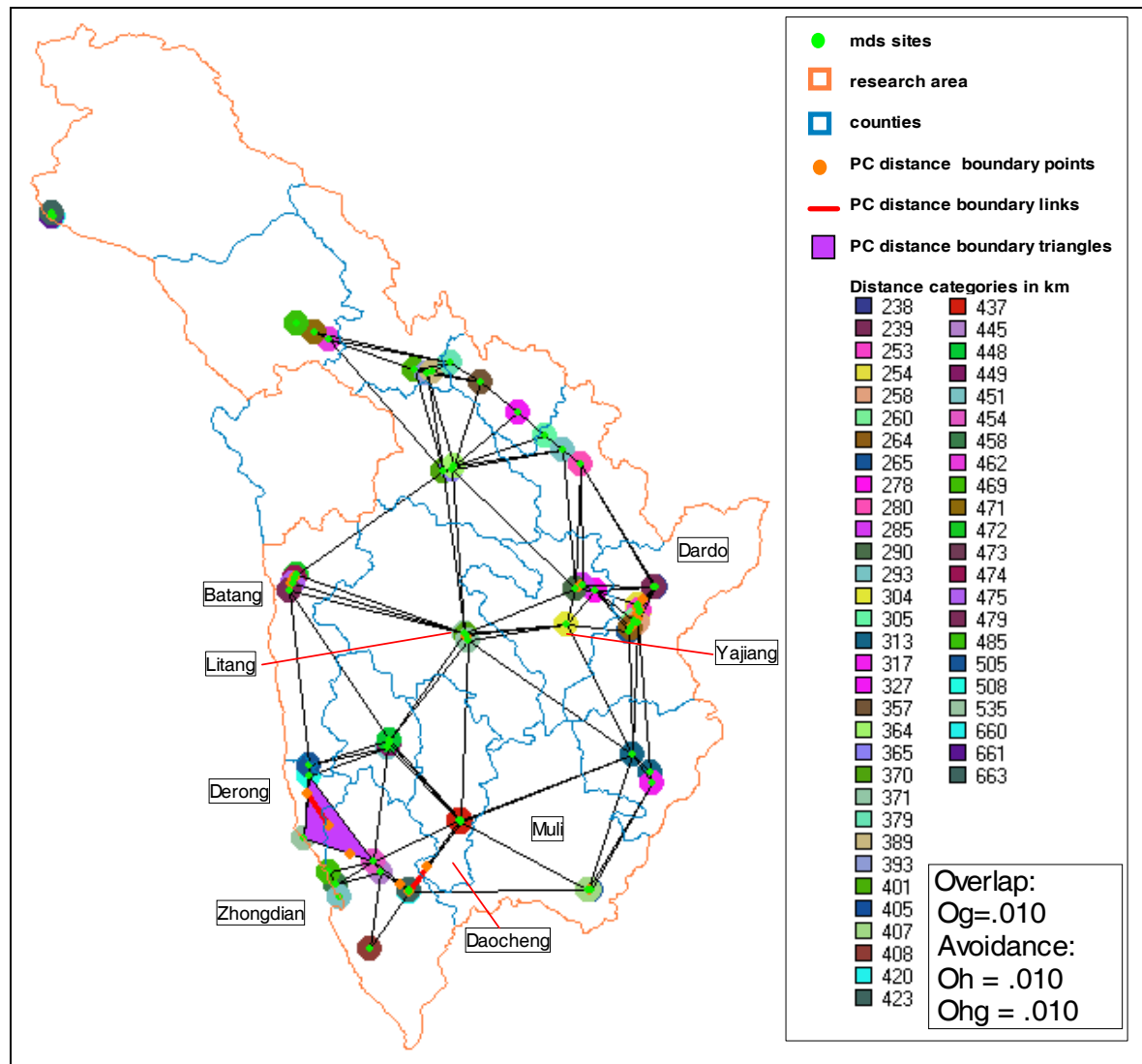
Map 9-12 Forest values (h) and forest type (g) overlap



Distance between provincial capitals (PrC) and forest values

Map 9-13 shows a significant overlap between PrC distances (g) and forest values (h) and significant avoidance between forest values and PrC distances. The sub-boundary statistics indicate significant fragmentation¹⁶⁰³. There are boundary elements in Zhongdian, Derong, Daocheng, Muli, Dardo (Kanding), Yajiang, Litang, and Batang County.

Map 9-13 Provincial capital distance (g) and forest values (h) overlap



These findings are important in terms of understanding the influence that provincial capitals have on forest values although not useful in terms of identifying spatial paradigms.

¹⁶⁰³ See Jacquez and Maruca 2001 page 153

The significant avoidance between forest values (h) and geographic distance from provincial capitals (g) suggests that it is not possible to predict geographic distance from provincial capital, from forest values.

On the basis of overlap analysis it would appear that at the macro level forest values have been influenced culturally¹⁶⁰⁴ and biophysically¹⁶⁰⁵ and there is some evidence of spatial paradigms for watersheds and dialects this was less evident at the micro-level, due to sample size.

In spite of these limitations there is every reason to suggest on the basis of cognitive mapping that with more samples more spatial paradigms would become evident.

For similar reasons it was not possible to draw any conclusions from constrained clustering [Map 9-4] beyond noting that the mean forest value 'pattern' does mirror the krig map (Map 9-2).

9.4 CONCLUSIONS

In the last chapter we were able to recognize the importance of up to 20 forest values, the existence of four cognitive domains and of up to 12 forest value paradigms which we have explored spatially in this chapter using kriging, correlograms, wombling and overlap statistics.

We were able to identify three homogeneous areas of forest values through kriging which appear to coincide with Yiangtze and Yajiang water catchments and the Khamba and Qiangic speaking areas. There is every reason to suggest more areas exist but that would require more samples.

The correlograms showed; a pattern typical of a gradient, that there were five measures which suggest significant directional trends along a 350° - 50° - 170° - 230° axis which coincides with Khamba migration patterns and topography and one measure suggesting an angular bias of 80°

1604 macro dialect categories and proximity to the provincial capital.

1605 macro watershed categories and forest.

which seemingly coincides with Qiang migration patterns and or processes of acculturation from Chengdu (the Sichuan Provincial capital)

Wombling provided some evidence of significant spatial boundaries on the basis of county, micro-watershed and language data but that more samples were required to identify significant boundaries for all three features covering all of Eastern Kham.

It would appear on the basis of significant overlap statistics that forest values have been influenced bio-physically (forest cover, water catchment) and socio-culturally (dialect and distance from provincial capitals) and that dialects and catchments represent spatial forest value paradigms.

All these measures considered in concert provide compelling evidence that five of the paradigms identified in cognitive mapping have been replicated geospatially.

These comprise the Yajiang catchment, Yiangtze catchment, Khamba speakers, Qiangic speakers, and Khamba speakers in the Yajiang catchment.

In the last two chapters we have sought to demonstrate cognitively and geospatially the existence of forest values, domains and paradigms among the peoples of Eastern Kham as a possible basis for local forest stewardship. There are dangers however when trying to apply this methodology and tools; universally, cross-culturally or as a means of integrating forest value. Semantically, conceptually and ideologically the forest values recognized and valued by one people group may be undervalued and not recognized by another group who may not have a dynamic equivalent¹⁶⁰⁶. Additionally indigenous epistemologies and psychologies are metaphysical and polyphasic while western are rational and monophasic. In the next chapter

¹⁶⁰⁶ *dynamic equivalence* seeks to represent adequately and accurately in a target language grammar, style, and idiom, that which the words and constructions in the source language conveyed to the original recipients (Nida 1964).

we will consider local forest values in a wider context and ways and means of bridging between them.

CHAPTER 10 FOREST VALUES IN THE WIDER CONTEXT

In Chapter five we concluded that most forestry paradigms including neo-populist ones operate within the same discursive terrain as 'scientific' forestry and are therefore not germane to this study. The only exception appeared to be a post-modern approach based on ethno-forestry paradigms and forest values. Although we have identified in the preceding chapters the importance of forest values to the peoples of Eastern Kham and the existence of paradigms the success of the approach is predicated on forging cross-cultural bridges between forest value systems and a commitment to gender and ethnicity mainstreaming that goes beyond rhetoric. Three recent experiences illustrate the nature of these difficulties particularly clearly.

In early 2005 I accompanied two western economists to Lugu Lake, referred to in chapter 6 section 6.5.3 to conduct a forest value ranking exercise to enable us to establish the total economic value of forests for local ethnic groups. The local respondents ranked intrinsic value 2nd out of 13 forest values in a ranking exercise. This caused paradigmatic problems for the economists who do not typically include intrinsic values as a component of the total economic value (TEV) of forests¹⁶⁰⁷. They had to add the following caveat to the results:-

*"Intrinsic value has been included in the TEV framework.... however by definition it is methodologically impossible for humans to attach a value to it - it has thus been disconnected from the main value composition arrangement in the chart, although it was left as a valid component in the focus group"*¹⁶⁰⁸.

This is in marked contrast to the majority world as we discovered in section 8.2.7 where intrinsic value is a central tenet of many religious beliefs¹⁶⁰⁹ where "everything on earth is inherently valuable because it has been created by a divine being"¹⁶¹⁰. The economists did not have in their set of forest values a dynamic equivalent¹⁶¹¹ for intrinsic value.

1607 http://www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/005/AC625E/AC625E04.htm accessed 25th Oct 2005

1608 Studley et al 2005 page 5

1609 Callicott 1986, 1999, Ip 1983, Naess 1984, Zimmerman 1988

1610 Lavery and Sterling 2004 <http://cnx.rice.edu/content/m12160/latest/#Callicott> accessed 5th July 2005

1611 Nida 1964

The second illustration was based on a conference that was premised on epistemological bridging. Although attempts have been made, as we discovered in chapter four and five, to integrate knowledge systems and bridge the dichotomy between western and indigenous knowledge systems few attempts have been made to bridge knowledge systems epistemologically or psychologically. I was subsequently very pleased to discover a conference in 2004 that addressed this subject¹⁶¹² especially given that some of the papers were set in SW China. Although most of the papers addressed bridging and epistemology given that it was the title of the conference I could not find any concrete examples of epistemological bridging between knowledge systems. I realised eventually, after writing to the organisers, it was only 'bridging' in terms of familiarising the reader with 'alien' epistemologies and did not address bridging between knowledge systems.

The third illustration occurred during a visit to Lugu Lake in 2003 with several Chinese 'social' foresters and DFID had asked us to address ethnicity and gender mainstreaming and forestry among the ethnic poor. Although we interviewed a high sample of poor Han Chinese unless I had pushed very hard we would have only interviewed two Pumi and two Mosuo. As it was I had to arrange a second visit to fully address this subject. To make matters worse I discovered that DFID does not have an ethnodevelopment policy or a definition of ethnicity or ethnicity mainstreaming and its guidelines are ten years out of date and only aspirational. When I attempted to point this out in my subsequent report it was edited out because it was considered to be 'political'.

These three examples illustrate the difficulties and dangers of attempting to integrate knowledge systems and the lack of bridging frameworks for forest planners attempting to understand and interpret indigenous forest values or their importance on the basis of ethnicity or gender. This is especially important for foresters who are part of a national society working with ethnic groups and for international forestry consultants working cross-culturally.

1612 <http://www.millenniumassessment.org/en/about.meetings.bridging.aspx> accessed 10th July 2005

In this chapter I would like to broaden out the debate from the very specific material that addresses forest values for the peoples of Eastern Kham by examining cross-cultural bridges between multiple forest value systems. I plan to begin with a discussion on synergistic bridging as a platform for examining individual forest values and any implications for planning and policy making and conclude with a discussion about commitment to ethnicity and gender.

10.1 SYNERGISTIC BRIDGING BETWEEN FOREST VALUE SYSTEMS

It is not uncommon in the forestry literature, as we discovered in chapter four and five to find suggestions for the integration or incorporation of indigenous forest systems or IK with formal forestry although there is no basis for integration and there are many ambiguities identified later in this chapter.

10.1.1 The Dangers of Integration

In order to sustain indigenous knowledge systems rather than integration with formal knowledge systems there is a need not only to elicit local knowledge but the epistemologies and psychologies that inform it.

We distinguished early in this study between three categories of knowledge system, 'western', non-western and indigenous. We concluded that western knowledge systems have been made universal through western education and have become entrenched in many world and institutional cultures and that indigenous knowledge systems are confined to local areas and are being suppressed, eroded and under valued. Although the suppression of indigenous knowledge may have a political or social dimension, more importantly most institutional paradigms exclude the epistemologies and psychologies that inform indigenous knowledge.

While western knowledge systems privilege learning on 'scientismic'¹⁶¹³ epistemologies and monophasic psychologies indigenous knowledge systems are informed by metaphysical epistemologies and polyphasic psychologies. For knowledge system sustainability not only is

¹⁶¹³ "a scientific worldview that encompasses natural explanations for all phenomena, eschews supernatural, and paranormal speculations, and embraces empiricism and reason as the twin pillars of a philosophy of life" (Shermer 2002 page 35).

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knowledge important but the epistemologies and psychologies that inform them. In order to build on synergy between knowledge systems without eroding them bridging is required based on epistemological and psychological justice.

10.1.2 Epistemological and Psychological Justice

Too often, there has not been "epistemological justice" in that disparate epistemologies have not been equally adopted or compared equitably. Too often indigenous epistemology has been ignored by the "colonizing propensities" of academic institutions¹⁶¹⁴ that continue to dominate "other" ways of knowing¹⁶¹⁵. The dichotomy between the two epistemological traditions has been described¹⁶¹⁶ as two mutually exclusive journeys into space; the western journey that seeks to examine the physical universe embodied in an outward voyage to the stars, and the aboriginal journey that examines the metaphysical universe to the inner spiritual world. There is a tendency based on western epistemology to validate knowledge from the ideological premise that the metaphysical and scientific ought to be separate and distinct in the quest for knowledge. From the perspective of indigenous people this 'degenerate' approach, predicated on western objectivity, academic protocols and artificial hierarchical boundaries have a restricted place in indigenous methodology¹⁶¹⁷. As a knowledge gathering method, indigenous people cannot understand how it can lead to authentic knowledge gathering, truth finding or meet human or ecological needs in light of the apparent environment destruction and personal alienation¹⁶¹⁸ apparent in the western world.

In comparison, indigenous epistemologies or "traditional Indian science" offers a solution to the ideological domination of a mono-cultural approach to research strategies and scholarly exchange¹⁶¹⁹. They do not fragment aspects of life, rather are based upon a paradigm "congruent with holism and the beneficial transformation of total human knowledge"¹⁶²⁰.

Indigenous cosmology is manifested in the physical world through the spiritual components of indigenous life and indigenous communities have developed and evolved around the concept

1614 Sinclair 2003 page 120

1615 Le Grange 2001 page 139

1616 Ermine 1995

1617 Sinclair 2003

1618 Colorado 1988

1619 Colorado 1988

1620 Ermine 1995 page 103, Wilson 2001

that central to life is the spiritual and metaphysical journey. Indeed, these aspects of life experience explored through ceremony, vision quests, and dreams comprise indigenous epistemology. The indigenous paradigm equates experience with knowledge, and the path to knowledge of the physical world lies in the inner and inward journey. In indigenous epistemology, the greatest mysteries lie within the self at the spiritual level and are accessed through ceremony¹⁶²¹. Although western development, modernization and formal education may have disrupted a harmonious flow of traditional knowledge from one generation to the next, the means to access that knowledge are still extant¹⁶²². Current generations of indigenous people have seemingly been 'ordained' to further the inward explorations in the search for knowledge and power¹⁶²³.

Indigenous epistemological research draws on bodies of IK and values, which have evolved for thousands of years in native cultures. Such epistemologies are being systematically implemented and developed into new holistic approaches¹⁶²⁴ resulting in a revision of environmental epistemologies in some schools¹⁶²⁵, colleges¹⁶²⁶ and universities¹⁶²⁷ in the East and the West. It has been argued¹⁶²⁸ that the holistic approach to learning and education implicit in indigenous epistemology will allay the harm of the "dogma of fragmentation" that currently permeates western education.

The adoption of indigenous epistemologies for forestry programmes present a number of challenges, especially if initiatives are based on 'integrating' the disparate contexts in which the respective knowledge systems are embedded. Integrating epistemologies can be extremely difficult, and is hampered by differing methodologies, vocabularies, ways of assigning merit,

1621 Ermine 1995, Sinclair 2003

1622 Still in existence; not extinct or destroyed or lost <http://wordnet.princeton.edu/perl/webwn?s=extant> accessed 15th July 2005.

1623 Ermine 1995

1624 Peat 1995, Suzuki and Knudson, 1992

1625 Ban Narai School, Nong Bua Lampu Province, Thailand (Lucarelli 2001).

1626 University of Western Sydney (formally Hawkesbury Agricultural College and Hawkesbury College of Advanced Education).

[http://www.mekonginfo.org/mrc_en/doclib.nsf/0/199DE229E72FF8F747256A0F000AD042/\\$FILE/FULLTEXT.html](http://www.mekonginfo.org/mrc_en/doclib.nsf/0/199DE229E72FF8F747256A0F000AD042/$FILE/FULLTEXT.html) accessed 5th July 2005

1627 South Bank University, London, UK <http://www.bath.ac.uk/cree/sterling.htm> accessed 5th July 2005.

1628 Ermine 1995

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and even worldviews. Indeed currently, there is no conceptual framework for cross-cultural
epistemological integration¹⁶²⁹.

There are also differences between western and indigenous psychologies¹⁶³⁰. In Western
cultures, children are typically taught to ignore their dream states and to focus on adaptational
interactions with the external world in the waking state. Moreover, ritual practices designed to
evoke alternative phases of consciousness are generally discouraged or negatively sanctioned.
Because western awareness is primarily concerned with tracking external events while in the
waking state it is known as 'monophasic' compared to indigenous psychologies which are
described as 'polyphasic'. Polyphasic means that they focus on multiple states of consciousness
such as dreams, trance, visions, yogic, shamanic, psychoactive¹⁶³¹, entheogenic¹⁶³², non-egoic,
contemplative and meditative states.

It would appear that the prime movers¹⁶³³ of the enlightenment¹⁶³⁴, discussed in chapter 3
section 3.1 not only established what constituted knowledge epistemologically but
psychologically as well. Although they established 'monophasic' perception as the only valid
mode of knowing for 'science', they adopted an alternative 'privatized' mode of consciousness.
This was achieved with the assistance of psychoactive¹⁶³⁵ or entheogenic¹⁶³⁶ drugs, for their
own 'enlightenment', to advance their own cosmic consciousness and personal experience of
reality (gnosis)¹⁶³⁷. In contrast to monophasic consciousness or privatized modes of perception,
polyphasic cultures¹⁶³⁸ recognize that these other states of consciousness offer valid, valuable

1629 Bennett and Zurek undated

1630 That branch of science that studies the cognitive, perceptual, and behavioural characteristics of human
beings. <http://www.redsun.com/type/glossary/p.shtml> accessed 1st June 2005.

1631 A plant substance that exerts psychological effects including changes in mood, cognition, and behaviour.
There are many plants that are psychoactive (See Ratsch 2005 and <http://www.erowid.org/plants/plants.shtml>
accessed 13th August 2005).

1632 In its strictest sense the term refers to a psychoactive substance (most often some plant matter) that occasions
enlightening spiritual or mystical experience, within the parameters of a cult, in the original non-pejorative sense
of *cultus*. <http://www.nationmaster.com/encyclopedia/Entheogen> accessed 14th August 2005.

1633 Isaac Newton, Robert Fludd, Francis Bacon, Elias Ashmole, Robert Boyle, Christopher Wren, John Locke
and John Dee.

1634 Who were Rosicrucian, and/or 33 degree Freemasons, and/or Grand Masters of the Priore de Sion, and/or
members of the Royal Society, and/or homosexual.

1635 Carmichael 2000 a + b

1636 from the Greek *ενθεος* (entheos) and *γενεσθαι* (genesthai) 'to cause to be in god'.

1637 Roberts and Hruby 1997

1638 Laughlin 2000

Chapter 10 Forest Values in the Wider Context and complementary modes of knowing and types of knowledge that are not adequately addressed in our usual waking state alone¹⁶³⁹. Perceptual diversity allows human beings to access knowledge through a variety of perceptual processes, rather than merely through everyday waking reality. Many of these perceptual processes are transrational altered states of consciousness but are not considered valid processes for accessing knowledge by empirical science¹⁶⁴⁰. Approximately 90 percent of cultures¹⁶⁴¹ have institutionalized forms of altered states of consciousness, meaning that such types of consciousness are to be found in most human societies and are considered 'normal.' Currently, although new perceptual trajectories, such as transpersonal psychology¹⁶⁴² are gaining currency in the West, polyphasic consciousness is being devalued in many societies as it is simultaneously being replaced by monophasic consciousness. Not only are we losing (1) biodiversity in environments (2) cultural diversity in societies (3) epistemological diversity in ways of knowing, we also are losing (4) perceptual diversity in human cognitive processes. All four losses of diversity (biodiversity, cultural, epistemological and cognitive) are interrelated.

Cultures that value perceptual diversity are more adaptable than cultures that do not. Perceptually diverse cultures are better able to understand whole systems¹⁶⁴³ than are cultures that rely only on the 'scientific' method, which dissects systems. They also are better stewards of their environments, because they grasp the value of the whole of biodiversity through transrational as well as scientific processes. Understanding through perceptual diversity leads to a higher degree of adaptability and 'evolutionary' competence.

There are dangers that 'development' will continue to destroy perceptual diversity because it exports monophasic cognitive processes or in the case of China the "singularly rational, scientific, and unquestionably superior cognitive system"¹⁶⁴⁴ of Marx and Lenin. Destroying perceptual diversity, in turn, leads to the destruction of cultural diversity and biocomplexity.

1639 Walsh and Vaughan 1993

1640 which is based primarily upon quantification, reductionism, and the experimental method.

1641 Bourguignon 1973

1642 Transpersonal psychology (TP) is the field which focuses on experiences, states of consciousness, and ways of being in which the sense of identity extends beyond the individual or personal to include wider aspects of humankind, nature, or cosmos (Walsh and Vaughan, 1993).

1643 because they use a variety of perceptual processes to understand systems.

1644 Howard 1994 <http://www.cjc-online.ca/viewarticle.php?id=231&layout=html> accessed 14th Aug 2005

Forestry and development organizations need to listen to those who use transrational perceptual processes and also need to find a way to include and validate perceptual diversity in their theoretical and applied frameworks.

Although the conference¹⁶⁴⁵ on 'bridging epistemologies'¹⁶⁴⁶, referred to at the beginning of this chapter, failed to identify any concrete examples of 'bridging' between epistemological trajectories attempts are being made to bridge the epistemological and psychological divide.

In Hawaii, "indigenous heuristic action research" has been adopted. This approach constitutes a fusion of existing methodologies blended with features identified as distinctly indigenous¹⁶⁴⁷.

In Ecuador, there is recognition¹⁶⁴⁸ that epistemological bridging could be used to address one of the key challenges of resource management. Indigenous epistemologies allow for the meeting the needs of individuals while at the same time sustaining public goods for the community. The benefits of utilizing this synergy between traditional knowledge and a knowledge gap in western knowledge could result in better ecosystem management.

In New Zealand¹⁶⁴⁹ the comparison of conflicting and converging Maori indigenous and scientific conservatory values, are a critical aspect of the development of a synergistic process. Comparison, allows the search for synergy through the realignment of the affinities and differences and distinctions between Maori indigenous and scientific epistemology. The focal point of comparison is the convergence of values, where a shared space or environmental nexus of Maori indigenous and scientific conservatory values exists. It is seemingly within this convergence of similarities and shared discourse¹⁶⁵⁰ that the synergistic potential of Maori indigenous and scientific conservatory values can be found.

Attempts are also being made to bridge alternative psychologies. Researchers in New Zealand are attempting to identify psychologies to meet the needs of Maori people, in a way that

1645 in 2004

1646 <http://www.millenniumassessment.org/en/About.Meetings.Bridging.Proceedings.aspx> accessed 5th July 2005

1647 Kahakalau 2004 page 19

1648 Becker and Ghimire 2003

1649 Simon 2002

1650 in this case post-materialist green understandings of the humankind-environment relationship (Dobson 1990,1999, Dobson et al. 1995, Merchant 1989,1996, North 1995, Pepper 1993, 1996, Worster 1993).

Chapter 10 Forest Values in the Wider Context maintains a unique cultural heritage, and makes for a better collective Maori future. They have been working with a number of indigenous psychologists capable of developing robust "tikanga"¹⁶⁵¹ based psychological frameworks. Although a slow process, there is a small yet active group of people who are contributing through practice, teaching, research, or involvement in professional organisations¹⁶⁵². Other researchers and cross-cultural psychologists¹⁶⁵³ are attempting to develop; multiple psychologies into a "unified science" that "transcends indigenous psychology"¹⁶⁵⁴, "psychological universals"¹⁶⁵⁵, and the "psychic unity of mankind"¹⁶⁵⁶.

Having established the importance of synergistic bridging between multiple knowledge systems in the next section we will consider bridging between individual forest values.

10.2 FOREST VALUES

In common with indigenous ethnic peoples throughout the world on the basis of those interviewed¹⁶⁵⁷ the peoples of Eastern Kham recognize a set of forest values which are widely acknowledged throughout the region. Additionally each ethnic group in the region appears to have its own "epistemologies of nature"¹⁶⁵⁸. These values are not only important among indigenous peoples but in the 'western' world where seemingly "a fundamental shift in forest values has taken place in recent decades"¹⁶⁵⁹.

In spite of the fundamental shift in forest values there are only a few examples, referred in chapter 5 section 5.9.2, where they have been included in forest planning. They are still the exception rather than the rule, and have made little or no impression in China, due to the inherent ideological contradictions of traditional values, referred to in chapter 7 section 7.4.

1651 customary practices.

1652 Nikora et al 2004 page 3

1653 Kim and Berry 1993

1654 Azuma 2000 page 9

1655 Cigden Kagitcibas 2000 page 6, Davidson 2002 page 104

1656 Dasen Berry and Sartorius 1988 page 306

1657 Around Lugu Lake (Studley et al 2005).

1658 Macdonald 2003, Prasad and Elmes 2005 page 887

1659 Bengston and Xu 1995 page 1

The inclusion of forest values in planning has been largely predicated on integration with formal forestry systems and characterized by semantic, paradigmic, epistemological and psychological ambiguity. Few attempts have been made to find dynamic equivalents¹⁶⁶⁰ for indigenous forest values or to bridge between multiple knowledge systems as described above.

In this section we will address forest values individually on the basis of the domains identified in the cognitive mapping and attempt to address any semantic¹⁶⁶¹ and paradigmic ambiguity, provide a summary of local findings and a broader discussion of their application cross culturally and in forest planning, policy and research

10.2.1 Human Dimension : Psychocultural Domain

Learning value

Learning values include all the modes of knowing that people use to learn about and from the forest on the basis of cognition, epistemology and perception.

The confusion with this value is paradigmic because western ways of knowing are rational and monophasic compared to indigenous where they are metaphysical and polyphasic. As a result most westerners fail to appreciate most of the ways indigenous peoples learn about or learn from the forest.

Learning values are evident among the peoples of Eastern Kham in tree stories, the specialized knowledge of priests and shaman, and the epistemologies of nature and at Lugu Lake (See section 6.5.3) where they represented 8% of total economic value. Learning however in common with much of the majority world is guided by indigenous epistemologies¹⁶⁶² and psychologies which are important not only to nurture the interrelationship of nature and culture but to enhance biodiversity.

1660 Nida 1964

1661 Of or relating to meaning, especially meaning in language

1662 The study of theories of knowledge or ways of knowing, particularly in the context of the limits or validity of the various ways of knowing <http://www.pbs.org/faithandreason/gengloss/epist-body.html> accessed 5th July 2005.

Indigenous epistemology, or 'ways of knowing', is informed by the belief in the interconnectedness of all aspects of nature¹⁶⁶³. Knowledge is therefore "the expression of the vibrant relationships between the people, their ecosystems, and the other living beings and spirits that share their lands"¹⁶⁶⁴. It is part of a holistic and spiritual process which "gathers information from the mental, physical, spiritual, social, cultural, and historical realms"¹⁶⁶⁵. Its research tools¹⁶⁶⁶ may include feelings, history, prayer relations, spirit helpers¹⁶⁶⁷ and dreams¹⁶⁶⁸ as well as activities which may mirror western methods of knowledge gathering and learning¹⁶⁶⁹. Learning values are beginning to be included in forest planning¹⁶⁷⁰ and research¹⁶⁷¹ but given the differences between western and indigenous 'modes of learning' and 'modes of perception' it needs to focus on "bridging the epistemologies"¹⁶⁷² and psychologies¹⁶⁷³ that inform forestry-related knowledge systems¹⁶⁷⁴.

Conservation values and biodiversity

Conservation and biodiversity values, which we referred to in chapter 3 section 3.3 and 4 section 4.5.2, address the stewardship and enhancement of plant and animal communities.

Some confusion exists over these values because three types of conservation are recognized by the peoples of Kham, 'natural' (or biophysical) without human agency, 'endogenous anthropogenic' with local human agency, and 'exogenous anthropogenic' by the state or NGOs.

1663 Bastien 2004, Cajete 2000, Cardinal and Hildebrandt 2000, Colorado 1989, Ermine 1995;

1664 Battiste and Henderson 2000, page 42

1665 Colorado 1989 page 52

1666 Raven Sinclair 2003

1667 The spirit helpers, for some people, are a conduit of information and knowing and dreams are a very important means of acquiring information, including knowledge of plants, songs and events of the future (Ermine 1995 Ankerberg and Weldon 2005).

1668 Namkhai Norbu undated, Wayman 1967

1669 Ermine 1995

1670 Brown and Reed 2000

1671 Gurung 1994, Laird 2004

1672 MEA 2004

1673 Western "monophasic" and indigenous "polyphasic" (Davis 1999, Nikora et al 2004, Lumpkin 2001 page 37).

1674 Bourguignon 1973 Lumpkin 2001 page 37

It is not unusual to find¹⁶⁷⁵ that anthropogenic and biophysical processes are equally important drivers in biodiversity conservation.

Respondents from Eastern Kham recognize the conservation value of forests which they locate in the 'environmental and subsistence services', 'bio-physical' and 'psycho-cultural' domains and expressed in the forest value survey in terms of 'ecosystem support' and 'ecological importance' do not, however readily recognize the role of society or that of the Chinese government in forest conservation. For the peoples of Eastern Kham in common with many indigenous people an ethical attitude to nature, especially the non-human world, is ancient terrain, and can be contrasted with the Lockean and/or anthropomorphized views of mainstream western and 'global' societies¹⁶⁷⁶.

Indigenous cultural practices define politics and ethics as existing in the realm of ecosystems, and would argue that it makes no sense to limit politics and ethics only to human beings. Indigenous peoples recognize the connectedness and the meaningfulness of the non-human world, although this does not mean that animals or plants should not be taken or used for food or clothing. They understand that the taking of life represents loss of life to a fellow being that exist on its own terms, and has intrinsic value "because it has been created by a divine being"¹⁶⁷⁷. Often the taking of life has to be negotiated between human society and the larger society of beings, and the offices¹⁶⁷⁸ of an intermediary¹⁶⁷⁹ are often used to ensure balance and reciprocity¹⁶⁸⁰.

Development agencies are beginning to review the role of indigenous knowledge in the development process at the policy level. Titilola¹⁶⁸¹ has demonstrated the cost-effectiveness of adding indigenous knowledge components into development projects. Lalonde has completed

1675 Pereira, P. and Pires da Fonseca M, 2003. Nature vs. nurture: the making of the montado ecosystem. *Conservation Ecology* 7(3): 7. [online] URL: <http://www.consecol.org/vol7/iss3/art7/> accessed 1st December 2005

1676 For more on alternative "ethics" see Paterson 1999, Pierotti and Wildcat 1999, Gollicher 1999, McLaughlin 1985, Callicott 1982, Ip Po Keung 1983.

1677 Lavery and Sterling 2004 <http://cnx.rice.edu/content/m12160/latest/#Callicott> accessed 5th July 2005

1678 permission seeking, rituals, propitiation.

1679 e.g. shaman.

1680 Castro 1991, Dove 1993b, Reichel 1992

1681 Titola 1990

two reports¹⁶⁸² on this topic for the Canadian International Development Agency. The World Bank held a seminar on the role of indigenous knowledge for agricultural development¹⁶⁸³. Two influential policy documents have recently been prepared by the U.S. National Research Council, one focused on the conservation of biodiversity¹⁶⁸⁴, the other on sustainability issues¹⁶⁸⁵ in agriculture and natural resource management. Although this might sound promising the reality is the distance between dominant discourses of biodiversity and indigenous biodiversity conservation is great and perhaps growing. Biodiversity discourse is not congruent with local cosmologies related to local practices of biodiversity use. The concept of biodiversity, as embodied in the Convention on Biological Diversity, is strongly expert based. The focus is typically on genes, numbers of species, or ecosystem types, and it fails to protect cultural diversity and traditional knowledge or recognize the need to preserve biodiversity in areas where people live and rely on local biodiversity¹⁶⁸⁶.

Such Western scientific approaches are usually not part of the mindset of local peoples who live in areas of rich and threatened biodiversity. To reiterate from chapter 4 section 4.5 they often have their own cosmologies, in which, for instance, species occupy special places, but not as species that should be 'conserved' for the reasons given within the context of the Convention on Biological Diversity.

The lack of congruency between western biodiversity discourse and indigenous practice seemingly causes the following tensions:

- the same species are not necessarily regarded as worth preserving
- the universalistic tendencies of Western science prohibit a positive acknowledgment of local diversity
- different notions of ownership and control are used
- the scale of legal solutions considered by the Convention on Biological Diversity¹⁶⁸⁷, is at odds with the scale of local 'legal' practices

1682 Lalonde 1991a, 1991b

1683 Warren 1991

1684 National Research Council 1992

1685 National Research Council 1991

1686 Grubb et al 1995

1687 i.e. the national scale.

- there is a danger of stigmatizing local peoples for unsustainable use of biodiversity

Opportunities to lessen these tensions are found in, dialogue, building on similarities between Western and local cosmologies, sharing of benefits and costs, common but differentiated responsibilities¹⁶⁸⁸. Ways must be found in the spaces of encounter and debate for academics, scientists, NGOs and intellectuals to reflect seriously on, and support, the alternative frameworks that, with a greater or lesser degree of explicitness and sophistication, that indigenous peoples have crafted. The world must be redefined and reconstructed from the perspective of the multiple cultural and ecological practices that continue to exist among many communities. Although this has a political dimension, it entails serious epistemological, cultural, and ecological considerations¹⁶⁸⁹. More research is required comparing the degree of conservation consciousness, and ethical attitudes, between sacred sites and non-sacred sites and the relevance of the four indigenous environmental paradigms suggested by Umens¹⁶⁹⁰.

Spiritual and sacred values

Sacred values address forests that have been: dedicated to or set apart for the worship of a deity; are inhabited by a numina; are associated with a sacred person, rite or custom; are associated with sacred buildings or created by a divine being.

Although there is no semantic difficulty with sacred values there is a paradigmatic one for forestry. Thanks to John Locke nature has been desouled and most formal forestry paradigms lack a spiritual dimension. The UK Forestry Commission's most recent technical paper¹⁶⁹¹ on forest perceptions, attitudes and preferences failed to address spiritual values at all.

Spiritual and sacred forest values are not only important for the peoples of Eastern Kham but other Tibetans as well. Reference has already been made in chapter 7 section 7.3.4 and 7.5.5¹⁰ to forests associated with *yul-lha* territory and in chapter 7 section 7.3.4 to *neri* mountains but

1688 Young Pugwash/ISS 2002

1689 Escobar 1998

1690 A giving environment, a reciprocating environment, a disposable environment and a prohibiting environment suggested by Umans (1992).

1691 Lee 2001

another category of sacred forest is associated with "hidden valleys"¹⁶⁹² or *Beyuls*¹⁶⁹³. Beyuls are generally remote mountain valleys where people would find and seek refuge. Guru Rinpoche¹⁶⁹⁴ is believed, in the eighth century AD to have empowered 108 of these havens, places where there was peace and prosperity, and spiritual progress was facilitated. These areas are being gradually identified by *Tertons*¹⁶⁹⁵ who 'discovered' *terma*¹⁶⁹⁶ which describe access. This practice is now part of a resurgent Nyingma tradition, referred to in chapter 7 section 7.4.4 of Tibetan Buddhism¹⁶⁹⁷ in which the role of *terma*¹⁶⁹⁸ in revivifying¹⁶⁹⁹ the sacred landscape is fundamental to the re-formation of Tibetan identity¹⁷⁰⁰. Typically beyuls are isolated, peaceful, tranquil valleys abundant with natural resources and may have provided the inspiration for 'Shangri-la' in "Lost Horizon"¹⁷⁰¹.

The most well known beyuls are at Kailas, Tsari, and Lapchi in Tibet AR, Demazong in

1692 Sherpa 2003 page 101

1693 བྱུང་ཡུལ། *sbas yul* is Tibetan for hidden place.

1694 He seemingly established Buddhism in the Himalaya and Tibet by 'merging' it with pre-Buddhist beliefs.

The Tibetan name of Guru Rinpoche is *Padma Jungne* པདྨ་རྒྱུད་ནེ། and the Sanskrit name is *Padmasambhava* པདྨ་སུམ་བུ་ which means 'He who was borne out of the Lotus' and refers to his apparent miraculous birth from a lotus blossom.

1695 གཏེར་སྟོན། *gter ston* is Tibetan for treasure-seekers.

1696 གཏེར་མ། *gter ma* is Tibetan for treasure.

1697 Sherpa 2003 page 101, Germano 1998

1698 རྟེན་མཁན། *ne yig* is Tibetan for treasure, sacred text or guide text.

1699 to give new energy and strength to an event or activity <http://www.freesearch.co.uk/dictionary/revivifying> accessed on 18th Sept 2005.

1700 Not only is the uniquely Tibetan past again yielding its gifts, but the land itself is yielding concrete fruits intertwined with that past. In many ways the rebuilding of sacred sites, along with the other ramifications of ter, is a direct response to the loss of dimensionality in Tibet: during the Cultural Revolution, or more accurately the cultural devastation, everything in Tibet was flattened out culturally, just as physically the thousands of stupas and monasteries were reduced to rubble littering the landscape. The Ter movement extends the roots of the present not only in the contemporary geographic landscape but also in the landscape of Tibet's remembered past. In this way, it is of unique value in imbuing the present with greater value and resonance for a very unsettled generation of Tibetans (Germano 1998).

1701 Hilton 1933

Sikkim¹⁷⁰², the *Sherpa*¹⁷⁰³ Khumbu¹⁷⁰⁴, Dolpo¹⁷⁰⁵ and Khenbalung¹⁷⁰⁶ in Nepal¹⁷⁰⁷ and Pemako in Western Kham¹⁷⁰⁸. As sacred sites beyuls possess natural and cultural characteristics that will continue to favour biodiversity conservation, which resonates with findings from other sacred sites in the region. Researchers¹⁷⁰⁹ have highlighted the importance of sacred sites as natural conservation areas and discovered for example, in Lijiang County, that on the basis of a biodiversity index¹⁷¹⁰, there is greater species richness and relative abundance in sacred forest¹⁷¹¹, compared to control plots¹⁷¹². They stress the importance of sacred sites as gene pools, to protect wildlife and to prevent the natural environment from further degradation and note that although the Chinese government has established nine of Yunnan's nature reserves on the basis of sacred mountains, there are still many sacred sites that are ignored by outsiders.

Relationship to sacred landscape varies throughout the world, although most respondents in Eastern Kham spoke of 'blessing' in other regions of the world there also exists a relationship that combines fearful respect and awe at the beauty and mystical source of life held within forests. Buddha sat alone in the depths of the forest, lost in meditation, and it was in the midst of a beautiful forest that he was shown the 'four great truths'¹⁷¹³. In Ghana, beliefs about forests include the belief that they are the home of dwarfs, and the domain of the mythical Sasabonsam, a legendary figure responsible for all the woes of mankind and to which mishaps

1702 http://www.yuksom-tours.com/buddhism_tour.html accessed 30th August 2005

1703 ཤར་པ། *shar pa* is Tibetan for easterners i.e. from the Eastern Kham area.

1704 <http://www.ianhills.net/phortsecommunityproject/sherpas.htm> accessed 9th Aug 2005

1705 http://www.icimod.org/focus/biodiversity/wh_site.htm accessed 29th March 2004

1706 མཁན་པ་ལུང། *mkhan pa lung* is Tibetan for Khenbalung (Diemberger 1993, Samuel 1993).

1707 The author visited this 'hidden valley' as soon as it opened to westerners in 1990.

1708 http://www.tibettour.com.cn/ent/pic/maps/17_2995.jpg accessed 2nd Aug 2005

1709 Luo Peng et al 2003

1710 Biologists have developed many mathematical indices to quantitatively measure biodiversity. These indices depend on the analysis of species richness and relative abundance. One of the more commonly used indices is the Shannon-Wiener index (Magurran 1988) $H' = -\sum p_i \log_e p_i$ where H' = the Shannon-Wiener biodiversity index, p_i = proportion of the i th species, \log_e = the natural log of p_i and S = the number of species in the community. To calculate H , determine the proportion of each species in the community (p_i) and the \log_e of each p_i . Then, multiply each p_i times $\log_e p_i$ and sum the results for all species (s). The minimum value for H would be 0 for a community with only one species and would increase as species richness increases and relative abundance becomes more even.

1711 $H = 1.87$

1712 $H = 1.79$

1713 Porteous 1928

Chapter 10 Forest Values in the Wider Context and everything evil are attributable¹⁷¹⁴. The Dai people in southern Yunnan believe that the forest is the cradle of human life, and that forests are at one with the supernatural realm. They believe that the interrelationship of human beings with their physical environment consists of five major elements: forest, water, land, food and humanity¹⁷¹⁵. Although sacred forests occur throughout the world, they share many similar features, which are summarized in the descriptions¹⁷¹⁶ of the four hundred "holy hills"¹⁷¹⁷ or "dragon hills"¹⁷¹⁸ in Yunnan Province as "... a kind of natural conservation area... a forested hill where the gods reside. All the plants and animals that inhabit the holy hills are either companions of the gods or sacred living things in the gods' gardens. In addition.... the spirits of great and revered chieftains go to the Holy Hills to live following their departure from the world of the living"¹⁷¹⁹.

Sacred forests are specific forest areas imbued with powers beyond those of humans; they are home to spirits that can take or give life; they originate from a range of roots, and include: sites linked to specific events; sites surrounding temples; burial grounds or cemeteries housing the spirits of ancestors; the homes of protective spirits; the homes of deities from which priests derive their healing powers; homes to a powerful animal or plant species; forest areas that surround natural sacred features such as rivers, rocks, caves and 'bottomless' water holes; and sites of initiation or ritual¹⁷²⁰.

Access to most sacred forests is restricted by taboos, codes and custom to particular activities and members of a community. Gathering, hunting, wood chopping and cultivation are strictly prohibited in the holy hills of China. The Dai people believe that these activities would make the gods angry and bring misfortune and disaster upon the community. A Dai text warns: 'The trees on the *Nong* mountains¹⁷²¹ cannot be cut. In these forests you cannot cut down trees and

1714 Abbiw 1990

1715 Pei Shengji 1999, Luo Peng et al 2003

1716 Pei Shengji 1999, Laird 1999-2005 <http://www.agroforestry.net/overstory/overstory93.html> accessed 20th July 2005

1717 Pei Shengji 1999 page 381

1718 Posey 1999 page 8

1719 Pei Shengji 1999 page 381

1720 Bharucha 1999, Falconer 1999, Pramod Parajuli 1999, Pei 1999, Vartak and Gadgil 1981, Zoundjiekpon and Dossou-Glehouenou 1999

1721 sacred mountains.

construct houses. You cannot build houses on the Nong mountains or you will antagonize the spirits, the gods or Buddha"¹⁷²². In Maharashtra, India, regulations and religious customs are set down by priests¹⁷²³ with knowledge of the forest deities, their ties to the surrounding landscape, and their influence on the daily lives of the community. Ancient folklore and stories are told which include fairly specific detail on the supernatural penalties that will result should the groves be desecrated, for example by felling trees. However, control over extractive activities in sacred forests varies by village, and in many places a complete ban is not in place, and limited collection of fallen wood, fruit from the forest floor, medicinal plant collection, honey collection, tapping of the Jaggery palm¹⁷²⁴ to make an alcoholic beverage, and other activities are permitted, if strictly controlled¹⁷²⁵.

Sacred forests have survived for many hundreds of years and today act as reservoirs of much local biodiversity. In Maharashtra¹⁷²⁶ state the 40 contiguous sacred forests account, as a whole, for most of the plant species present in the region. The forest structure is also unique, representing the least disturbed islands of old growth. China's 'holy hills' also make a significant contribution to biodiversity conservation on a number of levels: they contribute to the conservation of threatened forest ecosystems; they protect a large number of endemic or relic plant species; and the large number of holy hills distributed throughout the region form 'green islands' or 'stepping stones' between larger nature reserves¹⁷²⁷.

As a result of the high conservation and biodiversity values held in sacred forests, increasing attention is being paid to their potential as a tool and model for biodiversity conservation. There are a number of reasons for this. Sacred forests have served as important reservoirs of biodiversity, preserving unique species of plants, insects, and animals. Sacred and taboo associations attached to particular species of trees, forests, mountains, rivers, caves, lakes, and temple sites should therefore continue to play an important role in the protection of particular

1722 Pei Shengji 1999 page 381

1723 known as पुजरी *pujari* or भगत *bhagats*.

1724 *Caryota urens* in Latin, 董棕 *dong3 zong1* in Chinese (3rd tone and 1st tone) and मरि *mari* in Hindi http://www.floridata.com/ref/C/cary_ure.cfm accessed 10th July 005.

1725 Bharucha 1999

1726 In India.

1727 Pei Shengji 1999

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ecosystems by local people which might provide an alternative and innovative approach to environmental conservation that is not predicated on alien western legal jurisprudence¹⁷²⁸. Particular plant species are often used by traditional healers and priests who have a strong interest in the preservation of such sites and ecosystems. In some regions of the world, beliefs that spirits inhabit relict areas have served to quickly regenerate abandoned swidden plots into mature forest. In other areas, sacred places play a major part in safeguarding critical sites in the hydrological cycle of watershed areas. Furthermore, in a number of instances sacred sites have also been instrumental in preserving the ecological integrity of entire landscapes. For these reasons, sacred sites can help in assessing the potential natural vegetation of degraded ecosystems or ecosystems modified by humans¹⁷²⁹.

Sacred forests have survived in many regions despite tremendous economic pressure on forest resources. In some parts of India, for example, sacred forests have retained high levels of biodiversity and remain largely intact, while government-controlled forest reserves are often in poor condition. Local level control has been vital to the protection of these areas, but economic pressures are mounting, and changing land-use patterns have contributed to a serious depletion of resources and a phenomenal rise in the price of land. This in turn has provided an irresistible incentive for some local people to sell the forests, irrespective of the sentiment that at one time was sufficient to preserve them¹⁷³⁰.

Even in cases where local communities are determined to retain sacred forests, they are often as vulnerable to outside political and economic forces as other forest areas. In East Kalimantan, for example, oil palm plantation and logging operations are clearing ancestral (*adat*) forest. The *adat* covers four types of forest: perennial tree gardens¹⁷³¹, fruit tree gardens¹⁷³², swampy areas¹⁷³³, and rattan gardens¹⁷³⁴. The companies promise in return to encourage 'community participation', 'the development of sustainable forest management', and 'income generating

1728 Schaaf 1999

1729 UNESCO 1996 <http://www.agroforestry.net/overstory/overstory93.html> accessed 5th Aug 2005

1730 Bharucha 1999, Pramod Parajuli 1999

1731 *sipung bengkut*

1732 *sipung bua*

1733 *sipung payo*

1734 *sipung uwe*

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schemes', which are considered 'empty and pointless' offers for a priceless ancestral forest that cannot be equated with monetary and material conditions¹⁷³⁵.

There are, however, clearly dangers of attempting to adopt sacred forests as a model for conservation or for their incorporation into 'modern' conservation methods, but equally of assuming that there is no possibility of building bridges between all the disparate trajectories of conservation. Although sacred forests undoubtedly contribute to the conservation of biodiversity, some question¹⁷³⁶ whether the complex history and traditions that have created and maintain these areas can be operationalized as a tool or model for further conservation efforts. Conservation is often a side-effect of customs that associate or dedicate forest resources to the deities. In the Western Ghats of India, rather than managing resources for future use, communities are instead attempting to benefit from the protection and good-will afforded by the deity in return for not disturbing the sanctity of the sacred forest¹⁷³⁷. This would be a difficult dynamic to reproduce in a conservation programme. In Southern Ghana, Falconer¹⁷³⁸ argues that sacred forests exist as part of a system so complex and variable that a much clearer understanding of the spiritual, mystical and political functions and beliefs of sacred forests is needed before they can be incorporated into conservation programmes. In South India, sacred forests are populated by dead spirits prevented from transforming and hence remaining ghosts forever. Their life force engenders trees to grow wild, and gives rise to highly fertile but extremely dangerous sacred forests, which are frightening and highly ambivalent¹⁷³⁹. Rival warns against environmentalists' views of sacred forests and trees as sanctuaries of biodiversity, home to benign and protecting deities. The suggestion that the belief systems that have protected these forests should be promoted to encourage the conservation of larger forest areas ignores the fact that, while both environmentalists and local peoples view trees as vital and holding regenerative power, trees in traditional India are not benign protectors, they are frightful and the power of their life force is extremely dangerous.

1735 Enris and Sarmiah 1999

1736 Laird 1997-2005 <http://www.agroforestry.net/overstory/overstory93.html> accessed 20th July 2005

1737 Bharucha 1999

1738 Falconer 1999

1739 Rival 1999

While important reservoirs of biodiversity, Laird¹⁷⁴⁰ thinks it is unlikely that with the exception of a few areas, the cultural beliefs and management systems that have led to the conservation of sacred forests could easily be incorporated into the western conservation.

Irrespective of the use or non use of sacred groves to promote conservation, it is seemingly more important, rather than attempting to incorporate sacred groves into western conservation paradigms, to bridge or find synergy among multiple paradigms of conservation. Reference has been made in chapter 8 section 8.2.7 and earlier in this chapter in section 10.1.1 and 10.1.2 to epistemological and psychological bridging but spiritual bridging is as important for conservation.

In much of the 'west' many 'people of faith' have little sense of how divinity permeates the created order. There is almost no sense of a sacred dimension to creation in most churches or temples. Whatever awareness or recognition of God in creation usually comes from experiences in nature. As a result romantics¹⁷⁴¹, Christian mystics¹⁷⁴² or nature mystics¹⁷⁴³ have been the 'prophets of ecology' rather than the clergy. Instead institutional religion has allowed a secular scientism to influence its doctrines and skew its teachings such that a Lockean separation entered into its assumptions about God and creation, heaven and earth, and especially humans and the biological systems of the planet. The consequence is that most people never make the simple connections between God as Creator and the many different forms of life in nature. The consequences are that a spiritually atrophied human society has allowed nature to be commodified into resources for exploitation. Therefore a culture, unique in human history, has arisen which considers trees, animals and the earth itself as separate from God and therefore a commodity, divorced from divinity, which can be used without regard for consequences. And the way people see nature influences all of their other attitudes, extending even to other people¹⁷⁴⁴. Many people of faith also struggle with the animism

1740 Laird 1997-2005 <http://www.agroforestry.net/overstory/overstory93.html> accessed 20th July 2005

1741 such as Goethe, Thoreau, Emerson, Wordsworth, Coleridge and Blake (See Cooper 1990b).

1742 such as St Augustine, Francis of Assisi or Meister Eckhart (See Gates 2004).

1743 such as James, Underhill, Mercer, Zaehner, or Happold (See King 1995).

1744 Krueger undated

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associated with sacred forest because they, like many westerners, have divided the universe into two separate worlds¹⁷⁴⁵ and have excluded supernatural forces in the material universe¹⁷⁴⁶.

Some attempts are being made to include sacred values in forestry planning¹⁷⁴⁷ and the US forest service, for example, have developed a sacred site policy in South Dakota using the Lakota definition of sacred¹⁷⁴⁸. Ways must be sought to bridge or find synergy among eco-spiritual paradigms on a case by case basis. Although some attempts¹⁷⁴⁹ are being made most are predicated on integration or incorporation but fail to provide a conceptual framework. Given the dangers of integration referred to in section 2.2, 3.3.5, 4.5.4, 5.9 and 5.9.2 it would appear to be more apposite to adopt synergistic bridging between spiritual paradigms.

Intrinsic values

In much of the majority world intrinsic value is a central tenet of many religious beliefs where everything on earth (including forests) is inherently valuable because it has been created by a divine being. This contrasts with most dictionary definitions where it is defined as "Of or relating to the essential nature of a thing"¹⁷⁵⁰ and with that of some economists who don't believe they exist.

The former view was prevalent in western philosophy prior to the Enlightenment, when intrinsic value was, considered different from and superior to exchange value. Similar views existed in China usually based on Confucianism, Daoism, Buddhism or animism/shamanism. Because intrinsic value in Europe and China was a metaphysical concept it came under increasing challenge during the Enlightenment, by John Locke and eventually marginalized in

1745 a transcendent world beyond ours and an empirical world of our senses.

1746 Hiebert 1982b

1747 Brown and Reed 2000

1748 http://www.fs.fed.us/r2/blackhills/news/vnr/releases/tribal_sacredsites_advisory_web_021905.pdf
accessed 14th October 2005

1749 http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/x0963E/x0963e08.htm accessed 5th Aug 2005

<http://www.cid.harvard.edu/cidbiotech/comments/comments35.htm> accessed 5th Aug 2005

http://www.cbik.org/cbik-en/cbik/about_us/r_strategy.htm accessed 5th Aug 2005

Becker and Ghimire 2003, Roth 2004

1750 <http://www.answers.com/topic/intrinsic> accessed 10th November 2005

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the western world by more 'scientismic' explanations of exchange value based on maximization of expected utility as well as labour theories of value introduced by the political economists of the 18th century and elaborated upon by Marx in *Capital*¹⁷⁵¹. Because of the economic dominance of the western world, modern concepts of value in accounting and economics have been based generally on the thinking of western economists.

This economic dominance has obscured the thinking of Asian authors, such as Pu Songling¹⁷⁵², who have dealt with concepts of intrinsic value. Pu collected over 500 folk stories at the beginning of the Qing dynasty¹⁷⁵³ and one story, 'the pure void stone' illustrates some concepts of value which existed in Chinese thinking in the 17th century. In the story there is an emphasis on exchange value, however, the allegorical nature of the story suggests that exchange values are highly problematic and that intrinsic and spiritual values ought to be considered in addition to exchange values¹⁷⁵⁴. As a result of enlightenment thinking many economists today and some ethicists believe that intrinsic value does not exist, arguing that all values are human-cantered, that a value cannot exist without an evaluator¹⁷⁵⁵.

Intrinsic value is recognized by the peoples of Eastern Kham at Lugu Lake (See section 6.5.3) where it is ranked second out of thirteen values. Their views resonate with much of the majority world where intrinsic values are based on metaphysical concepts of goodness, beauty, truth and happiness and are thought to be immutable and derived from spiritual values¹⁷⁵⁶.

Irrespective of the views of economists intrinsic values are being increasingly recognized in forest planning for example in the Pacific North West Forest plan¹⁷⁵⁷ which is substantially built on popular assertions of the intrinsic values of forests and wildlife and some TEV frameworks include intrinsic value as a non-use value¹⁷⁵⁸.

1751 Jary and Jary 1991

1752 1648-1714

1753 1644-1911

1754 Baker and Hayes 1997

1755 <http://cnx.rice.edu/content/m12160/latest/> accessed 5th Aug 2005

1756 Frankena 1973

1757 Ribe and Matteson 2002

1758 <http://www.deh.gov.au/pcepd/economics/estimating/estim2.html> accessed 26th Oct 2005

Future values

Future values address intergenerational access to forest and forest resources in perpetuity on an equitable basis.

This value presents more of a political challenge than a semantic one and conceptually it was not easily articulated by the peoples of Eastern Kham.

Future values (or intergenerational access) were recognized by respondents in the UK and at Lugu Lake (See section 6.5.3) where they ranked 7th out of thirteen values.

They should be considered as a fundamental issue for indigenous people and sustainable forest management because:-

- continuing adequacy of forest resources is in the best interests of people who depend on those resources
- people who have secure access to local forest resources, both for themselves and for their descendants, tend to take better care of those forests and
- people who feel they are receiving a fair share of the benefits from forests are more likely to have a positive effect on those forests¹⁷⁵⁹.

Young¹⁷⁶⁰ identifies the span of a human generation as every 30 years and at any one point in time there are at least three generations present in a human population: a retiring generation, an emerging generation and a 'present' generation of people who may be in a position to guide resource use in sustainable or non-sustainable directions. Not only is intergenerational access important but so is intergenerational equity¹⁷⁶¹. Whilst there can be a range of interpretations of intergenerational equity, the view put forward by Brundtland¹⁷⁶² expresses the relevance of this concept to sustainability and the long-term management of forests.

1759 CIFOR 1999

1760 Young 1993

1761 RAC 1992

1762 Brundtland 1987 page 8-9

"Humanity has the ability to make developments sustainable - to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs"

It is also important to remember future value or intergenerational equity is a moral value. With respect to forests, this value can be reflected in a number of domains; such as concern about the availability of resources, preserving beautiful, spiritually significant places, and the economic situation. Underlying all of these end-states is a concern and sense of responsibility toward future generations. Ideally, therefore, forest values need to be investigated at multiple levels of abstraction, and ultimately the links between fundamental values and views toward forest land-management should be clarified¹⁷⁶³. There are also silvicultural and biodiversity considerations of intergeneration equity. It is important to maintain the forest cover in order to meet the needs of present and future generations, and particular emphasis should be given to maintaining viable populations of tree species and forest cover types at risk, thereby ensuring the protection of forest-associated and de-pendent wildlife. Considerable knowledge has already been generated about the identity of species and forest types at risk and about the impacts of various forestry practices on these species and forest types. However, there remains a major challenge to develop and implement harvesting and silvicultural practices that protect these vulnerable species (e.g., long lived, shade tolerant) and forest types (e.g., late-successional and old growth) in order to maintain the natural diversity of native forest cover types. Further research and development support is needed to provide policy-relevant information on forest structure, composition, and ecological processes as affected by different management practices to ensure the long-term (intergenerational) potential of forests to provide the diverse array of goods and services required by society¹⁷⁶⁴.

Cultural, historic, aesthetic and therapeutic values

Cultural values address forest-related: customs, rituals, songs, art, poetry, territorial cults, landscape mythologies and emotional bonds; symbols that connect people with their cultural heritage, their ancestral past, and natural resource claims; and images linking heaven and earth,

1763 Tindall undated

1764 Buck et al 2003

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as protector and provider, of human fecundity, of political unity, community identity and resistance.

This contrasts with the classical definition of culture originating in Chinese Confucianism which refers to literary transformation connotating a higher form of civilization. In the past this distinguished the culture of the Han majority from those on the peripheries who historically did not possess a writing system

In the context of culture the peoples of Kham mentioned tree stories, spiritual values, sacred forest and mountains, territorial cults and special locales where they would pay their respects to Buddha and local divinities. There is evidence that all four values do exist in the region and that cultural values represent 5 % of total economic value, historic values 5% of total economic value, aesthetic values 10% of total economic value, and therapeutic values 9% of total economic value.

China is experiencing a 'cultural revival' which is particularly pronounced among the minority nationalities. It would appear that the post-Mao cultural policy has created a dualism between a localized activity, on the one hand, and state sponsorship and encouragement of selected activities on the other. Thus even in the form of reified tradition, cultural revival is very real, and often rituals can be appropriated by local groups in asserting their autonomy within larger, more dominant systems.

We commented on this phenomenon in chapter 7 section 7.4.4 and 7.5.5 among the Tibetans but it is also taking place as a means of environmental protection. Some examples of reconstituted ritual include Chipko activists in India, monks in Thailand and the Miao people of China. The Miao¹⁷⁶⁵ ritual of "calling the dragons"¹⁷⁶⁶, which maintains its role as a localized performance within a broader framework of power. "Calling the dragons"¹⁷⁶⁷ is a tree planting ritual found in Qiandongnan Prefecture¹⁷⁶⁸, in which dragons are called on to protect

1765 <http://www.travelchinaguide.com/intro/nationality/miao/> accessed 5th Aug 2005

1766 Oakes 1993 page 60, Schein 1989 page 202

1767 召龙 zhao4 long2 is Chinese for dragon calling (*zhao* is 4th tone and *long* is 2nd tone).

1768 Southeast Guizhou Province.

the new trees and hence the village. What was previously a 'feudal superstition' finds resonance with state-sponsored reforestation campaigns, meeting the utilitarian materialistic goals of the state and the talismanic goals of the people. While dragon calling is ostensibly focused on the dragons, in many ways the trees are the more important focus. Lumber has been an important industry in Qiandongnan but in recent years deforestation has become a matter of concern for the Miao nationality. Although the tree planting part of the 'dragon calling' ceremony has much in common with government-sponsored programmes it encourages conservation consciousness because no one would dare cut down trees made sacred through the ritual¹⁷⁶⁹.

All over the world forests are prized for their cultural value because of the customs and folklore associated with them. Some are the sites of historic value such as the Black Forest, Sherwood Forest, New Forest, or the Amazon which have a rich heritage for indigenous and local peoples and national societies¹⁷⁷⁰. Forests are an integral part of the spiritual heritage of indigenous peoples. The indigenous perspective sees every living and non-living thing in the world as being interrelated and interdependent. Forests and the animals that live within them are an integral part of the universe and related to spiritual beliefs and values.

A broader approach to natural resource management is now developing¹⁷⁷¹, based on the recognition that ecosystems include human beings as well as non-human plants and animals. Resource managers are realizing that they must consider all of the many ways in which people are involved in ecosystems, not just commercially, physically and biologically, but also culturally, symbolically, mythically, psychologically, and emotionally. The symbolic and emotional connections between people and the land are as real and as important as the ecological relationships between species of plants and animals. Therefore, we need to look for ways to bridge our scientific understanding of the world with the indigenous ways of experiencing nature. But the educational process for natural resource professionals virtually

1769 Schein 1989

1770 Frazer 1993 Wilks 1972

1771 Calame-Griaule 1969, 1970, Chouin 2002, Koppell 1990, London 1998, Norton and Hannon 1997, 1999, Schroeder 1996 a + b, 2001, 2002, Williams and Stewart 1998

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ignores¹⁷⁷² the intuitive, symbolic aspects of human experience, focusing almost exclusively on a rational, analytical approach. The mythical dimension, represented in the form of art, music, and story-telling, have been important parts of education in virtually all human cultures prior to our own, but they have been almost completely eliminated from the education of the people who are now responsible for deciding how natural environments will be managed. The approach suggested here from the rational to the mythic is not without danger. The value of symbolism¹⁷⁷³ is only truly realized when one experiences the emotion behind the symbolic image. Symbolic stories and images, such as the 'sacred tree'¹⁷⁷⁴ can help to provide spiritual and emotional inspiration, but they may lead toward fanaticism, naive romanticism, and a thoughtless disregard for objective facts. Therefore, a balance must be actively sought and maintained between the rational, analytical skills of the scientist and the symbolic, emotional sensitivity of the poet or artist. While it would be a mistake to replace scientific education with a purely emotional and experiential approach we should seek ways of including both mythological and scientific ways of knowing in a balanced educational program for future resource managers.

Wilderness values

Wilderness values address large remote natural areas where the imprint of man's work is substantially unnoticeable; there are outstanding opportunities for solitude or a primitive and unconfined type of recreation; and may contain ecological, geological, or other features of scientific, educational, scenic, or historic interest.

Although 'wilderness' as an entity is difficult to define because of the complex nature of environmental and social elements involved we noted in chapter 8 section 8.2.6 most western

1772 Recently, however, there have been proposals to include the arts and humanities as part of the education of natural resource professionals (Crowfoot 1990).

1773 Jung 1964

1774 Caldecott 1993

concepts of 'wilderness'¹⁷⁷⁵, especially the United States definition¹⁷⁷⁶ mean very little to the peoples of Eastern Kham.

In terms of this study it is germane because a number of international players, known for their "biocentric imperialism"¹⁷⁷⁷, are trying to save the biodiversity of Eastern Kham and the model they most often use has been exported worldwide¹⁷⁷⁸. For the biocentric 'anti-humanist biologist'¹⁷⁷⁹ the concept of humans as part of nature, which has remained an integral component of indigenous culture, is viewed as a threat to the environment, and they are usually averse to building on customary practices of nature conservation. They are also opposed to local control, seeking instead 'scientific land management'. This is exacerbated by the Chinese government who have adopted a similar form of 'ecological colonialism' in many nature reserves.

Their belief in a total ban on human intervention is misguided because studies show that the highest levels of biological diversity are found in areas with some intervention¹⁷⁸⁰. Ways must be found of protecting the biodiversity of Eastern Kham in ways that mutually satisfies the agenda of ENGOs and the Chinese state, while respecting and protecting the interests of indigenous peoples. Cultures are not static, and western, Chinese and indigenous cultures are undergoing rapid change and it is not surprising that a divergence of views on measures for land protection exists within all three cultures.

1775 Although in the UK there are few really wild areas the lure of a 'wilderness' experience acts as a strong attraction to outdoor purists (Carver 2000).

1776 A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this chapter an area of underdeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historic interest (USG 1964).

1777 Kitossa 2000

1778 Colchester 2001

1779 Guha 1997

1780 Guha 2000

Western culture is an amalgam of cultures, largely, but not exclusively European, that has and is undergoing rapid change. This accelerated change is the product of the industrial and technological revolution. Unlike most of the cultures that it has absorbed and that had evolved over millennia of relative stability, Western culture is now a culture in transition, fuelled by the rapid increase in human population density and exploitation of largely non-renewable resources that are far removed from their consumers. It is a culture with little likelihood for adoption of timely self-imposed constraints on its manner of resource exploitation that could lead to population and cultural sustainability.

Wilderness, as a concept, is also undergoing change in Western society. In the four decades since the passage of the Wilderness Act¹⁷⁸¹ in the United States, there has been a rapid growth in wilderness visitors in areas designated as wilderness. The wilderness experience, as defined by the Wilderness Act, should provide opportunities for solitude. Now, however, the experience must be shared with an increasing number of users in most designated wilderness areas. A consequence is that the wilderness character of these areas is being lost, but it is the concept that is being eroded, whereas the land remains largely unaltered. The wilderness concept has changed during the history of Western civilization and it would be naive to assume that further evolution of the concept will not occur. However, the concept remains a Western one and the change that it is undergoing is driven by pressures increasing human population and urbanization.

Designation of 'wilderness areas' in the homelands of indigenous peoples by governments or ENGOs is an ethnocentric act that reflects ignorance of, and insensitivity to, the cultures, interests, and concerns of local peoples. Although wilderness designation may protect the fish, wildlife, and other resources that are essential to the subsistence economy, this benefit to indigenous peoples is usually incidental to the primary intent of the designation and reflects a Western cultural bias. Similar results can be achieved, without invoking or reflecting cultural dominance, through intercultural negotiation leading to land use classifications designed to maintain the productivity of the land and waters for sustained harvest of resources by indigenous peoples, while offering opportunities for visitors to experience the pristine nature that usually characterizes such environments.

1781 in 1964 (USG 1964).

It is encouraging to note such a trend in Canada¹⁷⁸² where several new parks and other protected areas in the Arctic are the product of joint negotiations and efforts of cross-cultural groups. Visitors from the south should be fully aware when visiting the Arctic that they are usually guests in the homelands of cultures other than their own. Gaining understanding of these cultures offers the potential to enhance rewards from their visit. Conversely, most Westerners, since the first arctic explorers and whalers, have entered the Arctic assuming or claiming possession of the land and resources for themselves or their own countries, without consideration for the endemic cultures and peoples of the Arctic. The recent trend by arctic countries to recognize claims of arctic peoples to lands and resources is an encouraging sign that the historical perception held by Westerners of the Arctic and its peoples is being revised.

It is only through mutual understanding and respect between cultures that there can be a marriage of interests to assure the long-term protection of natural areas. When we fail to understand people from diverse cultures and to respect their differences it inevitably leads to increasing polarization and alienation when contact between cultures occurs. Witness the opposition, referred to earlier in chapter 7 section 7.2.1, over the harvest of marine mammals by arctic peoples, and the subsequent boycott of seal skins in Western markets¹⁷⁸³.

The future offers promise for the protection of nature in indigenous homelands, but it can be accomplished with assurance of lasting benefits to all peoples only through increased mutual understanding and communication. Westerners must learn to find 'wilderness gratification' when visiting homelands of indigenous people without their specific designation as wilderness.

Policies must be designed to support protection of indigenous homelands and the sustainability and productivity of the biological systems they encompasses. But their protection should be negotiated within the terms and conditions of the indigenous people rather than by imposing cultural concepts that are alien to their cultures.

1782 Klein 1994

1783 Liu Xiaogan 2001

Place attachment values or sense of place

Specific qualities of landscape infuse a site with a sense of place for people, which are predicated on the relations, perceptions, attitudes, values, and world view that affectively bond people and place. Analysis suggests that four major components contribute to a sense of place. These emotional and spiritual bonds to the land are toponymic¹⁷⁸⁴, discursive, experiential and numinous and their loss can result in humiliation, distress, alienation and rootlessness¹⁷⁸⁵.

Although there do not appear to be semantically difficulties with sense of place there are paradigmatic difficulties. As part of modernity's self-conscious evaluation of progress 'local place' appears to have become the very essence of what modernism is not, separate, bounded and isolated. What is especially significant is the degree to which these assumptions about place and isolation have been reproduced in China's approach to ethnic groups. Ethnic groups are studied as 'living fossils' and as examples of primitivism at the peripheries of modern Han society¹⁷⁸⁶.

Many of the peoples of Eastern Kham have a strong sense of place attachment that is more evident among the old than the young. 'Place' is generally located in the 'psycho-cultural' domain, and there is evidence that some local people are enhancing their cultural identity and place attachment, in the face of domination by the Han Chinese

The recent literature on environmental psychology recognizes place attachment and "ecologies of the heart"¹⁷⁸⁷ in the following contexts:-

- Where national or group identity is bound to the environment, either specific forests or landscapes or idealized or imagined¹⁷⁸⁸ ones. Some examples include Slovenia¹⁷⁸⁹, Finland¹⁷⁹⁰ and some wilderness groups¹⁷⁹¹.

1784 related to naming places

1785 <http://www.eslarp.uiuc.edu/la/LA437-F95/reports/yards/main.html> accessed 11th November 2005.

1786 Harrell 1993

1787 Anderson 1996, Schroeder 1996a pages 13-27

1788 Gupta and Ferguson 1997

1789 Kucan 1997

1790 MOAAF 2001

1791 Manzo 2003

- As part of a post-modern turn to 'other' forest values that recognizes attachment to special places¹⁷⁹² or sense of place¹⁷⁹³ and may be linked to local wisdom¹⁷⁹⁴.
- Where peoples, their cultures or environments are threatened or their identity deterritorialized. Some examples include the peoples of North Sutherland¹⁷⁹⁵, Isle of Harris¹⁷⁹⁶ Gennargentu National Park¹⁷⁹⁷, Tibet¹⁷⁹⁸, India¹⁷⁹⁹, and some refugees¹⁸⁰⁰.
- In response to research in conservation psychology¹⁸⁰¹ addressing place attachment, sacred space¹⁸⁰² and new management philosophies that reconnect society with nature¹⁸⁰³.

In terms of this study, we are especially interested in place attachment where natural resources are threatened or expropriated and its importance in relation to sacred space.

The introduction of natural resource interventions and environmental transformation, to say nothing of land occupation, affect not only local attitudes but also levels of place identity and place attachment. This is caused because of strong "territorial" implications when interventions are imposed by "outsiders" and a perceived lack of local "control" and "discontinuity"¹⁸⁰⁴. Local people respond in a number of different ways, some will manifest negative attitudes and opposition towards the authorities, especially if there is a perceived political threat to local identity, which may lead to violence or the break down of society¹⁸⁰⁵. Others, however, are able to react, as a coping strategy, by increasing their level of identification with their own group and by increasing group cohesion and place attachment¹⁸⁰⁶.

1792 Schroeder 1996a and b, 2002

1793 Jorgensen et al 2001

1794 Feld and Basso 1996

1795 Mackenzie 2002

1796 Mackenzie 1998

1797 in Italy (Bonaiuto et al 2002).

1798 Buffetrille and Diemberger 2002, Epstein and Wenbin 1998, Huber 1999a, Karmay 1994

1799 Routledge 1993

1800 Malkki 1997

1801 Bott, Cantrill and Myers 2003

1802 Mazumdar and Mazumdar 1993

1803 Driver et al 1996

1804 Bonaiuto et al 2002 page 639, Fried 2000 page 195

1805 Camboni 1991, Turnbull 1972

1806 Brewer and Brown 1998

It is important to understand the distinction between place and location. Despite their mobility, migratory peoples often have a strong sense of place. A Tibetan nomad or Romani camp is a *place*, which is re-established in many separate *locations*¹⁸⁰⁷. The placement of Tibetan tents¹⁸⁰⁸ in a *yul*¹⁸⁰⁹ or Romani caravans¹⁸¹⁰ in an *atchin tan*¹⁸¹¹ can create a sense of constant place-orientation at multiple locations. It would appear that 'place-bonding'¹⁸¹² emerges primarily from an interaction of cultural and natural setting and may function 'transpatially'¹⁸¹³ with loyalty to types of place or 'place congruity'¹⁸¹⁴. This may prove important to planners and environmental managers, because it raises the possibility of consciously building upon and strengthening a community's sense of place identity, even in the face of mobility¹⁸¹⁵.

Although place attachment and 'ecologies of the heart' do not appear to be recognized in forestry policy in China they are beginning to gain currency in occidental natural resource management and policy¹⁸¹⁶. It would appear¹⁸¹⁷ that scientific and spiritual concepts could intersect in empirical research on place-based meanings justifying their use in environmental policies. Researchers¹⁸¹⁸ studying place attachment and a) sacred space, b) leisure, c) cognition and management, d) spirit and e) special places determined that emotional connectedness to place is forged through the creation of sacred settings, and provided insight into new management philosophies that recognize spiritual values. They assert that these dimensions of the person have become so important that they can no longer be overlooked; indeed, the

1807 Langer 1953

1808 Manderscheid 2000

1809 Usually 3 or 4 tents are grouped together in a *yul*. Members of a *yul* are extended families, friends, or the remnants of brigades from the era of collectivization. The tents are located 500-1000 m apart. This allows communication between the households by shouting and permits enough space for animals to spend the night near each tent. "Most encampments have three or four tents but a camp may have from one to fifteen. Pasturage prohibits larger numbers for any period of time, although hundreds will be pitched in a valley at the short festival seasons" (Duncan 1964 page 217).

1810 वर्दो *vardo* is Romani (Sanskrit) for wagon or caravan <http://sca.lib.liv.ac.uk/collections/gypsy/wagons.htm> accessed 15th August 2005.

1811 अत्चिन तन *atchin tan* is Romani (Sanskrit) for camping place <http://larp.com/jahavra/language.html> accessed 16th August 2005.

1812 Proshansky 1978 Proshansky et al 1983

1813 Feldman 1990

1814 Hull 1992

1815 Norton and Hannon 1999

1816 Norton and Hannon 1997, Schroeder 1996b, Williams and Stewart 1998

1817 Bott, Cantrill and Myers 2003

1818 Driver et al.1996, Mazumdar and Mazumdar 1993

convergence of disciplines in the study of place typically recognizes the societal need to reconnect with nature

There is recognition that the inclusion of place attachment in forestry or natural resource policies represents an about-face and it will take time in order to educate and to re-work laws and institutions and build local responsibility. This, however appears to be the only route toward a democratically supportable approach¹⁸¹⁹ to sustainable use of resources that is predicated on the needs of people who live most intimately with place and natural resources.

Recreation

Recreational values address pleasure, leisure or cultural activities that occur in, or near, or because of forests. Typically, they include wildlife viewing, hunting, angling, camping, forest travel and experience, adventure recreation and cultural activities and festivals.

Although there were no semantic difficulties with the word recreation there were some paradigmatic ones in that recreation as used in the West, for its own sake, has little place among the peoples of Kham. There is recognition however that there are recreational elements in livelihood, cultural and religious activities.

Recreation is recognized at Lugu Lake (See section 6.5.3) where it represented 3.5 % of total economic value and ranked 7th out of 13 forest values for Mosuo women who mentioned a religio-cultural festival when they danced in the forest.

China has ambitious plans for forest parks and tourism and a major "Shangi-la ecological tourist zone" in Eastern Kham. These plans present major challenges, which were discussed in chapter 7 section 7.6.1, and every effort must be made to meet the challenges. Culturally and economically sustainable recreational and tourism development must fit the local society and make cultural sense. The ethnic people themselves must own the process of local recreational

1819 Norton and Hannon 1999

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and tourism development, and the state, in turn, may benefit from cultural diversity in both a socio-cultural and an economic sense¹⁸²⁰.

10.2.2 Human Dimension : Socio-economic Domain

Commercial values

Commercial forest values refers to major forest products that are bought or sold and are often the only values considered by economists.

There is some confusion in the literature where economic values are equated with commercial values. Economic value can refer to forest products that are gathered from the forest but do not enter the market economy and are not bought or sold.

Interestingly among those surveyed at Lugu Lake commercial value¹⁸²¹ only represented 6% of 'Total Economic Value'¹⁸²² and these findings resonate with a study in Alaska¹⁸²³ where commercial value also ranked 8th out of 13 forest values.

Forestry investment and Cost-Benefit analysis has traditionally been based on a very limited view of the commercial value of forests. Until recently, forests were seen as only having economic importance in so far as they could support commercial timber or wood extraction. Calculations of the contribution of forest goods and services to household-level production, project profitability, sectoral output or national economic indicators were based primarily on this. Perhaps unsurprisingly, economic policy instruments and analysis of forest management options showed a clear tendency to favour commercial extraction, clearance for agriculture or modification for other seemingly profitable 'development' options. There seemed to be few economic benefits to be gained from forest conservation or sustainable management, and few economic costs associated with forest degradation and loss. Yet forests typically yield economic benefits far in excess of commercial timber and wood products: they also provide

1820 Swain 1989

1821 Often the only value recognized by economists.

1822 The sum of use and non-use values with due consideration of any trade-offs or mutually exclusive uses or functions of the resource/habitat in question. Source: Global Biodiversity Assessment GBA.

http://europa.eu.int/comm/research/biosociety/library/glossarylist_en.cfm?Init=T accessed 15th Jul 205

1823 Brown and Reed 2000

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subsistence goods and environmental services, which often yield far higher economic values. Traditionally, economists have found these non-market benefits very hard to value or to express in monetary terms. As a result, they have tended to be omitted from decision-making. However, as economic valuation techniques have advanced and as human needs and demands from forests have changed, so there has been an increasing recognition of the importance of such values, to commercial profits and trade, to national-level economic welfare, and to household production and consumption. At the same time it has become clear that there is a need to be able to express these wider forest values in quantitative economic terms if the full range of social, economic and environmental trade-offs implied by alternative forest land use and management options are to be accurately compared. Slowly, this definition of forest economic value has changed.

The concept of total economic value (TEV) was introduced a decade or so ago¹⁸²⁴, and has now become one of the most widely used frameworks for identifying and categorizing forest benefits. Instead of focusing only on direct commercial values, total economic value also encompasses the subsistence and non-market values, ecological functions and non-use benefits associated with forests. Looking at the total economic value of a forest essentially involves considering its full range of characteristics as an integrated system, its resource stocks or assets, flows of environmental services, and the attributes of the ecosystem as a whole. In spite of this approach many TEV frameworks exclude intrinsic value and the few exceptions¹⁸²⁵ include it as a non use value.

In spite of the considerable moves forward that have been made in valuing forest benefits, there has been little progress in applying the results of these valuation studies to policy, planning and management. In far too many cases, forest valuation remains a purely academic exercise. Yet, however high the value of forest environmental benefits is demonstrated to be in theory, this has little meaning unless it actually translates into real returns, rewards and profits for the groups who are responsible for sustainable forest management. A very valid critique of environmental valuation, as it has been practised to date, is that it has simply done too little,

1824 Pearce 1990

1825 <http://www.deh.gov.au/pcepd/economics/estimating/estim2.html> accessed 18th October 2005

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and may soon be too late, to halt the destruction and degradation of forest ecosystems. It is clear that overcoming information gaps about the value of forest ecosystems is only a first step in a much longer process. Because, so far, economists have largely failed to rise to this larger challenge, there is a risk that all of the valiant efforts to quantify forest values will prove to be futile. Forest valuation, in the future, will need to drastically change its scope and aspirations, it has to become a discipline that moves beyond merely aiming to stimulate academic debate and provide heroic arguments for the importance of fast-disappearing forest ecosystems.

Ultimately, unless the results of valuation are geared towards changing the economic trade-offs that are involved in sustainable forest management in the real world and capturing forest benefits as real values for the people who influence forest status, there is a real danger that, as we struggle to value forests more accurately and more comprehensively, the subject of this valuation, and the source of much of the world's economic life, will disappear altogether¹⁸²⁶.

Industrial forestation

Industrial forestry values address the growing of commercial tree species primarily to supply industry. There may also be social, ecological or environmental considerations but these tend to be secondary.

There are no semantic difficulties over industrial forestry but there can paradigmatic difficulties over the interpretation of secondary considerations.

Among the peoples of Eastern Kham, 'industrial forestry' is located in the 'socio-economic' domain and identified closely with 'socialism'. It is not close to 'conservation' or to 'blessing', 'yul-lha' or 'Tibetan Buddhism'.

Globally approximately 4.5 million hectares of new industrial forestry plantations are being established each year and China is a key player¹⁸²⁷ in terms of tropical, subtropical and

¹⁸²⁶ Emerton 2003

¹⁸²⁷ Other players are Brazil, Indonesia, South Africa, Thailand, Vietnam, Malaysia, Venezuela, Swaziland, Chile, Portugal, Spain, Argentina, Uruguay, and Australia.

temperate plantations. It plans to plant 13.33 million hectares of plantations between 2001 and 2015 which in common with many other 'fast wood' or 'fast fiber' programs is heavily subsidized¹⁸²⁸.

The majority of such plantations globally are evidently controversial socially, economically, ecologically and environmentally. Recently a new report¹⁸²⁹ on "fast-wood" attempts to sort out fact from fiction. It challenges the claim that fast wood plantations, by providing timber and pulpwood, take pressure off natural forests. Furthermore, the study reveals that the establishment of fast wood plantations to supply the world's increasing demand for paper and pulpwood products is often supported by significant incentives and subsidies, which create economic distortions, such as making plantations viable in situations where other land use might make better economic and environmental sense. However, it also shows that, even though in some countries fast wood plantations are being established at the expense of natural forests, they do not always destroy native forests and can contribute to biodiversity conservation, especially when they are established on already degraded land.

A social audit of fast wood plantations suggests they often bring far fewer benefits in terms of employment or social benefit than is generally claimed by companies within the industry. In many parts of the 'majority world', plantations have actually sparked off serious conflicts with local people, especially where they have deprived people of the land, such as grazing land referred to in section 1.5 and 7.6.3 on which their livelihoods were based¹⁸³⁰. Part of the rationale for promoting industrial timber production is that the sector contributes to poverty alleviation¹⁸³¹, but this rationale needs to be challenged. A 1991 Oxfam report concluded that opening up Africa's forests to exploitation would "*cause an increase in poverty rather than its resolution*", whilst a 1990 report for the European Community stated that "*forestry development and deforestation generally go hand in hand with the redistribution of wealth from the poorest to a national elite and foreign companies and widen the gap between the*

1828 AFPA 2004

1829 Cossalter and Pye-Smith 2003 page 1

1830 Cossalter and Pye-Smith 2003

1831 Forest Monitor 2001

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rich and the poor in tropical countries"¹⁸³². In February 2000, a workshop organised by the Department for International Development (DFID) found that industrial timber production in Cameroon tended to benefit a small minority of often-foreign investors, and its contribution to poverty alleviation was minimal¹⁸³³. The workshop made a series of recommendations which would need to be implemented before local development could be equitably achieved including: greater transparency in the use of the income generated by forest resources; equity in the redistribution of income; institutional decentralisation; and creating favourable conditions for local people to help alleviate poverty themselves. Timber is a valuable commodity, fetching high prices on international markets. In 2004, the EU-25 group of countries imported from outside the EU 63.2 million m³ of primary wood products (including logs, sawn lumber, veneer and plywood) with a total value of 9 billion euros. Of these, 4.67 million m³ (7%) with a value of 1.97 billion euros (22%) comprised tropical species. Of tropical species imported in 2004, 2.74 million m³ (59%) with a value of 1.1 billion euro (56%) derived from 5¹⁸³⁴ Central African countries¹⁸³⁵. Yet the producing countries struggle to provide even basic services to the majority of their populations. Although specific social development projects may be outlined in the logging agreement between the government and companies, these projects are sometimes undertaken in lieu of tax payments or under contract to the government and thus are undertaken at the government's, not the company's, expense. Logging companies have not always met their formal or informal agreements with regard to social provision¹⁸³⁶. In some instances, taxes have been paid by companies for local infrastructure developments which have not materialised or which are so poorly equipped or staffed that they are unable to provide basic services¹⁸³⁷. Local communities themselves see just a tiny fraction, if any, of the money generated by the international trade in timber. Some employment opportunities arise but not necessarily for people living locally and employment is often short-term and remuneration is generally low. Facilities for the workforce are often provided but the quality of provision can be very poor and other people have varying rights of access to these facilities. On the other hand, the arrival of large-scale forestry operations

1832 Cited in Witte 1992 pages 59 and 62

1833 Hakizumwami and Milol eds. 2000

1834 Cameroon, Gabon, Ivory Coast, Congo-Brazzaville and Ghana.

1835 Oliver et al undated

1836 Brown and Ekoko 2001

1837 Brown and Ekoko 2001

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disrupts the existing local livelihood base and access to forest resources. NTFPs become scarce, resulting in a direct loss of income for many local peoples; women and the elderly are particularly badly affected, as they are often the ones to collect and trade in NTFPs, providing valuable food and cash for families. The changing roles and relationships which develop within and between communities generates conflict and often results in the marginalisation of certain communities, and community members, such as women and the elderly. Some of the most valuable trees in terms of timber have been highly valued locally for their many uses. The over-exploitation of these species can seriously disrupt local livelihoods and lead to a net loss of cash income for many¹⁸³⁸.

Environmentalists have sometimes exaggerated the malign impact of fast-wood plantations, but there is no doubt that fast-wood plantations have caused environmental and social problems in some situations. Supporters of the industry often underestimate the damage done by fast-wood forestry, but this is not to say that fast-wood forestry has no benefits. The truth is that in some situations fast-wood forestry is undesirable in other situations it can yield benefits not just for the economy, but also for the environment and local communities¹⁸³⁹. When economic assessments are made of future projects, greater emphasis should be given to the environmental and social costs of fast-wood forestry. If this were to happen, then the most damaging schemes would never get off the drawing board¹⁸⁴⁰.

There are cases where fast-wood plantations have replaced habitats rich in biodiversity, although the claim made by some environmental groups that plantation companies deliberately target natural forests is exaggerated. Biodiversity is under threat from a whole range of activities, and there should be a prohibition against the conversion of species-rich forests into any form of monoculture, including fast-wood plantations. In certain situations, plantations may help to enrich biodiversity. This may be the case when they are established on derelict or abandoned agricultural land. Many foresters claim that industrial plantations take pressure off natural forests and worryingly, the World Bank continues to adhere to the flawed

1838 Brown and Ekoko 2001

1839 Cossalter and Pye-Smith 2003

1840 Cossalter and Pye-Smith 2003

assumption¹⁸⁴¹ that industrial plantations "*assist in redressing biodiversity losses in natural forests*". These claims is highly tendentious¹⁸⁴², with the possible exception of New Zealand¹⁸⁴³ and Sri Lanka, there is little evidence to suggest that fast-wood plantations have taken pressure off natural forests elsewhere¹⁸⁴⁴.

It is becoming increasingly clear that fast-wood forestry is set to become one of the most significant forms, if not the most significant form, of industrial forestry development over the coming decades, especially in the tropics and subtropics. Fast-wood forestry is neither inherently good nor inherently bad. It is a neutral technology which, when poorly planned and executed, can cause grave problems; and which, when well planned and executed, can deliver not just large quantities of wood, but a range of environment and social benefits¹⁸⁴⁵.

Socialism

Socialist values primarily address economic systems based on cooperation rather than competition and utilize centralized planning and distribution.

The peoples of Kham generally locate 'socialism' in the 'socio-economic' domain and it is quite distant from the 'psycho-cultural', 'environmental and subsistence services', and 'bio-physical' domain. Due to its distance from the 'psycho-cultural' domain it lacks a moral basis for conservation or a platform for advocacy.

In fact, very few trajectories of socialism offer any moral basis for conservation, with the possible exception of 'Dhammic socialism', referred to in section 7.2 and 7.7, which morally draws on religion, or ecosocialism¹⁸⁴⁶. Ecosocialists believe that democratic socialism is a necessary condition for ecological protection, though not a sufficient one. They point to the ecological successes of democratic socialist governments of Northern Europe, where workers' parties and unions were powerful enough to establish policies opposed by corporations.

1841 IUCN and WWF 2000 page 10

1842 having or marked by a strong tendency especially a controversial one
<http://www.wordreference.com/definition/tendentious> accessed 10th Aug 2005.

1843 NZFIC 1999

1844 Cossalter and Pye-Smith 2003

1845 Cossalter and Pye-Smith 2003

1846 Eckersley 1992

Ecosocialists contrast these socialist successes to the disasters of Communism, which completely forbade opposition to the bureaucrats' industrial plans, and to the marginal successes of democratic capitalism, which allowed democratic opposition to the industrial system, but limited the permissible interference with the prerogatives of capital. However, ecosocialism has self-consciously declined to step across the anthropocentric divide and embrace an ecocentric perspective. Instead, most ecosocialists have rejected the need for a "new ecological paradigm"¹⁸⁴⁷ and have argued that socialist thought provides a sufficient repository of values for ecological and social reconstruction.

Hunting for foreign exchange

Hunting values are predicated primarily on recreation activities or livelihood strategies and include such concepts as the fair chase, eco-spiritual reciprocity and blessing.

There are few semantic differences but a number of paradigmatic ones. For indigenous people hunting is part of a livelihood strategy and has both cultural and religious elements. For westerners hunting is usually a recreational and cultural activity and may have spiritual elements. For the biocentric environmentalist all hunting, whatever its objective, is imagined as a barbaric practice

Some honest respondents in Eastern Kham in common with most "pre-modern"¹⁸⁴⁸ peoples appear to actively exploit the natural environment, in spite of their beliefs, and this appears to include hunting¹⁸⁴⁹. They are not only conscious of the constant scrutiny of territorial divinities (*yul-lha*) when they go hunting¹⁸⁵⁰, but engage in folk-religious rituals and place demands on their gods for protection, and success in hunting.

The Buddhist creed, developed in a grain-harvesting, fruit-gathering culture by those who wore cotton, has little place for the killing of animals for clothing or food. Tibetans however need meat, yak hair and sheepskins to survive. The literature is unclear if this calculated

¹⁸⁴⁷ Catton and Dunlap 1980 page 15

¹⁸⁴⁸ Gibson 1997

¹⁸⁴⁹ Huber 1991

¹⁸⁵⁰ Nomads go hunting more frequently than other Tibetans.

taking of life represents a contradiction and any "flow of psychic participation" as a result of guilt eludes definition¹⁸⁵¹. Although Buddhist prescriptions offer only limited protection for wildlife, they do result in 'safe havens' where wildlife is protected and this protection may be far more effective than national or international law. Within both Tibetan Buddhism and animism/shamanism¹⁸⁵² there are sacred landscapes and animals dedicated to local Buddhist or territorial divinities that ensure protection¹⁸⁵³. It would appear that within the fixed boundaries of the god's domain most Tibetans respect the prohibitions, but outside they hunt and cultivate. For the biocentric environmentalist, however, all hunting is imagined as a barbaric practice and they essentialize all who hunt as being the same and reconstruct a one-world culture of killing which erases any differences between subsistence, religion, commerce and sport¹⁸⁵⁴. The Chinese government are planning to introduce controlled hunting¹⁸⁵⁵ in parts of the Eastern Kham region, mostly for foreign exchange and one aim of this study is to ascertain the potential impact of hunting in terms of local perception. It would appear that there might be some conditions under which the local people might allow hunting, providing the government discuss in detail aspects such as species, locations, times and eco-spiritual propitiation¹⁸⁵⁶.

10.2.3 Natural Dimension : Environmental and Subsistence Domain

Life support

Life support refers to the role of the forest in terms of environmental and hydrological protection.

It was initially assumed that the role of forests in life support was independent of human agency but it became clear that from the perspective of those surveyed they see every living and non-living thing in the world as being interrelated and interdependent and they typically

1851 Crook and Osmaston 1994, Ekvall 1968 page 82

1852 According to Blondeau (personal communication 2003 weblog) the term shaman is not fitting in the Tibetan context, even although many anthropologists employ it.

1853 Bleisch and Wong 1990, Huber 1991, Karma 2001

1854 Kitossa 2000

1855 *Pseudois nayaur* is Latin for blue sheep and གཤམ་གཤམ་ *gna ba* is Tibetan and *Cervus albirostris* is Latin for white lipped deer and ཤམ་ཤམ་ *sha* [wa-zur] *damar* is Tibetan..

1856 For personal karma and to appease local divinities.

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embed nature in society. This view is in stark contrast to the Lockean view of nature found in the western world.

Increasing numbers of indigenous people, in common with respondents from Eastern Kham, appear to recognize some sort of link¹⁸⁵⁷ between deforestation, erosion and climate change but expert opinion¹⁸⁵⁸, seemingly based on "degenerate science"¹⁸⁵⁹ has dismissed links with deforestation and flooding as "folklore"¹⁸⁶⁰. While the author recognizes that many factors¹⁸⁶¹ cause flooding on the basis of indigenous cosmology, epistemology and psychology there is a strongly held belief that deforestation has not only resulted in flooding, but impinged on biodiversity and local well-being¹⁸⁶². We have referred to Chipko in chapters 1, 3, 5 and 7 but for them the 1970 flood in the Alakananda valley¹⁸⁶³, the most devastating in living memory, marked a perceptual turning-point when "folk sense was the only body that surveyed the grim scene and drew conclusions. The causal relationship between increasing erosivity and floods on the one hand and mass scale felling of trees on the other, was recognized"¹⁸⁶⁴. As I write this news has just come in via RSS¹⁸⁶⁵ of 1200 tourists trapped by floods and mud slides in the Hailuoguo Glacier Park in Eastern Kham caused by torrential rain "compounded by deforestation"¹⁸⁶⁶. Although the Chinese have been aware of links between deforestation and floods since the early 1980s it took the floods of 1998 to cause a major response, which resulted in a logging ban and a billion pound reforestation programme. According to Zhuang Guotai¹⁸⁶⁷ of the State Environmental Protection Agency for every 70,000 hectares of forest cut down, storage for a million cubic metres of water is lost. Concerns have also been

1857 <http://www.umich.edu/~gs265/society/deforestation.htm> accessed 12th august 2005

<http://www.globalissues.org/EnvIssues/GlobalWarming/Forests.asp> accessed 12th august 2005

1858 Chomitz and Kumari 1996, Calder 1999

1859 Back 2003 page 1

1860 Pearce 1999 <http://www.guardian.co.uk/online/story/0,,305625,00.html> accessed 12th August 2005

1861 Ives and Messerli 1989

1862 Studley 1999a

1863 <http://www.multimap.com/map/browse.cgi?lat=30.3417&lon=78.5318&scale=2000000> accessed 12th August 2005

1864 Guha 2000 page 156

1865 RSS is an acronym for Really Simple Syndication or Rich Site Summary, an XML format for distributing news headlines on the Web, also known as syndication. <http://www.newsmonster.org/glossary.html> accessed 10th August 2005.

1866 http://www.redorbit.com/news/international/205597/china_mudslide_traps_1200_tourists_in_valley/ accessed 13th August 2005

1867 Pearce 1999

Chapter 10 Forest Values in the Wider Context expressed in the literature¹⁸⁶⁸ and in chapter 8 section 8.1.6 and 8.1.7 about deforestation in the region and its impact on climate change and the 'southern jet streams', although these were not referred to by any of the respondents in any survey.

Forest products

Forest products address all the goods and services provided by the forest other than those made available for large-scale commercial exploitation.

The only confusion with this value is caused because some forest products (like firewood, mushrooms and medicinal plants) are gathered for the subsistence and market economy.

'Forest products' play an important role in the livelihood strategies of the peoples of Eastern Kham as well as the commoners¹⁸⁶⁹ of the New Forest. Their importance was especially recognized in Dengko and Bengda where they ranked higher than any other value and at Lugu Lake (See section 6.5.3) where they ranked 3rd out of 13 values.

Forest products are crucial in the subsistence economies of many indigenous peoples. Their value has until very recently¹⁸⁷⁰ been either ignored by economists and developers or included under the aegis of "culturally perceived poverty", and therefore a pretext for economic development¹⁸⁷¹. This is in spite of the fact that 80 percent of the population of the 'majority world' depend on forest products for their primary health and nutritional needs. Several million tribal people all over the world depend on these products for meeting their subsistence consumption and income needs and in many countries 'minor forest products' are a major export.

1868 Reiter 1981

1869 about 450 families http://www.nationalparks.gov.uk/index/nf_core/nf_living.htm accessed 1st November 2005.

1870 Emerton 1997

1871 Shiva 1989 page 10

One of the fundamental roles of forest policy, in relation to commercial and subsistence forestry, has been, and must be, to adjudicate between them in particular circumstances¹⁸⁷². Conflicts in this arena, and their resolution, are strongly indicative of the ways in which particular countries regard their rural populace and the emphasis they place upon tree cover. Arguments as to whether a finite forest resource should be used mainly for the benefit of rural people living nearby, or mainly for commercial purposes, of course only arise when forest cover has become too low to satisfy both ends.

Even in Indonesia, for example, where forest cover is still many times that of most other countries, and where it is still possible to allocate land for permanent production forestry, the government is still being advised to avoid new large-scale forest industries¹⁸⁷³. Once local areas of forest do begin to be in short supply, the priority, from both the moral and the practical point of view, must be to satisfy subsistence biomass needs. Morally, because rural people's subsistence needs are in general a great deal more modest than those of town dwellers and practically because those struggling to live will, if need be, go to any lengths to do so. The poor are stuck where they are in most cases, while industries on the other hand are constantly substituting one resource for another, one area for another. In India, however, industry has been helped most and the subsistence user least. The costly task of reforesting degraded land, which ought to have been that of the industrial sector, was dealt to villagers with immediate biomass needs, while industry was not only given access to standing productive forest, but in many cases given enormous subsidies as well¹⁸⁷⁴. An argument adduced at times for restricting subsistence use of forests suggests that indigenous people use forests 'badly' and must be restrained so that it can be protected. 'Badly' is of course a value-laden term and there is plenty of evidence that subsistence and commercial use may be good or bad dependent upon context. Often, the charge that the forest is being used badly comes from those whose desire for commercial use is frustrated by subsistence practices which compete with it. A just forest policy must face up to rural needs, and the short time horizons of the poor rather than concerning itself too narrowly only with commercial production. Instead, only too often we see a move away from a "nature that has traditionally come to support household and

1872 Shepherd 1986

1873 Evans 1986 page 23-25

1874 Kulkarni 1983 page 98, Shiva and Bandyopadhyay 1986 page 84

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community needs", and towards "a nature that is geared to meet urban and industrial needs, a nature that is essentially cash-generating"¹⁸⁷⁵. When the forest can no longer satisfy all claims upon it, all would-be users have to plant a proportion of the trees they need, or go elsewhere. Scanty tree-cover ought to bring in the governmental body charged with environmental concerns, and in many cases commercial activities should be much curtailed or should cease. Very often, though, political pressures will produce a judgement which grants commerce continued use and attempts (necessarily unsuccessfully) to ban subsistence users.

The more courageous path, however, is to embark upon tree-planting programmes with the two categories of growers who have consistently proved most successful, namely individual farmers and commercial concerns. Neither state plantations nor community woodlots are as efficient in this respect¹⁸⁷⁶. Commercial concerns can afford to wait for trees to grow. It is villagers who may need incentives such as cash, food-for-work, or stronger land-rights to offset the handicaps of finite availability of family labour, the slow growth of trees and the space they take up on small agricultural plots. In all these situations, if subsistence needs can be taken as seriously as commercial activities by those who formulate and implement forest policy, many environmental problems become more tractable.

In the last three sections, we have addressed forest values in a cross-cultural context and identified paradigmatic, semantic, epistemological and psychological difficulties that can seemingly be overcome with synergistic bridging. These difficulties appear to be exacerbated locally and globally by a lack of commitment to or understanding of gender and ethnicity mainstreaming in forest planning which will be discussed in the next sections.

1875 Agarwal 1984 page 10-11

1876 Joshi 1983 page 39

10.2.4 Forest Values by Ethno-linguistic Group

It would appear that genetic patterns share some similarities with culture and linguistics because the mechanisms for transmission are, in part, similar¹⁸⁷⁷. It is not uncommon for sharp genetic change to coincide with linguistic boundaries. Sharp boundaries can be due to mating barriers, topography, cultural and past migration including intrusion and abutment¹⁸⁷⁸

The Khamba Tibetans seemingly originate from 2 gene pools¹⁸⁷⁹, a Central Asian pool characterised by YAP+¹⁸⁸⁰ chromosomes and an East Asian pool characterised by the M122C¹⁸⁸¹ haplotypes¹⁸⁸². It is believed that the forebears of the Tibetans from East Asia migrated north, in prehistoric times (See Map 10-1), to the Yellow River and passed about 124 km¹⁸⁸³ to the east of the research area. Later Baric¹⁸⁸⁴ peoples and Tibetans, with the YAP+ chromosomes, moved south to the Himalaya and North Yunnan¹⁸⁸⁵ passing through central Kham and close to the Yangtze River¹⁸⁸⁶.

There is some evidence¹⁸⁸⁷ that the Qiang people belong to the same bloodline as the ancient Xia¹⁸⁸⁸ Chinese, from Henan Province¹⁸⁸⁹, and that their molecular sequences¹⁸⁹⁰ are geographically discordant with the Tibetans¹⁸⁹¹.

1877 Cavilli-Sforza 1994

1878 Barbujani and Sokal 1990, Falsetti and Sokal 1993

1879 Qian et al 2001

1880 YAP is short for Y Alu Polymorphism, and Alu is a contraction of *Arthrobacter luteus*. It describes a category of mutations found on the Y chromosome.

1881 a specific dominant Y haplotype.

1882 The genetic constitution of individuals with respect to one member of a pair of genes; sets of single alleles or closely linked genes that tend to be inherited together, such as those of the major histocompatibility complex; portions of phenotypes determined by genes located on one of a pair of chromosomes

<http://www.bloodbook.com/glossary.html#H> accessed 5th Aug 2005.

1883 GIS measurement.

1884 Baric, consists of a number of languages spoken in Assam and falls into a Bodo branch (not to be confused with Bodic-Tibetic, and Bodish, a subdivision of Tibetic) and a Garo branch.

1885 The Pumi and Naxi populations of N Yunnan also have a high YAP+ frequency.

1886 Bing Su et al 2000, Metspalu et al 2004, Shi Hong et al 2003, Torroni et al 1994, Zhili Yang et al 2005

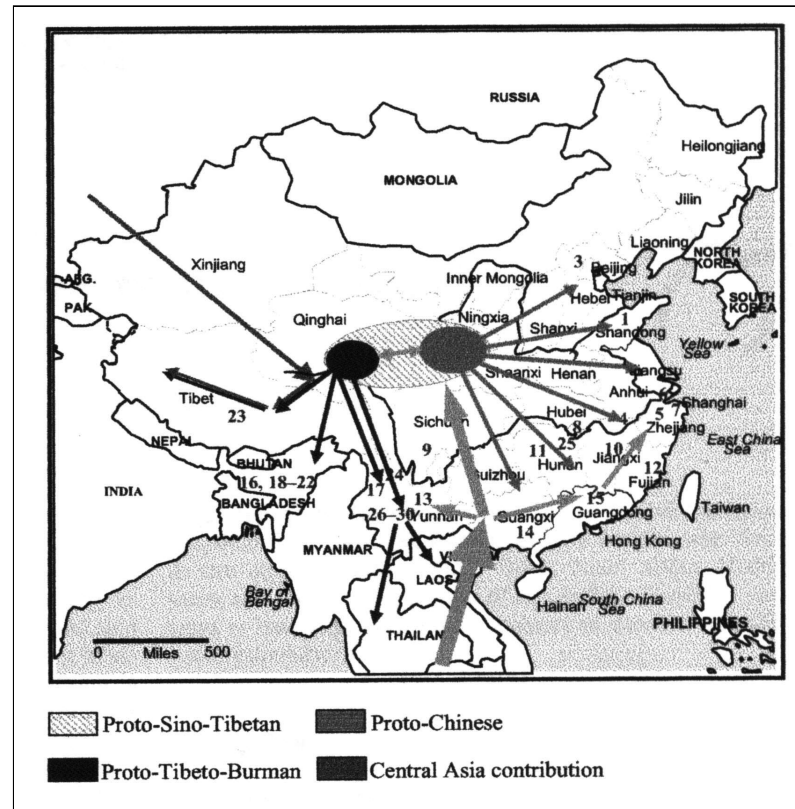
1887 Ah Xiang 1998-2003

1888 夏 *xia* 21st -16th century BC <http://www.mnsu.edu/emuseum/prehistory/china/images/xiamap.gif> accessed 12th August 2005.

1889 <http://www-chaos.umd.edu/history/ancient1.html> accessed 28th July 2005

1890 Bailey et al 2004

1891 See Figure 8-1 for a genetic profile of the Khamba Tibetans and the Henan Han.

Map 10-1 of migration routes of Sino-Tibetan populations (Bing Su et al 2000)

There are dangers, however of assuming that there is always a correlation between genetic and linguistic affiliation. It mostly occurs after large-scale demic diffusions¹⁸⁹² followed by relative sedentism. This appears to be the case with Tibetan and the other Sino-Tibetan and Altaic proto-languages, where there is a significant correlation¹⁸⁹³ between linguistics, genetics¹⁸⁹⁴, and geographical distance¹⁸⁹⁵.

Although the importance of ethnicity has been identified in this study in section 8.2.5 and 9.3.3, the perceptual differences between ethnic groups, in section 8.2.4 and 8.2.5 and their respective 'epistemologies of nature' in section 8.2.7 its erosion is one of the least discussed consequences of modernization and globalization¹⁸⁹⁶. There should be concern because it is

1892 An archaeological term that refers to population diffusion into and across an area previously uninhabited by that group, possibly displacing, replacing, or intermixing with a pre-existing population (e.g. as has been suggested for the spread of agriculture across Neolithic Europe, and what occurred with the European colonization of the Americas). http://en.wikipedia.org/wiki/Demic_diffusion accessed 1st July 2005.

1893 Nettle and Harriss 2003

1894 $r^2 = 0.36$ $df = 135$ $p < 0.001$

1895 $r^2 = 0.30$ $df = 135$ $p < 0.001$

1896 Shiva 1993

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linked to social cohesion and value systems that facilitate effective management of natural resources. Moreover, there is a strong correlation between ethnic diversity and the conservation of biodiversity. Although the UN¹⁸⁹⁷, the World Bank and ADB¹⁸⁹⁸ began to consider ethnicity issues and cultural protection in the 1980s development agencies have only mouthed rhetorical support but have continued to privilege conservation of biological resources over the preservation of ethnic cultures¹⁸⁹⁹. As of 2003, only 8 multilateral/ bilateral agencies out of 27 had a policy on indigenous people or ethnic minorities, 10 had operational guidance and only 3 had formal accountability mechanisms¹⁹⁰⁰. Although DFID¹⁹⁰¹ is involved in projects that include ethnic groups, and encourages 'ethnicity mainstreaming' in some of its projects it was unable to provide me¹⁹⁰² with a definition of 'ethnicity', or 'mainstreaming' and its guidelines¹⁹⁰³ are obviously out of date, "out of step with international policies"¹⁹⁰⁴ and "only aspirational"¹⁹⁰⁵.

Many governments and development agencies, remain uncomfortable with ethnic diversity because it a contested domain that challenges the homogenisation of 'national culture' and economics. This has presented dilemmas for development agencies. Asian Development Bank (ADB), for example insisted its programmes in Viet Nam should target ethnic groups on the basis of vernacular identification but in China they accepted official identification although this appears to be at odds with their policy of preventing assimilation and protecting cultures¹⁹⁰⁶

Since 1996 the World Bank has attempted to include indigenous people in its poverty reduction strategy¹⁹⁰⁷ under the rubric of "ethnodevelopment"¹⁹⁰⁸. Critics argue that this approach causes divisions in national and local indigenous movements it fails to address the

1897 United Nations (UN).

1898 Asian Development Bank (ADB).

1899 Blench 2001

1900 Griffiths 2003

1901 Department for international development (DFID).

1902 Anon personal communication 21/7/04

1903 Overseas Development Administration (ODA) 1995a

1904 Griffiths 2003 page 99

1905 Griffiths personal communication 23/7/04

1906 ADB 2003

1907 Partridge et al 1996

1908 Griffiths 2003 page 41

underlying structural causes of indigenous poverty and so far has not been very effective in addressing the policy and practical problems that undermine indigenous land and resource security¹⁹⁰⁹. In spite of these failings and largely because of pressure from indigenous groups best practices are beginning to emerge. Development standards on indigenous peoples are evolving in a number of specific development sectors¹⁹¹⁰. The World Commission on Dams (WCD)¹⁹¹¹ has developed progressive best practice guidelines for infrastructure projects which incorporate a *rights* and *risks* approach that has been widely praised by indigenous peoples as well as environmental, human rights and development NGOs. Although the World Bank has mouthed the rhetoric of ethnodevelopment, it appears to have failed to adopt the praxis. Best practices in ethnodevelopment are premised on racial & knowledge equity, ethnic inclusion, synergy between knowledge systems and the deconstruction of outmoded views of ethnic mountain peoples only as the problem.

Conceptually ethnodevelopment refers to the participation of indigenous groups in the formation and implementation of development projects in accordance with their own needs and aspirations. Such projects are designed by rather than for the people concerned, which implies the revaluation of their own culture as the basis upon which future development is to be constructed. Ethnodevelopment is thus opposed to ethnocidal development projects imposed upon local communities by dominant national elites¹⁹¹².

The author suggested¹⁹¹³ in a DFID funded project in Yunnan that where ethnic traditions exist rather than introducing alien paradigms of Natural Resource management, conservation and jurisprudence ethnicity strategy should be predicated on

- Indigenous ethnic knowledge and customary resource management
- Shamanic roles in environmental education and mediation
- The reconfiguration of nature reserves and community forests based on indigenous ethnic categories of sacred and non-sacred, 'buffer' and 'experimental'.

1909 Assies et al 2001, Macas 2001

1910 Halifax Initiative 2002, Wenban-Smith 2001

1911 WCD 2000

1912 Seymour-Smith 1986

1913 Studley 2004g

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- Ethnic mechanisms for maintaining relational topocosmic harmony (rather than alien rules based on jurisprudence)
- The cultural strengthening of ethnic specialists where they are becoming extinct
- Community Plantations based on best ethnoforestry practice where land is available
- Discussion with ethnic groups what mediation is required for a specific intervention to take place, especially if it violates sacred space/landscape¹⁹¹⁴
- Methods of accounting that address forest-related values by ethnic group
- Natural Resource management training embedded within existing traditions and local institutions rather than alien 'scientific' management models. This will be cheaper and there is less danger of alienation people from historic traditions and lifestyle¹⁹¹⁵.

Having recognized in this section the importance of forest values to ethnic people we cannot fail to recognize the importance of gendered knowledge and lineage which is especially important in matrilineal societies such as those studied.

10.2.5 Forest Values by Gender

Although there is little evidence on the basis of MDS of major difference in how men and women are perceived, or differences in environmental sensitivity or of gender stereotyping there are evidently gender differences on the basis of contingent ranking of forest values¹⁹¹⁶ and in terms of forest relations, productive and reproductive roles¹⁹¹⁷, access and control over resources, knowledge bases¹⁹¹⁸ and decision-making¹⁹¹⁹.

In matrilineal societies women have an especially effective, direct power in maintaining the lineage and therefore owning children. They usually have rights over ancestral property and control and knowledge of ritualistic activity, which may include being the spiritual heads of the community. There are no known examples of the latter known to the author among the

1914 This was necessary for tree felling (large cedar trees), the introduction of smokeless stoves and check-dams in NW Nepal (Studley 1992).

1915 Norberg-Hodge 1992

1916 Studley et al 2005

1917 <http://www.iucn.org/congress/women/Forestry.pdf>, accessed 18th August 2005

1918 <http://www.fao.org/Gender/en/fore-e.htm> accessed 18th August 2005

1919 <http://www.iucn.org/congress/women/Forestry.pdf>, accessed 18th August 2005

matrilineal peoples of the the region (namely the Mosuo, Qiang¹⁹²⁰, Zhongdian Tibetans¹⁹²¹, some Pumi¹⁹²² and historically the Naxi¹⁹²³) although they exist further afield¹⁹²⁴.

By comparison most patrilineal societies (most Han Chinese and most Tibetan), women's major responsibility in reproduction and/or income- earning does not necessarily lead to social empowerment or gender equality within the household. However, the presence of rights to forest and women's rights to access forest resources can mitigate, to some extent, this inequality in gender relations. In some forest-based patrilineal communities¹⁹²⁵, in India, because of their involvement in gathering from forests and their marginal dependence on agricultural produce, women are economically more independent and have a higher status than in the rest of India. In a more male-dominated Han/Naxi village¹⁹²⁶ women have no right to forests, land or trees, all of which are inherited from father to son, and forest distribution is carried out on the basis of the male head of household. A woman, after marriage, acquires access to her husband's forest. Furthermore, women are not allowed to climb trees or to cut trunks even if these are needed for house construction. Spirits reside in trees and a menstruating woman might pollute the tree and thus bring down the wrath of the forest spirit.

Male domination in the Han political system introduced a new perception that it is men who control both social knowledge and family resources. However, in traditional Mosuo society, Tibetan Buddhism was the single most powerful challenger to the Mosuo matrilineal ideology and gender constructs. While the Han Chinese bureaucracy tried to 'civilize' the Mosuo largely through administrative measures and without much success so far, Tibetan Buddhism took a much more subtle approach and transformed the Mosuo conception about maleness and femaleness¹⁹²⁷.

1920 <http://www.answers.com/topic/qiang-1> accessed 18th August 2005

1921 Corlin (1978) notes that the unique matrilineal kinship and inheritance pattern in Gyalthang/Gyethang (Zhongdian), the Tibetan enclave in northwest Yunnan, might have been a result of the contact with the Naxi

1922 There are five villages in Yongning township that have followed the matrilineal culture of their Mosuo neighbours (Hattaway 2000).

1923 The Naxi were originally a matrilineal society <http://www.cic.sfu.ca/lijiang/Project.html> accessed 18th August 2005.

1924 The *Syiem Sad* of the Khasi in India (Nongbri 2000a) and the *Bobolizan* of the Rungus in Sabah, Malaysia (Porodong 2000).

1925 Bosu Mullick 2000, Singh 1999

1926 Enzong village is a mixed Naxi and Han village, and is 8 kms from the town of Lijiang.

1927 Shih, 1993

Likewise in Nepal, with the advent of modernity and Hindu influence the number of women shamans possessing traditional knowledge among the Tamangs¹⁹²⁸ has been sharply reduced over the past few decades. There were three major reasons for the decrease: women who possessed such knowledge were treated as potentially engaged in witchcraft; women's dignity was reduced within the family; and the burden of household duties was increased. In some cases, the family would restrain the woman from working as a shaman, due to fear of social ostracism¹⁹²⁹.

Before the advent of state pressure on matrilineal societies, gender relations were relatively equal. Based on women's role in production, their special knowledge of forests, and their place in the cultural and religious life of matrilineal communities, women enjoyed considerable space within the household and the community to make decisions about resource use. Unfortunately, maintaining this position of power has been difficult, particularly in the face of pressures from the state in favour of centralizing greater patriarchy.

State-sponsored colonization by the dominant religio-cultural regimes like Hinduism, Tibetan Buddhism and Confucianism are noted as having had a destructive effect on indigenous gender relations. They disordered the position of women as that of subordinate to men and reinforced their exclusion from political and spiritual life and community decision-making.

Among the Naxi, for example, the matrilineal system was abolished and replaced by patrilineal inheritance; marriage for love was discouraged and replaced by arranged marriage; and the Confucian values of a woman being subordinate to her father, husband and son were promoted. As a result, among the Naxi patriarchy surpassed matriarchy and the conscious/ unconscious forms of *shu*, a predominantly feminine nature goddess with some masculine characteristics began to be replaced by that of a masculine elemental character¹⁹³⁰. The effect of these

1928 རྩ་མགོན། *rta dmag* (Tamang) means 'horse soldier' in Tibetan, which suggest that their ancestors came from Tibet and traded with the local community (Newars) and later settled and intermarried among them. The Tamangs are followers of Tibetan Buddhism mixed with elements of the pre-Buddhist Bön and animism <http://en.wikipedia.org/wiki/Tamang> accessed 18th August 2005.

1929 Subba 2000

1930 Xi Yuhua 2003

measures was to deny women opportunities to participate as full members of the community. Not surprisingly, there is an element of local male support in this colonization, for the men seemed to have acquired power and representation in the dominant society's image of indigenous people. Women's argument that their traditional roles included full participation of women in many aspects of spiritual and political decision-making has been ignored not only by the alien authorities, but by their fathers, husbands and brothers as well.

For the indigenous peoples of the region, the major agency of change in their cultural system and gender relations was religious or secular education. These measures were designed to deny women the opportunity to participate as full members of the community. The effect of such modern schooling was to silence and suppress the traditionally acknowledged women decision-makers, the indigenous ways of knowing, their language and rituals for knowing. In the name of western/modern knowledge, development and a 'civilized culture,' male power emerged and a hierarchy of gender relations.

Further, by centralizing forest management, states weakened an important source of women's power in matrilineal societies. When forests were under local control, particularly in matrilineal societies, women played an important role in forest-based production, and often enjoyed high status based on their knowledge of forest flora and fauna, and their role in religious rituals with strong ties to the forest. While women certainly continued to use forests after centralization, they often had to do so clandestinely and in short visits. In addition, many forests were changed into monocrops that provided few of the resources that women controlled historically. With limited access to a much-altered forest, women's ability to fend off forces of patriarchy was much reduced.

Notwithstanding the above, because of gender mainstreaming and gender sensitizing efforts, some changes have occurred in traditional institutions in South and South East Asia. A more significant change, however, is noted in South American countries, with the recent adoption of policy measures of the dual-headed households which strengthened women's position

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within the family, that assets acquired during marriage will actually be jointly owned and managed by the woman and man of the household¹⁹³¹.

Planners and policy makers should make more effort to recognize the importance of gender in forestry programmes. Gender-responsive policies and programmes are those that seek sustainable forestry practices, while explicitly taking into account the opinions, needs, and interests of both men and women.

Incorporating gender issues into sustainable forest management helps to:

- Enhance the effectiveness of sustainable resource management policies and projects and drive the equitable distribution of benefits.
- Increase food security, employment opportunities, household income and health of families.
- To improve household food security by recognizing the importance of collected wild products in subsistence strategies.
- Avoid potential conflicts among competing uses of forests and their by-products and to ensure that women's and men's traditional and indigenous rights to forest use are not diminished with the implementation of new projects and policies.
- Promote equal access of women to land ownership and to other resources necessary for effective socio-economic participation (e.g. land, capital, technical assistance, technology, tools, equipment, markets and time).
- Train both women and men in methods to increase their productivity through new forestry technologies, including nursery techniques, site selection, selection of species, land preparation, planting, weeding, and maintenance.
- Train female forestry extension agents and increase their awareness to the prevailing patterns of women in the use of forest resources, including their particular needs and constraints.
- Enhance awareness in men and women to the value of forests and sustainable forestry management.

1931 Govind Kelkar and Phuntshok Tshering 2002

- Ensure support for women's craft and home-based forestry industries, through credit utilization, business management, and marketing.
- Enhance women's participation and cooperation in community groups or forest resource management committees created for project management¹⁹³².

Gendered knowledge is not only important for forestry but biodiversity conservation globally. In the Northwest Amazon, gender-based knowledge systems (GBKS) entitle men and women to distinct knowledge legacies which allot a specific *eidos*¹⁹³³ and ethos to each person according to gender. The GBKS are named specifically as 'women's knowledge' and 'men's knowledge' and they encompass gender-specific spatio-temporal referents¹⁹³⁴ and supervisory functions for the conservation of particular biodiversity domains and cultural dynamics. Among the Yukuna and Tanimuka Indians, the GBKS allow women and men an effective management of the rainforest and society and their knowledge bases are encoded in a cosmological trans-explanatory system that empowers each gender as an active and conscious agent in biodiversity conservation. GBKS are knowledge legacies that manage the short, mid and long term existence of society and nature within the context of earth, life and the universe in a cosmological framework where diverse belief systems correlate scientific, rational emotional, artistic, aesthetic, ethical and spiritual principles¹⁹³⁵ to drive the respect for life and communal solidarity. The Yukuna and Tanimuka collective memory is closely related to a concept of long-term gendered historical agency¹⁹³⁶ in which group identity is said to result from the complementary recreation of men's and women's knowledge bases. The women's capacity to domesticate plants in *chagra swidden plots* and in the *maloca* house gardens; their ability to tend homes; their capacity to reproduce human life within their bodies, and their ability to connect all life-forms into the life-systems of the soil and subsoil, are said to be achieved through a specialized female knowledge called the 'Thought of Food'. The men's capacity to forage in the rainforest and manage the non-domesticated resources used to hunt, gather and fish; their training to hold authority in patrilineal and patrilocal chiefly positions;

1932 www.iucn.org/congress/women/Forestry.pdf accessed 18th August 2005

1933 The distinctive expression of the cognitive or intellectual character of a culture or a social group
<http://www.thefreedictionary.com/eidos> accessed 15th Sept 2005.

1934 Hugh-Jones 1979, Reichel 1999

1935 Atran 1990, Levi-Strauss 1962, Reichel-Dolmatoff 1996

1936 Hugh-Jones 1979, Strathern 1995

their disposition for shamanic activities, and their ability to manage altered states of consciousness, are achieved through a specialized male knowledge called 'Traveling in Thought'.

In spite of all the evidence, ethnobotanical research has often introduced a double bias: on the one hand, it has relied on a limited sample of predominantly male informants and, on the other; it has structurally neglected 'women's knowledge'. It is not surprising, then, that this bias is being largely reproduced by those concerned with biodiversity conservation.

The Convention on Biological Diversity makes provision for the "fair and equitable sharing of the benefits"¹⁹³⁷ from the use of biological diversity. This cannot be addressed at all without considering the importance of women, gendered knowledge and gender relations in biodiversity management at local level, and the presence of gender inequalities, gender stereotypes¹⁹³⁸ and gender bias¹⁹³⁹ in local, regional, national, and international systems that develop norms and regulations around biodiversity conservation. There is nearly a total failure to acknowledge the importance of women or gender relations in the literature and in policy documents dealing with biodiversity conservation. It is therefore very likely that, at local and national levels where these things matter most, women's contributions and their welfare, needs and rights will also be overlooked.

Many of the global trends threatening biodiversity also threaten gender equality. Gender equality advocates have argued that the dominant development model must be changed so it both preserves the environment and achieves gender equality. They point out that the current economic system fails to value both environmental sustainability and women's unpaid labour. This relationship was further acknowledged in the *Platform for Action*¹⁹⁴⁰: "governments have expressed their commitment to creating a new development paradigm that integrates environmental sustainability with gender equality and justice within and between generations"¹⁹⁴¹.

1937 Grubb et al 1993 page 76, Keating 1993 page 26

1938 Bragg 1996, <http://www.wrm.org.uy/bulletin/49/India.html> accessed 10th August 2005

1939 Howard 2001

1940 <http://www.un.org/womenwatch/daw/beijing/platform/index.html> accessed 18th August 2005

1941 <http://www.un.org/womenwatch/daw/beijing/platform/envIRON.htm> para 249 accessed 17th August 2005

We began this chapter by illustrating some of the difficulties of adopting a forest values approach to forest stewardship more broadly and cross-culturally and highlighted the importance of synergistic bridging. After considering each forest value locally, regionally and cross-culturally, and by ethnicity and gender we reached a number of conclusions. Firstly for cross-cultural forest stewardship to be bio-culturally sustainable it has to be forged on the basis of synergistic bridging between multiple forest value systems. Secondly bridging must be based on cognitive, epistemological and psychological equity and justice. Thirdly bridging must be conducted on a value by value basis predicated on dynamic equivalence. Fourthly a forest values approach must recognize the local importance of forest values by ethnicity, gender and lineage. This leads us to the final conclusions of this study which are considered in the next chapter.

CHAPTER 11 CONCLUSIONS

The purpose of this chapter is to firstly draw conclusions about forest values and their elicitation in the specific case of the peoples of Eastern Kham and the identification and use of forest value paradigms. Secondly in more general terms the chapter will reflect upon the contribution of the study to the broad theorization of knowledge and discourse, to the debates surrounding indigenous knowledge and its contribution to sustainable resource stewardship and international forestry policy.

11.1 FOREST VALUES IN EASTERN KHAM

The primary aim of this study is to explore the interface between knowledge systems and resource stewardship with a view to finding suitable endogenous paradigms that will allow the indigenous peoples of Eastern Kham to perpetuate, protect, utilize and conserve their forest and trees on a sustainable basis without compromising their socio-cultural systems, cosmovision or well-being. In pursuance of the aim of the study, I summarize the findings of this research in this section.

Based on an open-ended survey and utilising text analysis and ranking to demonstrate the importance of trees and forests it was evident that:

- The peoples of Eastern Kham recognize up to 20 forest values.

Based on cognitive mapping which utilises psychometric scaling of multiple forest value pairs in Riemann space in order to demonstrate mental models of forest perception it was evident that:

- Forest values are perceptually juxtaposed in four cognitive domains (socio-economic, psycho-cultural, bio-physical, environmental-subsistence services) and along two dimensions (human and natural).
- There are up to 12 'forest value paradigms', or 12 'constellations of concepts, values, domains, beliefs, perceptions, methodological assumptions about trees and forests and forestry stewardship practices shared ' in Eastern Kham.
- There are ethno-linguistic differences in forest values but there is little perceptual difference based on gender or environmental sensitivity. There are however, gender

differences based on forest value ranking and literature evidence for differences in forest relations based on lineage¹⁹⁴² referred to in section 10.2.3. Based on women's role in production, their special knowledge of forests, and their place in the cultural and religious life of matrilineal communities, women enjoyed considerable space within the household and the community to make decisions about resource use. Unfortunately, maintaining this position of power has been difficult for the Naxi, Mosuo, Qiang, some Pumi and the Tibetans in Zhongdian, particularly in the face of pressures from the state in favour of centralizing greater patriarchy¹⁹⁴³.

- There are perceptual differences between age groups with young people appearing to be alienated from place and culture. Although young people have forest values they operate from a different forest value paradigm than old people. It was not possible to determine if the 'agencies of alienation' were educational, political or cultural.
- There are marked perceptual differences in forest values between some areas, suggesting contrasting perceptions of local culture, environment, external interventions and possibly forest relations.
- It would appear that the Khamba speakers of the Yajiang valley have more in common, in terms of forest value paradigms, with their Qiangic speaking neighbour, than the Khamba speakers in the Yangtze valley.

Based on a geospatial technique known as kriging which interpolates forest values across unsampled areas of Eastern Kham from 86 sample sites it was evident that:

- There are 5 geospatial paradigms which correspond with water catchments, dialect groups and a combination of the two.
- All 12 paradigms identified in cognitive mapping exist geospatially but due to the small data set it was difficult to map their extents.

1942 A group whose members are descended through males from a common male ancestor (patrilineage) or through females from a common female ancestor (matrilineage)

http://www.country-data.com/frd/cs/zaire/zr_glos.html accessed 7th Sept 2005.

1943 Kelkar et al 2003

On the basis of spatial analysis and a suite of tools comprising correlograms, bearing analysis, windrose correlograms, bearing correlograms and angular correlograms which demonstrate spatial trends, clines, and origins it was evident that:

- The forest value data set is typical of a gradient, mean forest values¹⁹⁴⁴ are statistically significant, but only half of the forest value correlograms are significant.
- There are four measures which suggest significant directional trends or clines of forest value data along a N/NE to S/SW axis, which seemingly coincides with the migration patterns of the Khamba people and topographic influences
- There is one measure suggesting a trend along an axis that is 10^0 (θ) north of the polar axis (East)¹⁹⁴⁵ which is consistent with Qiang migration patterns and acculturation from Chengdu (the capital of Sichuan Province).

On the basis of boundary analysis and a suite of tools comprising constrained clustering, wombling, and overlap analysis which demonstrate zones of change, data boundaries, and the coincidence of forest values with other phenomena it was evident that:

- Forest values have been influenced culturally (dialect and distance from provincial capitals) and biophysically (forest cover and watersheds).
- There is a strong correlation between forest values and ethnolinguistics which potentially provides forest planners with a means of identifying groups of people, if they are discrete, who may share common forest values.

These findings are significant because of their contribution to our understanding of indigenous knowledge and resource stewardship.

For the former they provide evidence: of a core set of forest values; that constellations of forest values are perceptually juxtaposed by cognitive domain and dimension; of unique forest value paradigms by age, gender, ethnicity, and location; of directional and clinal trends in forest values; that forest values can be influenced culturally and biophysically.

1944 On the basis of Moran's I or Geary's c and 10 lag distances between 0-634 km

1945 or an azimuth of 80 degrees

For the latter they provide: evidence of local conservation ethics; local paradigms of explicit nature conservation; evidence of social fencing; local epistemologies and psychologies of nature; local 'core' areas of nature conservation and custom templates allowing local forest departments to plan sustainable forestry initiatives predicated on local values

11.2 FOREST VALUE ELICITATION

One object of this study was to identify tools and methodologies for the elicitation and analysis of forest values and paradigms and this section will draw conclusions about the importance of the approaches adopted.

11.2.1 Elicitation

The elicitation of forest values and their ranking and cognitive and spatial mapping can be conducted in any local context and potentially be used as the basis for forest stewardship, biodiversity management, nature conservation, forestry extension or impact assessment analysis. There are dangers however, when attempts are made to marry local forest values with the management objectives of the state or forest departments.

For indigenous knowledge to be sustained the state must: accept local forest values; make no attempt to integrate them and must include a dynamic equivalent for each and every forest value of its indigenous clients. In order to ensure there are dynamic equivalents for each forest value the state or forest department must make provision in its environmental policy for post-modern or "post normal science"¹⁹⁴⁶ approaches.

11.2.2 The Importance of the Research

This research presents unique challenges because it was the first study of forest values among the peoples of Eastern Kham and the first anywhere to use cognitive, spatial, and boundary analysis for forest values.

¹⁹⁴⁶ <http://www.jyds.nl/pns/pns.htm> accessed 15th October 2005

On the basis of the 'scientific approach' adopted, hopefully, for the peoples of Kham the research will result in the 'elevation' of their knowledge, cognitive frameworks and epistemologies to a level of acceptance and knowledge equity with competing knowledge systems.

The research provides an important contribution to our broader understanding of: theorizations about knowledge; totalizing discourses of developmentism and environmentalism; and debates surrounding indigenous knowledge and its contribution to sustainable resource stewardship and international forestry policy.

It provides a methodology that can be replicated and used by planners and foresters who want to develop forest stewardship models or templates predicated on local forest values anywhere in the world.

11.3 ADOPTION OF FOREST VALUE PARADIGMS FOR FOREST STEWARDSHIP

11.3.1 Adoption Internationally

It would appear that the cognitive and spatial forest value paradigms identified in this study could be adopted as the basis for local forest stewardship models. Both forest value paradigms coupled with synergistic bridging could enable national or international foresters and planners to create models of forest stewardship predicated on local forest values and institutional values. This would equally apply to forest stewardship, biodiversity enhancement, nature conservation and demarcation, or forestry extension. As we have discovered in sections 3.3.5, 6.2 and 10.1.2 some steps have been made with the adoption of forest values, adaptive management and synergistic bridging in forestry and natural resource planning. There is evidence¹⁹⁴⁷ that local expressions of intrinsic, learning, sacred, cultural, conservation and place attachment value have been included in forest planning in the USA, Australia and Canada, that adaptive management has been adopted in the USA¹⁹⁴⁸, and attempts are being made at synergistic

1947 Ribe and Matteson 2002, Brown and Reed 2000, Crowfoot 1990, Norton and Hannon 1999

1948 Stankey et al 2003

bridging in Hawaii¹⁹⁴⁹, Ecuador¹⁹⁵⁰ and New Zealand¹⁹⁵¹. At this time however it is still too early to draw conclusions about the consequences of their adoption.

The difficulties arise if there is not the political will to build on local forest values, there are ideological constraints, or the institutional paradigms of forestry and natural resource departments do not include a dynamic equivalent for local forest values. This unfortunately appears to be the case in China and the consequences of this are discussed in the next section.

11.3.2 Adoption in China and Kham

Whatever the potential of the findings there are dangers that this study will have very little significance for forest stewardship in China or Eastern Kham unless there is a paradigm shift in the State Council and forestry planning and implementation is devolved to local levels.

Until very recently China's forestry department at national and local level has ignored local forest values especially among minority nationalities due to the inherent ideological contradictions of traditional values and 'social engineering'¹⁹⁵². The cadres typically ignore linguistic ecologies and local epistemologies of nature and insist that all indigenous peoples require formal environmental education. China continues to predicate forest management on a top-down scientific approach and the new forest policies provide environmental support at the expense of the local people.

Socialism as we discovered in section 8.2.4 and 10.2 has never directly concerned itself with environmental issues, cannot pretend to have the answer to the earth's ecological problems and can equally be used to exploit nature as conserve it. Neither does it provide an adequate platform to bridge between the forest values of the state and local people. We are still waiting for the 'dawn of post-modern forestry'¹⁹⁵³, referred to in section 5.8 in China, which is mostly limited to culture and politics¹⁹⁵⁴.

1949 Kahakalau 2004

1950 Becker and Ghimire 2003

1951 Simon 2002

1952 Howard 1994

1953 Trouvalis 2000

1954 <http://www.aasianst.org/absts/1998abst/china/c19.htm> accessed 20th Nov 2005

Within the last ten years the importance of indigenous knowledge and ethno-botany has been recognized but the research findings have not been transferred to the forestry or nature conservation departments for policy or planning purposes. There are seminal signs of government support for indigenous cultures in China even though the interest is mostly for tourism¹⁹⁵⁵. There is some recognition in China that among the many things we can learn from indigenous peoples is a systemic view of the world of which we are part. Few Han Chinese to date have suggested the best methods to move away from expert-based forest management to participatory stewardship based on local forest values or how best to conserve forests, watersheds and biodiversity through the enlightened self-interest of government and local peoples. Most participatory stewardship approaches in China to date have been funded by bi-lateral aid or NGOs and an increasing number of cadres have been trained. The difficulty has been that as soon as the foreign funding ceases the forest department returns to a scientific forestry approach. There is evidence however in the lower echelons of government and in Chinese NGOs of a paradigm shift and it is hoped that eventually things will reach a critical mass that addresses the values of the local people as well as the dictates of the state. This situation is not unique to China but it is an area that requires urgent investigation, advocacy and action for this study to have any significance.

Thus far, in this chapter, I have largely focussed on Kham but in the following sections, I plan to reflect upon the broader contribution of the study to knowledge systems and discourses, indigenous knowledge, sustainable resource stewardship, and international forestry policy.

11.4 KNOWLEDGE SYSTEMS AND DISCOURSES

11.4.1 Western Knowledge Systems

I began this study by exploring the interface between mainstream development and environmental trajectories and the values and customary forest practices of indigenous peoples and concluding that they were predicated on contrasting visions of resource conservation¹⁹⁵⁶.

¹⁹⁵⁵ Xu et al 2004

¹⁹⁵⁶ Banuri and Marglin 1993

With very few exceptions mainstream trajectories of development and environmentalism are fatally flawed, in terms of their own objectives and either do not constitute paradigms¹⁹⁵⁷ or continue to be saturated with the culturally constructed myths of ethnocentric western hegemony¹⁹⁵⁸.

Forestry paradigms including neo-populist ones fail to resonate with indigenous knowledge systems because they operate within the same discursive terrain as 'scientific' forestry discussed in section 5.2. The only exception appears to a post-modern approach based on ethno-forestry paradigms and forest values.

11.4.2 Chinese and Tibetan Knowledge Systems

Historically China has a very poor environmental record although paradoxically there has been global interest in Daoism and fengshui as exemplars of sustainable resource management, referred to in sections 7.2.1 and 7.2.2. There is, however, no evidence of explicit nature conservation, in either, which is apparent only in some sacred landscape paradigms of some Han and Tibetan peoples as confirmed by the findings in chapters 9 and 10.

There are equal dangers of drawing conclusions about nature conservation in China from art and literature. Although there is an extensive literature supporting nature¹⁹⁵⁹, natural philosophy has not prevented deforestation and destruction. Similarly, while official Tibetan discourses of peace, harmony and 'green ethics' are not all they appear¹⁹⁶⁰ some vernacular discourses do support nature conservation.

The merits of Chinese and Tibetan worldviews and paradigms, as explored in this study, need to be considered on a case-by-case basis, on the road to bio-cultural sustainability

1957 Chambers 1993

1958 Miller 2001

1959 Kinsley 1995

1960 Huber 1995

Although China recognizes the importance of multiculturalism¹⁹⁶¹ and indigenous knowledge, in local development it insists on subjecting its indigenous people to a social engineering¹⁹⁶² campaign. It is ontologically blind to the indigenous realities, referred to in this study, of anthropogenic landscapes, linguistic ecologies, and local epistemologies of nature.

11.5 INDIGENOUS KNOWLEDGE AND NATURAL RESOURCES

11.5.1 Indigenous knowledge discourse

In spite of the threats posed to indigenous knowledge and the dangers of romanticism there are aspects, confirmed by this study, that are unique and germane to bio-cultural sustainability. Although IK is being increasingly co-opted into mainstream development rhetoric attempts are often made either to integrate or incorporate¹⁹⁶³ it into 'superior' formal systems of knowledge or to insist on a dichotomy¹⁹⁶⁴ between western and indigenous knowledge. There is however, no basis for integration and synergistic bridging¹⁹⁶⁵ between knowledge systems is evidently more sustainable for knowledge system sustainability.

11.5.2 Indigenous knowledge and natural resource stewardship

We recognized in section 4.5.2 the value of indigenous knowledge for nature conservation and resource stewardship and the dangers of over-romanticizing indigenous peoples' wisdom and intrinsic harmony but equally of underestimating their core values and local knowledge and their vital role in the conservation of biodiversity¹⁹⁶⁶.

It is necessary to consider each indigenous people group on a case-by-case basis, recognizing some paradigms of conservation; sustainability and environmental enhancement and some of environmental destruction.

1961 Bulag 1999

1962 Howard 1994

1963 Lawrence 2000

1964 Agrawal 1995b

1965 <http://iufro-archive.boku.ac.at/iufro/taskforce/hptftfk.htm> accessed 28th Nov 2005

1966 Posey and Dutfield 1997

11.5.3 Implications for International Forestry

We recognized that the forest values approach is being adopted globally as a means of predicated stewardship on indigenous and local knowledge but no universal typology of forest values or definitions exists. For a cross-cultural forest approach to work there are a number of conclusions we can draw from this study for international forestry:

- forest valuation must be geared towards changing the economic trade-offs that are involved in sustainable forest management in the real world and capturing forest benefits as real values for local people¹⁹⁶⁷.
- while institutions and vested interests continue to ignore 'folk sense' in terms of the role of forests in environmental protection¹⁹⁶⁸, they will not only alienate themselves from their indigenous clients but also exacerbate natural disasters.
- indigenous modes of knowing about and from forests should not be ignored, dichotomized¹⁹⁶⁹ or integrated into western epistemologies but be considered equitably based on synergistic bridging.
- for nature conservation to succeed it needs to be redefined and reconstructed from the perspective of the multiple cultural and ecological practices that continue to exist among many communities¹⁹⁷⁰.
- notwithstanding the complexities involved rather than trying to 'adopt', 'incorporate' or 'model'¹⁹⁷¹ sacred forest as a template for conservation there is a need to bridge or find synergy between elements of multiple sacred paradigms of conservation.
- field methods, such as forest value ranking¹⁹⁷², exist which provide foresters, if not economists, with a means of quantifying intrinsic value, at least from the perspective of the local people.
- emphasis should be given to maintaining viable populations of tree species and forest cover types at risk, thereby ensuring the protection of forest-associated and dependent wildlife and people intergenerationally and equitably¹⁹⁷³.

1967 Emerton 2003

1968 Pearce 1999

1969 Agrawal 1995b

1970 Grubb et al 1995

1971 Laird 1997-2005

1972 http://www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/003/X6694E/X6694E06.htm accessed 28th Nov 2005

1973 Buck et al 2003

- if subsistence needs are taken as seriously as commercial activities by those who formulate and implement forest policy, many environmental problems will become more tractable¹⁹⁷⁴.
- the symbolic and emotional connections between people and the land are as real and as important as the ecological relationships between species of plants and animals. Therefore, we need to look for ways to bridge our scientific understanding of the world with the indigenous ways of experiencing nature¹⁹⁷⁵.
- westerners must learn to find 'wilderness gratification' when visiting homelands of indigenous people without their specific designation as wilderness¹⁹⁷⁶.
- a democratically supportable approach to sustainable use of resources must be predicated on the needs of people who live most intimately with place and natural resources¹⁹⁷⁷.
- when industrial forestry is well planned and executed, it can deliver not just large quantities of wood, but a range of environment and social benefits¹⁹⁷⁸.
- very few trajectories of socialism offer any moral basis for conservation, with the possible exception of 'Dhammic socialism', referred to in sections 7.2 and 7.7, which morally draws on religion, or ecosocialism¹⁹⁷⁹ which rejects the need for a "new ecological paradigm"¹⁹⁸⁰.
- subsistence or controlled hunting for foreign exchange should be properly planned outside the fixed boundaries of the god's domain and negotiated between human society and the larger society of beings, and the offices¹⁹⁸¹ of an intermediary¹⁹⁸² used to ensure balance and reciprocity¹⁹⁸³.

1974 Joshi 1983

1975 Caldecott 1993

1976 Lui Xiaogan 2001

1977 Norton and Hannon 1999

1978 Cossalter and Pye-Smith 2003

1979 Eckersley 1992

1980 Catton and Dunlap 1980

1981 permission seeking, rituals, propitiation.

1982 e.g. shaman.

1983 Castro 1991, Dove 1993b, Reichel 1992

- ethno-development should be designed **by**, rather than **for** ethnic people, which implies the revaluation of their own culture as the basis upon which future development is to be constructed¹⁹⁸⁴.
- in order to address gender issues forestry models must be changed both to preserve the environment and achieve gender equality¹⁹⁸⁵.

11.5.4 Synergistic Bridging

In the previous section, we identified steps that were required for international foresters to adopt a cross-cultural forest values approach, but this study has identified the necessity of synergistic bridging for this approach to work.

Synergistic bridging (of knowledge, epistemologies and perceptions) offers a means of selecting apposite elements from multiple knowledge systems in order to achieve sustainable resource stewardship in any given local environment. Bridging however remains a problem if official discourses¹⁹⁸⁶ reject indigenous knowledge and modes of knowing, perception and cosmology. Coalescing under the rubric of post-modernism, however, we do find a number of complimentary trajectories, which seemingly provide space for knowledge equity and bridging. These trajectories include hypertext theory, paradigm theory, abductive logic, adaptive management, ecospiritual paradigms, and post-modern forestry paradigms.

Hypertext theory assumes information/knowledge is organized and processed in similar ways as our minds. As we learn/explore a topic, we form a cognitive web associating new information to existing information forming complex interrelationships¹⁹⁸⁷. Hypertext theory "does not permit a tyrannical, univocal voice"¹⁹⁸⁸ and it allows us to "abandon conceptual systems founded upon ideas of centre, margin, hierarchy and linearity and replace them with ones of multilinearity, nodes, links, and networks"¹⁹⁸⁹.

1984 Seymour-Smith 1986

1985 Howard 2001

1986 of development, environment, nature, minority and forestry.

1987 <http://hagar.up.ac.za/catts/learner/leonb/rbo/hypertext.htm> accessed 6th Sept 2005

1988 Landow 1993 pages 4, 8 and 11

1989 Landow 1993 page 2

Paradigm theory offers the possibility of selecting from "any number of co-existing paradigms"¹⁹⁹⁰ and gives "value to the experiential and the learning engaged in as part of everyday life" based on "multiple 'realities' to be constructed through an already interpreted experience"¹⁹⁹¹.

Adaptive management, predicated on abductive¹⁹⁹², synthetic and relational approaches offers the prospect of embracing surprise, and of redefining resource management, human institutions, techniques and values based on the patterns of the larger system of which they are part. It is, however, still in its infancy and examples of successful implementation are rare. Attempts however are being made to implement it in the Pacific North West of USA but there are evidently some barriers¹⁹⁹³ standing between the concept's potential and on-the-ground implementation. Assuming that the barriers are overcome adaptive management is not dissimilar to indigenous resource management, which proceeds, in an adaptive fashion by mutual feedback mechanisms and co-evolution.

Indigenous resource management systems parallel adaptive management in their reliance on learning-by-doing and the use of feedback from the environment to provide corrections for management practice. They differ from formal systems generally by the absence of testable hypotheses and generalization theories and by the integration of moral and religious belief systems with management¹⁹⁹⁴.

Some westerners and ecofeminists¹⁹⁹⁵, somewhat tendentiously¹⁹⁹⁶, are claiming to have rediscovered spirituality connected to the earth. They are using post-modern science to bolster religious claims directed towards personal and/or ecological well-being¹⁹⁹⁷. These views are finding expression in "ecospiritual paradigms"¹⁹⁹⁸ or "religious environmentalist

1990 Young 1994 <http://critcrim.org/redfeather/chaos/004paradigm.html> accessed 18th July 2005

1991 Usher and Edwards 1994 page 199

1992 Bateson 1972b

1993 See Stankey et al 2003

1994 Gadgil et al 1993

1995 Ecofeminism is based on the notion that women are especially 'close to nature' in a spiritual or conceptual sense (Shiva 1988).

1996 Leach 2003

1997 Merchant 1989, <http://www.ccsr.ca/ccsr/Archives/97prog.html#EATON> accessed 9th Sept 2005

1998 Kinsley 1995 page 1

paradigms"¹⁹⁹⁹ or an "alliance of ...religion and ecology"²⁰⁰⁰. These trajectories view human beings as creatures of the earth, embedded in the natural world, obliged to interrelate with a larger whole in ways that will not harm the larger ecosystem. Human destiny in this view involves promoting harmony with the natural world, pursuing rapport with nonhuman species and the land, and curbing the human instincts that encourage domination and control of nature for selfish ends. It is increasingly clear that, for some people today in the West ecological concerns have taken on religious meaning and intensity, indeed, that ecology has become a religion for some. Both within and outside traditional religious institutions, issues concerning the environment have acquired ultimate meaning for many people.

The post-modern forestry paradigm²⁰⁰¹ evidently has global application under the rubric of 'pluralism and sustainable forestry'²⁰⁰² and can be adopted not only for indigenous forest values but changes in values in 'developed' societies. It provides an emerging paradigm that allows foresters to move beyond the narrow confines of 'utilitarian forestry'²⁰⁰³. This paradigm is predicated on: utilitarian and non-utilitarian values, whole systems that are non-deterministic, scientific uncertainty creating space for other sources of knowledge, adaptive management models, the recognition of indigenous knowledge through bottom-up approaches, and local people as active participants in the system²⁰⁰⁴.

These five complementary trajectories, which I support and consider of value for the peoples of Kham, allow planners to transcend the limitations of any single knowledge systems and develop sustainable forestry and biodiversity models predicated on synergistic bridging between apposite elements taken from multiple knowledge systems²⁰⁰⁵ and proceed in an adaptive fashion by mutual feedback mechanisms and co-evolution.

1999 Pedersen 1995 page 258

2000 Tucker and Grim 2001

2001 Schelhas 2003

2002 FAO 1997

2003 Shindler B et al 1999, Williams D 2002

2004 Schelhas 2003

2005 and the epistemological/perceptual modes that inform them.

11.6 FINAL DISCUSSION

We will conclude this thesis with a final discussion about future research directions and the overall conclusions.

11.6.1 Future Research Directions

More research is required comparing the degree of conservation consciousness, and ethical attitudes, between sacred sites and non-sacred sites and the relevance, if any, of the four indigenous environmental paradigms suggested by Umens²⁰⁰⁶.

Further research and development support is needed to provide policy-relevant information on forest structure, composition, and ecological processes as affected by different management practices to ensure the long-term (intergenerational) potential of forests to provide the diverse array of goods and services required by society²⁰⁰⁷.

Further research is required to explore the differences in forest values between Yajiang and Zhongdian County where it appears that the people feel alienated from their culture and environment and that industrial forestation has not been well received.

The domain names and dimensions used for cognitive mapping were selected by the author and more field research is required in order to establish if the names identified by the author are similar to those used by the peoples of Kham. This also applies to dimension 3 and 4, which were not identified by the author, but were required in order to analyze 'hunting'. The former could be achieved by pile sorting techniques²⁰⁰⁸.

It was only latterly discovered that the Tibetans who live in Zhongdian are matrilineal and the Naxi used to be. Further research is required comparing gender relations with the forest in matrilineal and patrilineal societies and the impact of gender relations when lineage changes (as with the Naxi).

2006 A giving environment, a reciprocating environment, a disposable environment and a prohibiting environment suggested by Umans (1992).

2007 Buck et al 2003

2008 Borgatti 1988 and 1990

If the Sichuan Provincial government does introduce hunting of blue sheep and white lipped deer, given that blue sheep constitutes the main food source of the endangered snow leopard²⁰⁰⁹ some sort of status study appears to be required, to ascertain cull size.

11.6.2 Overall Conclusions

The primary aim of this study was to explore the interface between knowledge systems and resource stewardship with a view to finding suitable endogenous paradigms that will allow the indigenous peoples of Eastern Kham to perpetuate, protect, utilize and conserve their forest and trees on a sustainable basis without compromising their socio-cultural systems, cosmovision or well-being.

In pursuance of the primary aim of the study the research contributes to the broad theorization of knowledge and the indigenous knowledge debate by: exploring the contribution of indigenous knowledge and forest values to sustainable resource stewardship and forestry outcomes; suggesting cross-cultural tools and methods for indigenous knowledge elicitation and analysis; suggesting methods of bridging between multiple knowledge systems; and suggesting outcomes in China and Eastern Kham.

The methodology chosen for meeting the aims outlined above is multi-faceted in that it has both qualitative and quantitative components and draws upon historical as well as contemporary materials. The quantitative research was predicated on open-ended interviews, text analysis, ranking, multidimensional scaling, geostatistical and boundary analysis, and supportive technologies which are referred to in chapter 6. The study was also earthed in the author's knowledge of the region gained from; community forestry in Nepal (1984-1991), consultancy in China (1993 -2005), secondary data²⁰¹⁰ sources, key informants and cultural specialists (i.e. *shamans*). The author's local knowledge especially from the contextual studies is particularly important because it supplements and contextualises the field research and fills in some of the gaps.

2009 *Uncia uncia* is the Latin for snow leopard and གཟིང་། *gzig* is the Tibetan.

2010 government documents, press clippings, news letters, RSS feeds, alerts, official statistics.

The study produced a number of intellectual, scholarly and scientific findings providing evidence among the peoples of Kham of: local conservation ethics; local paradigms of explicit nature conservation; evidence of social fencing; local epistemologies and psychologies of nature; local 'core' areas of nature conservation; and unique forest value paradigms.

The broader implications that can be drawn are; that constellations of forest values are perceptually juxtaposed by cognitive domain and dimension; of unique forest value paradigms by age, gender, ethnicity, and location; of directional and clinal trends in forest values; and that forest values can be influenced culturally and biophysically.

This study is important for the peoples of Kham because it provides templates for resource stewardship predicated on local forest values and paradigms. Given the place afforded to science in China and the quantitative methodology adopted hopefully this study will help to 'elevate' the indigenous knowledge, cognitive frameworks and epistemologies of the peoples of Eastern Kham to a level of acceptance and knowledge equity with multiple knowledge systems.

The study is important for global forestry because it provides a methodology that can be replicated and used by planners who want to develop cross-cultural models of forest stewardship or conservation predicated on multiple forest values and sustainability anywhere in the world.

It is important to remember that the road to sustainable knowledge and forest stewardship is predicated on synergistic bridging and diversity. If I can repeat something I said in chapter ten, cultures that value perceptual, epistemological and biological diversity are more adaptable than cultures that do not. Such cultures are better able to understand whole systems than are cultures that rely only on the 'scientific' method. They also are better stewards of their environments, because they grasp the value of the whole of biodiversity through transrational as well as scientific processes and leads to a higher degree of adaptability and 'evolutionary' competence.

ADDENDUM

How the choice of methodology was shaped and prosecuted

There were a number of factors that shaped the choice of methodology adopted for this thesis and its prosecution in the field.

The methodology was primarily shaped by two post-modern trajectories, post-modern forestry²⁰¹¹ which addresses multiple forest values and post-modern science²⁰¹² predicated on multiple methodological assumptions and methods.

Given the socio-political climate in China²⁰¹³, and the ethnic sensitivities²⁰¹⁴, a quantitative method for field research proved to be the optimum choice because it was based on "science and technology". A qualitative approach that elicited opinions may have; proved politically challenging, delivered suspect data, and failed to deliver identifiable stewardship units.

I concluded in section 3.2 that a post-modern paradigm was not germane to the worldview or values of the peoples of Kham but recognized certain trajectories that were. Post-modern forestry²⁰¹⁵ and post-modern science²⁰¹⁶ offered a new approach that resonated not only with indigenous peoples but sea changes in forest values in the developed world. While post-modern forestry recognizes a multiplicity of forest values and post-modern science multiple epistemologies, both allow for the geospatially defined stewardship (in ha or km²) of forest based on multiple pluriformity²⁰¹⁷.

2011 referred to in section 5.8

2012 It differs from Cartesian science (Sleator 1996) because it is predicated on :-

- nonlinearity & discontinuity
- the transcendence of Cartesian distinction of Humankind-Nature, Observer-Observed and Subject-Object
- a dynamic web of relationship between the whole and part in place of atomism and reductionism
- symbolism and representation
- a democratic approach in place of elitism

2013 referred to in chapter 7

2014 referred to in section 7.4.3

2015 referred to in section 5.8

2016 referred to in 2.3 and 3.2

2017 referred to in section 1.1, 2.1 and 5.8

Given that I have lived in High Asia for most of my life and have adopted a worldview that is much closer to an indigenous worldview than the compartmentalised academic disciplines prevalent within the Western intellectual tradition²⁰¹⁸ I never saw any inconsistency adopting post-modern trajectories and a qualitative and quantitative methodology. My approach is not unique as Farrell (2004) adopted a post-modern approach using quantitative genetic variation and Brott (2001) Bowker (2001) and Rafique (2005) adopted a post-modern approach using both quantitative and qualitative data.

Post-modern science implies diversity in terms of multiple truths, standards and forms of data representations for multiple audiences because they better represent both the complexity of the lives we study, and the lives we lead (Richardson 1994 Tierney and Lincoln (1997). It offers the opportunity to adopt a diversity of methodological assumptions and methods in generating knowledge of the human and social world within a single research project (Rafique 2005).

I adopted a qualitative approach for exploring and identifying forest values during pre-testing²⁰¹⁹ and for follow-up questions during field work²⁰²⁰. When, however I sought out field methods addressing the relative importance of forest values, and the identification of paradigms, cognitive domains and their geospatial extent and distribution all I could find were quantitative methods²⁰²¹. These were largely within the fields of cognitive anthropology, cognitive psychology, cross-cultural psychology and environmental psychology. In order however to provide some sort of rigour to my findings and their geospatial distribution I also included geostatistics. I could not find any study with similar goals to my own that was based only on a qualitative approach although I can and did draw on 20 years of participant-observation.

Field research among Chinese minority peoples has never been easy, especially among the Tibetans, and information access deemed a privilege,. During field work with an international team in 1994 I had to spend 2 days walking to remote forests in order to lose my 'minder'

2018 alluded to in section 3.1.2.

2019 referred to in section 6.5

2020 referred to in chapter 8

2021 referred to in section 6.1

before we could begin a PRA study. One day a political agent from the interrogation department came to check us out and discover if we thought Tibetans were 'civilized'. The interpreter could not understand why we kept asking the same questions over and over again and a man from the forestry department kept answering questions on behalf of the respondent. Eventually the international team was asked to leave the area because "we did not have the correct type of visa for conducting field surveys". Since then things have got better especially since 1998 when Eastern Kham opened up for tourism.

Forestry in China comes under the aegis of 'science and technology', which commands respect as a Marxist 'productive force' (CIIC 1988), 'social forestry' is predicated on social engineering²⁰²² and 'ethnic forestry' is viewed as a tourist commodity from the perspective of multiculturalism²⁰²³. As a result most Chinese cadres would assume, given the ethnocentric superiority of their rational scientific cognitive system²⁰²⁴ that the data I was collecting would either provide the basis to 'change', 'uplift' or 'civilize' the peoples of Kham, or for tourist promotion but not as an exemplar of stewardship. I recognized in the field that the approach I had adopted (especially with supporting technologies such as a field computer and GPS) and a mixed race²⁰²⁵ research assistant from the forest department did not pose any socio-political threat and my research was viewed as 'scientific'. On one occasion the police did show up half way through an interview but my research assistant was able to vouch for me. I always carried bone fides from Sichuan Normal University but never had to use them and on one occasion I had a letter of introduction from the chief of police of the prefecture. The only time I nearly had a problem was in Minyak where my driver was the interpreter (he spoke the local language). He had been in the army and became concerned when respondents scaled "socialism" distantly from other values which he interpreted as unacceptable criticism²⁰²⁶. I am not sure if he reported me but I was not detained and I continued to be able to get visas.

2022 referred to in section 7.4.2

2023 referred to in section 7.4.2

2024 referred to in section 7.1

2025 Tibetan-Chinese

2026 referred to in section 7.5.1

This study offered a unique opportunity to adopt multiple research methods that represented the complexity of the peoples of East Kham against the backdrop of the Chinese socio-political context as well as having application for other people groups.

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APPENDIX 1 : COGNITIVE MAPPING SITES (China)

ID	DATE	County	Village	Gender	Age	Ethnicity	Catchment	Lat	Long
1	06/05/2002	Yajiang	Orlong	Female	Middle	Tibetan	Yajiang	30.057	101.28
2	06/06/2002	Yajiang	Pamaling	Male	Old	Tibetan	Yajiang	30.1026	101.187
3	06/06/2002	Yajiang	Pamaling2	Male	Middle	Tibetan	Yajiang	30.10264	101.187
4	06/07/2002	Yajiang	Meera	Female	Middle	Tibetan	Yajiang	30.075	101.145
5	06/07/2002	Yajiang	Meera2	Female	Young	Tibetan	Yajiang	30.07503	101.145
6	06/08/2002	Yajiang	Rakuti	Male	Old	Tibetan	Yajiang	29.83	101.072
7	06/08/2002	Yajiang	Jacku1	Female	Young	Tibetan	Yajiang	29.83003	101.072
8	06/08/2002	Yajiang	Jacku2	Male	Middle	Tibetan	Yajiang	29.83006	101.072
9	06/08/2002	Yajiang	Jacku3	Female	Middle	Tibetan	Yajiang	29.83008	101.072
10	06/08/2002	Yajiang	Jacku4	Male	Middle	Tibetan	Yajiang	29.83011	101.072
11	13/12/2001	Zhongdian	Dabao	Male	Young	Tibetan	Yangtze	27.96	99.99
12	13/12/2001	Zhongdian	Dabao1	Female	Middle	Tibetan	Yangtze	27.96003	99.9900
13	13/12/2001	Zhongdian	Dala	Male	Middle	Tibetan	Yangtze	27.98	99.98
14	14/12/2001	Zhongdian	Bending	Male	Middle	Tibetan	Yangtze	28.01	99.48
15	14/12/2001	Zhongdian	Shanchoutao	Female	Middle	Tibetan	Yangtze	28.1	99.43
16	14/12/2001	Zhongdian	Tondu	Male	Old	Tibetan	Yangtze	27.93	99.49
17	14/12/2001	Zhongdian	Chongor	Male	Old	Tibetan	Yangtze	28.096	99.78
18	14/12/2001	Zhongdian	Chongor1	Female	Middle	Tibetan	Yangtze	28.09603	99.7800
19	15/12/2001	Zhongdian	Pushan	Male	Middle	Tibetan	Yangtze	28.173	99.74
20	15/12/2001	Zhongdian	Pushan1	Male	Young	Tibetan	Yangtze	28.17303	99.7400
21	15/12/2001	Zhongdian	Gornor	Female	Old	Tibetan	Yangtze	27.57	99.71
22	15/12/2001	Zhongdian	Gornor1	Male	Middle	Tibetan	Yangtze	27.57003	99.7100
23	08/01/1999	Shiqu	Honze	Male	Middle	Tibetan	Yangtze	32.665	97.5152
24	08/01/1999	Shiqu	Honze2	Female	Middle	Tibetan	Yangtze	32.66503	97.5153
25	08/01/1999	Shiqu	Honze3	Female	Young	Tibetan	Yangtze	32.66506	97.5153
26	08/01/1999	Shiqu	Baiyu	Female	Middle	Tibetan	Yangtze	32.67	97.5055
27	08/01/1999	Shiqu	Baiyu2	Female	Young	Tibetan	Yangtze	32.67003	97.5055
28	08/01/1999	Shiqu	Razhi	Female	Middle	Tibetan	Yangtze	32.69	97.5
29	08/01/1999	Shiqu	Razhi2	Male	Middle	Tibetan	Yangtze	32.69003	97.5000
30	08/01/1999	Shiqu	Razhi3	Male	Old	Tibetan	Yangtze	32.69006	97.5000
31	08/02/1999	Shiqu	Razhi4	Male	Middle	Tibetan	Yangtze	32.69008	97.5000
32	08/02/1999	Shiqu	Razhi5	Male	Middle	Tibetan	Yangtze	32.69011	97.5001
33	08/11/2003	Kanding	Gaba	Male	Middle	Qiang	Yajiang	29.95244	101.574
34	08/11/2003	Kanding	Gaba 2	Female	Middle	Qiang	Yajiang	29.95087	101.577
35	08/11/2003	Kanding	Gaba 3	Male	Old	Qiang	Yajiang	29.95888	101.572
36	09/11/2003	Kanding	Jazay	Male	Middle	Qiang	Yajiang	29.91803	101.585
37	09/11/2003	Kanding	Jazay 2	Female	Old	Qiang	Yajiang	29.91818	101.583
38	09/11/2003	Kanding	Jazay 3	Male	Middle	Qiang	Yajiang	29.91921	101.593
39	10/11/2003	Kanding	Jagenba	Male	Middle	Qiang	Yajiang	29.84446	101.554
40	10/11/2003	Kanding	Jagenba 2	Male	Middle	Qiang	Yajiang	29.84316	101.553
41	10/11/2003	Kanding	Jagenba 3	Female	Middle	Qiang	Yajiang	29.84256	101.569
42	11/11/2003	Kanding	Jagaycha	Male	Middle	Qiang	Yajiang	29.80013	101.525
43	11/11/2003	Kanding	Jagong	Female	Middle	Qiang	Yajiang	29.78215	101.518
44	11/11/2003	Kanding	Jambaka	Male	Young	Tibetan	Yajiang	29.80222	101.529
45	12/11/2003	Kanding	Na Ashay	Male	Middle	Tibetan	Yajiang	30.08761	101.695
46	12/11/2003	Kanding	Na Ahay 2	Male	Middle	Tibetan	Yajiang	30.09182	101.695
47	12/11/2003	Kanding	Na Ashay 3	Male	Middle	Tibetan	Yajiang	30.08761	101.685

Appendix 1 Cognitive mapping sites

48	05/04/2004	Derong	Chudza	Male	Young	Tibetan	Yangtze	28.33715	99.2333
49	05/04/2004	Derong	Yagu	Female	Young	Tibetan	Yangtze	28.76892	99.2941
50	04/05/1944	Derong	Shiepay	Male	Middle	Tibetan	Yangtze	28.84453	99.2888
51	05/06/2004	Batang	Lhada	Male	Middle	Tibetan	Yangtze	30.17893	99.2027
52	05/06/2004	Batang	Yawah	Male	Young	Tibetan	Yangtze	30.15156	99.1874
53	05/06/2004	Batang	Loyawa	Female	Middle	Tibetan	Yangtze	30.14751	99.1840
54	05/06/2004	Batang	Daba	Male	Middle	Tibetan	Yangtze	30.11314	99.1724
55	05/06/2004	Batang	Garlow	Male	Middle	Tibetan	Yangtze	30.06078	99.1480
56	05/08/2004	Litang	Jawa	Female	Old	Tibetan	Yajiang	29.76498	100.371
57	05/08/2004	Litang	Goodee	Female	Old	Tibetan	Yajiang	29.75555	100.380
58	05/08/2004	Litang	Eeju	Male	Old	Tibetan	Yajiang	29.70964	100.392
59	05/09/2004	Daocheng	Nyadee	Male	Middle	Tibetan	Yangtze	28.45515	100.346
60	05/09/2004	Daocheng	Yading1	Male	Middle	Tibetan	Yangtze	28.45595	100.337
61	05/09/2004	Daocheng	Yading2	Male	Middle	Tibetan	Yangtze	28.45396	100.343
62	05/09/2004	Daocheng	Loloba	Female	Middle	Tibetan	Yangtze	28.45189	100.347
63	05/10/2004	Xiangcheng	Kora	Female	Old	Tibetan	Yangtze	28.9673	99.8347
64	05/10/2004	Xiangcheng	Zasha	Male	Middle	Tibetan	Yangtze	28.99308	99.8430
65	05/10/2004	Xiangcheng	Eshare	Male	Middle	Tibetan	Yangtze	29.01696	99.0169
66	25/01/2005	Xinlong	Harday	Male	Middle	Tibetan	Yajiang	30.89159	100.223
67	25/01/2005	Xinlong	Nanja	Male	Middle	Tibetan	Yajiang	30.91215	100.279
68	25/01/2005	Xinlong	Chaky	Female	Young	Tibetan	Yajiang	30.92843	100.291
69	26/01/2005	Ganzi	Juday	Female	Middle	Tibetan	Yajiang	31.60405	100.022
70	26/01/2005	Ganzi	Tashay	Male	Young	Tibetan	Yajiang	31.57817	100.102
71	26/01/2005	Ganzi	Logotsay	Male	Middle	Tibetan	Yajiang	31.59472	100.145
72	29/01/2005	Dege	Toogongda	Male	Young	Tibetan	Yajiang	31.81307	99.4202
73	29/01/2005	Dege	Rongchingsay	Female	Middle	Tibetan	Yajiang	31.86572	99.3310
74	29/01/2005	Dege	Manigango	Female	Young	Tibetan	Yajiang	31.93146	99.2035
75	30/01/2005	Luhuo	Khasa	Male	Young	Tibetan	Yajiang	31.64766	100.268
76	30/01/2005	Luhuo	Druwo	Female	Middle	Tibetan	Yajiang	31.52111	100.475
77	30/01/2005	Luhuo	Achu	Male	Old	Qiang	Yajiang	31.30746	100.740
78	31/01/2005	Daowu	Showgochow	Male	Middle	Qiang	Yajiang	31.13925	100.934
79	31/01/2005	Daowu	Taicupo	Male	Young	Qiang	Yajiang	31.04162	101.051
80	31/01/2005	Daowu	Khanya	Female	Young	Qiang	Yajiang	30.94501	101.174
81	02/02/2005	Jiulong	Dazhar	Female	Young	Qiang	Yajiang	28.91551	101.540
82	02/02/2005	Jiulong	Sirgonpin	Male	Middle	Qiang	Yajiang	28.79633	101.661
83	02/02/2005	Jiulong	Sridaba	Male	Middle	Qiang	Yajiang	28.72144	101.678
84	03/02/2005	Muli	Ludzago	Female	Young	Qiang	Yajiang	27.97447	101.252
85	03/02/2005	Muli	Linsha	Female	Young	Qiang	Yajiang	27.96973	101.238
86	03/02/2005	Muli	Leedzaping	Female	Middle	Qiang	Yajiang	27.97505	101.230

APPENDIX 2a : FOREST VALUE SCALING

It is necessary at the beginning of the scaling task to explain unambiguously to the respondents that a ratio rule is what is requested of them. In this case the following explanation was given prior to the task (in the local language). "We want to understand how you see and think about your environment, especially the forest. This form uses some words that seem to be important in this area and we are just interested in your views, and how you see things. There are no right or wrong answers. We want you to imagine that the distance between white & black is 5 units apart (show with one hand). We then want you to use that distance like a ruler, to measure the distance between such terms as "forest" & "forest products", "forest" & "conservation".



1=close

5=distant

Some things like "forest" and "forest products" might seem quite close and you might give them a 2 and others such as "conservation" and "hunting" might seem distant and you might give them a 4. To use an example from health we might find the following distances

Health - Good diet 2

Health - Listening to the radio for 10 mins a day 3

Health - Smoking 100 cigarettes a day 4

Health - Drinking several bottles of spirits a day 4

Remember there are no right and wrong answers, we are very interested in your thoughts and views and the distance you decide between the words on this form

Do you understand what is required (repeat if not)

Thank you

APPENDIX 2b: FOREST VALUE/THEME SCALING (Chinese)**环境认识调查**

我们想知道你是怎样理解和感知你生存的自然环境的，特别是对于森林的认识。在这里给出了一些对这个地区来说很重要词句，我们想知道村民对这些词句所涉及到的问题和现象是怎样认识的、是怎样看这些问题和现象的。回答这些问题不存在对与错。我们想让你设想在白与黑之间相隔 5 格的距离概念。因此我们想让你把这个距离的概念看成一把尺子，并且来思考 "森林" 与 "林副产品"、"森林" 与 "水资源" 的规定之间的距离等问题。（1=接近 5=距离）



比如像 "森林" 与 "林副产品" 十分接近(几乎 2 格内)，有的像 "森林" 与 "水资源保护" 看上去不那么接近，(大概是 4 格)。

下面我们以健康为例，我们可能会找到如下的距离：

- | | |
|------------------|-------|
| 1) 健康 | |
| 2) 好的饮食 | --2-- |
| 3) 每天听 10 分钟的收音机 | --3-- |
| 4) 一天抽 100 支烟 | --4-- |
| 5) 一天喝许多瓶饮料 | --4-- |

请记住我们只是想知道你的想法、观点和你对所给词句所作出的距离上的判断，对问题的回答没有对与错。

APPENDIX 3 : COGNITIVE MAPPING SURVEY

ID				
FOREST 森林				
wildlife 野生动物	1	yourself 自己	48	Natural Environmental Function 森林的自然功效 95
conservation 人类自然保护	2	tib buddhism 藏传佛教	49	forest products 森林产品 96
blessing 天赐	3	this place 这个地方	50	Natural Hydrological Function 水力的自然功效 97
men 男人	4	yul-lha 神山	51	ind forestation 经济造林 98
women 女人	5	hunting 狩猎	52	socialism 社会主义 99
yourself 自己	6	Natural Environmental Function 森林的自然功效	53	Ganzi 甘孜市 100
tib buddhism 藏传佛教	7	forest products 森林产品	54	THIS PLACE 这个地方
this place 这个地方	8	Natural Hydrological Function 水力的自然功效	55	yul-lha 神山 101
yul-lha 神山	9	ind forestation 经济造林	56	hunting 狩猎 102
hunting 狩猎	10	socialism 社会主义	57	Natural Environmental Function 森林的自然功效 103
Natural Environmental Function 森林的自然功效	11	Ganzi 甘孜市	58	forest products 森林产品 104
forest products 森林产品	12	MEN 男人		Natural Hydrological Function 水力的自然功效 105
Natural Hydrological Function 水力的自然功效	13	WOMEN 女人	59	ind forestation 经济造林 106
ind forestation 经济造林	14	yourself 自己	60	socialism 社会主义 107
socialism 社会主义	15	tib buddhism 藏传佛教	61	Ganzi 甘孜市 108
Ganzi 甘孜市	16	this place 这个地方	62	YUL-LHA 神山
WILDLIFE 野生动物		yul-lha 神山	63	hunting 狩猎 109
conservation 人类自然保护	17	hunting 狩猎	64	Natural Environmental Function 森林的自然功效 110
blessing 天赐	18	Natural Environmental Function 森林的自然功效	65	forest products 森林产品 111
men 男人	19	forest products 森林产品	66	Natural Hydrological Function 水力的自然功效 112
women 女人	20	Natural Hydrological Function 水力的自然功效	67	ind forestation 经济造林 113
yourself 自己	21	ind forestation 经济造林	68	socialism 社会主义 114
tib bud 藏传佛教	22	socialism 社会主义	69	Ganzi 甘孜市 115
this place 这个地方	23	Ganzi 甘孜市	70	HUNTING 狩猎
yul-lha 神山	24	WOMEN 女人		Natural Environmental Function 森林的自然功效 116
hunting 狩猎	25	yourself 自己	71	forest products 森林产品 117
Natural Environmental Function 森林的自然功效	26	tib buddhism 藏传佛教	72	Natural Hydrological Function 水力的自然功效 118
forest products 森林产品	27	this place 这个地方	73	ind forestation 经济造林 119
Natural Hydrological Function 水力的自然功效	28	yul-lha 神山	74	socialism 社会主义 120
		hunting 狩猎	75	Ganzi 甘孜市 121

Appendix 3 Cognitive Mapping Survey

				Natural Environmental Function 森林的自然功效	
ind forestation 经济造林	29	Natural Environmental Function 森林的自然功效	76		
socialism 社会主义	30	forest products 森林产品	77	forest products 森林产品	122
Ganzi 甘孜市	31	Natural Hydrological Function 水力的自然功效	78	Natural Hydrological Function 水力的自然功效	123
CONSERVATION 人类自然保护					
		ind forestation 经济造林	79	ind forestation 经济造林	124
blessing 天赐	32	socialism 社会主义	80	socialism 社会主义	125
men 男人	33	Ganzi 甘孜市	81	Ganzi 甘孜市	126
				FOREST PROD 森林产品	
women 女人	34	YOURSELF 自己			
				Natural Hydrological Function 水力的自然功效	127
yourself 自己	35	tib buddhism 藏传佛教	82		
tib buddhism 藏传佛教	36	this place 这个地方	83	ind forestation 经济造林	128
this place 这个地方	37	yul-lha 神山	84	socialism 社会主义	129
yul-lha 神山	38	hunting 狩猎	85	Ganzi 甘孜市	130
				Natural Hydrological Function 水力的自然功效	
hunting 狩猎	39	Natural Environmental Function 森林的自然功效	86		
Natural Environmental Function 森林的自然功效	40	forest products 森林产品	87	ind forestation 经济造林	131
forest products 森林产品	41	Natural Hydrological Function 水力的自然功效	88	socialism 社会主义	132
Natural Hydrological Function 水力的自然功效	42	ind forestation 经济造林	89	Ganzi 甘孜市	133
				IND FORESTATION 经济造林	
ind forestation 经济造林	43	socialism 社会主义	90		
socialism 社会主义	44	Ganzi 甘孜市	91	socialism 社会主义	134
Ganzi 甘孜市	45	TIB BUD 藏传佛教		Ganzi 甘孜市	135
BLESSING 天赐		this place 这个地方	92	SOCIALISM 社会主义	
men 男人	46	yul-lha 神山	93	Ganzi 甘孜市	136
women 女人	47	hunting 狩猎	94		

APPENDIX 4 : CONTACTS

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 Natural resources stewardship & Community Development
 Indigenous harmony with nature
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 NTFP
 Forests and people
 MDS
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 Upland conversion policy in China
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