

Factors Supporting Small over Big Watershed Development*

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Objectives

- To examine social dynamics that affect participation and to gain a better understanding of the dynamics of group action so that factors that induce and encourage group action for the natural resource management system can be identified
- To understand better the factors and processes associated with community approaches and usage of natural resources in mountain areas under traditional and present-day systems
- To identify factors that could promote participation and collective action in watershed management and the choice of watershed size and approaches to upscaling participation

Definitions

Devoid of finer, technical definitions, integrated watershed management implies usage or harnessing of an organically (naturally) unified land-resource unit which permits continuous regeneration and prevents degradation of the natural resource base in the interests of overall human development.

What is participatory integrated watershed management (PIWM) and what are the watershed management approaches and shifts in primacy?

This module views PIWM as the latest stage in the evolutionary process of thinking and action on watershed management. Accordingly, users' participation is being increasingly emphasised as the kingpin of strategies for WM. Participation is a social phenomenon rather than a physical one. However, the former is not a context-neutral phenomenon. The watershed provides the context. The module pleads for a better understanding of the dynamics of group action to help promote participatory approaches. Furthermore, an understanding of these dynamics also supports the small rather than the

large watershed as a unit of PIWM. To elaborate, the factors and processes associated with the biological and physical diversity of watersheds, the weakening of the traditional community stake in the local natural resource base, the lack of scale neutrality in participatory practices, and physical and socioeconomic constraints to upscaling participation tend to favour small watersheds for effective PIWM.

Approaches to watershed management: the shifting primacy

The extent of resource degradation (as against regeneration) is closely linked to the degree of indiscriminate intensification of resource use. Increased intensification of resource use, unaccompanied by appropriate measures for conservation of the resource base through terracing, hedgerows, etc) invariably leads to resource degradation. Realisation of this fact has been the primary motive behind advocacy and action for integrated watershed management. Despite over three decades of concentrated work in this field in Asian countries, approaches and mechanisms are still evolving. Every new step reveals new gaps and the need for adding new components to prevailing approaches. For instance, work on watershed management/development largely focussed on aspects such as land shaping, promotion/protection of the tree component as under alley cropping, and other agroforestry initiatives. Specific sectoral focus, particularly the forest component or soil conservation, received higher priority in watershed development.

Learning from the above led to greater attention being given to an integrated approach through which different land uses within the watershed were emphasised. For a long time such integrated approaches did not go beyond the pilot-project stage. Lack of sufficient funds was identified as a key constraint. This led to substantial fiscal resource support from donors to promote a watershed approach to land use in different countries. However, the injection of additional resources through government agencies (e.g., forest departments, soil con-

* In this paper, use of the term 'upscaling' refers to improvement in contexts related to training, skills, increasing participation and also physical improvements. It is not to be taken in a social sense and does not imply inferiority in the social sense.

servation departments, etc) led to a reinforcement of the sectoral approach rather than a genuinely integrated approach. Moreover, this meant the imposition of the old public works' department (PWD)) culture of project planning and implementation, in which watershed development was treated as civil works involving top-down decisions, engagement of contractors, little concern for local knowledge and community participation (except as wage labourers or recipients of grants or subsidies). Following the realisation of the inappropriateness of this approach and the increasing advocacy of participatory approaches supported by NGOs, donors, etc, a new element, namely, user participation, was added. This led to what is described as participatory integrated watershed management (PIWM).

What does the PIWM approach share with previous approaches ?

As of today PIWM represents the latest stage of thinking and action on the subject. This is promoted by fiscal support, technical training, capacity building, and to some extent, government commitment. However, this approach also shares some attributes of past approaches, which need to be minimised in order to avoid consequences detrimental to the promotion of PIWM. They are discussed below.

Uncontested acceptance of the approach

If one looks at the history of watershed management/development programmes in Asian countries, each stage or phase was dominated by a specific focus. Perceived primacy and domination of conservation techniques; overemphasis on specific sectors (e.g., forestry); overreliance on public sector wisdom; and a PWD approach in execution of watershed projects—equating increase in resource allocation and spending with watershed development—treatment of NGO involvement as the final indicator of community participation, etc. As in the past, present efforts are now treating participation of resource users (e.g., farmers) as the kingpin for watershed development. This paper pleads for closer examination of the social dynamics that affect participation.

Emphasis on a generalised, standard approach to community participation

Community participation is a social phenomenon. Rural communities are highly diverse, and because of these diversities participation can not be a scale-neutral phenomenon. Participation is emphasised as a major component of PIWM for diverse biological, physical, and socioeconomic environments. This paper pleads for

greater attention to the diversity of stakeholders and their natural resource base because the nature and degree of participation, as watershed management cannot be detached from these diversities.

Persistence of the primacy of the biological and physical dimensions of watershed management but how to incorporate linkages with economic activities extending beyond the physical boundaries?

All approaches to watershed management look at the watershed resource users/managers through the window of a watershed as a spatially fixed biological-physical unit. Accordingly, by implication, the watershed users' 'demands and supplies' are seen to be confined to the watershed. Economic activity by watershed users is assumed to coincide with the physical boundaries of the watershed. In traditional, subsistence-oriented, isolated and small communities this was largely true. However, in today's context, the users' economic links go far beyond the physical boundaries of their watershed. Consequently, users' sustenance-driven stakes in the watershed are diluted; and efficient watershed management ceases to be their exclusive concern. Unless the concept of the watershed is extended to incorporate the catchment of economic activities extending beyond its physical boundaries, the users' stake cannot be fully understood and used for its protection and conservation. This is a major challenge.

Common goals with conflicting perceptions

The focus of WM strategies in the past had the general support of most agencies. However most of them also had their own perceptions about the realities necessitating such focus. This is more so in the case of PIWM: focus on participation is a product of perceptions and the consequent decisions/actions of different stakeholders. Apart from rural communities who have primacy as stakeholders because they are direct users, there are other secondary (but more powerful) stakeholders, such as the state, NGOs, donors, etc. Their perceptions about issues involved in participation differ. The state acting through its technical bureaucracy equates its authority with the knowledge to manage the watershed; it wants the permanent involvement of its agencies in the task even while promoting community participation. NGOs, while helping social mobilisation and community participation, also tend to promote their own agenda as indispensable to donors and governments that use them as mediating agencies between communities and the state. Donors have their own perceptions of watershed development problems and solutions, which may not match with the community's. Rural com-

munities, due to increased economic differentiation and factionalism, also do not have a uniform view of watershed management issues.

However, the most important feature of secondary stakeholders' perceptions is their understanding of the rural community and the watershed as a unit of resource management. Accordingly, heterogeneities or diversities characterising rural communities and watersheds are ignored in the promotion of a generalised approach to PIWM. Any PIWM approach built upon the recognition and understanding of these diversities will have a greater chance of success. By implication this will call for the designing and evolution of location- and community-specific micro-solutions within the overall framework of macro-level strategies. This line of thinking again supports small rather than large watersheds as a unit of planning and management.

All of these issues are interlinked and suggest greater priority be given to small rather than large watersheds as a unit of management.

Has group action for natural resource management (NRM) changed? How? And why?

Group action for NRM - past and present

This digression into traditional or indigenous systems of natural resource management (NRM) is essential because most agencies (donors, NGOs, and governments) have a 'romantic' view of rural communities and their traditional group actions. They often look at rural communities as homogeneous entities ready for group action, provided that some incentives, technical assistance, and local capacity building are ensured. This view is complemented by the 'romantic' view of traditional forms of group action, which in fact were products of circumstance and are non-existent today. As Table 1 indicates, with changed institutional, economic, and technological circumstances, the community's stake in natural resources, and hence the group action for their management, quickly disintegrated and disappeared. For instance, (i) market penetration and changes in the attitudes of village communities have promoted values and approaches that put a low premium on collective strategies; (ii) population growth, the rise in factionalisms, and increased economic differentiation have made it difficult to evolve and maintain a community stake; (iii) depletion of the natural resource base (NRB) and depletion of the culture of group action (representing what is called 'social capital') tend to reinforce each other in accentuating the community's indifference towards rehabilitation of the NRB for collective gains; (iv) the le-

gal, administrative and fiscal mechanisms (despite lip service to the opposite) have a strong tendency towards centralisation and application of uniform, generalised top-down solutions, ignoring diversities at the grass roots.

However, while it is neither feasible nor desirable to revive traditional circumstances and practice, the latter's rationale could help to evolve approaches to PIWM. To understand this it is essential to look at the factors that induced and encouraged group action for NRM.

What are the major factors that induce and encourage group action for natural resource management (NRM) systems?

Three pillars of traditional NRM systems

Three elements of traditional resource management/usage systems, which in the past played a crucial role in preventing human-induced degradation and facilitated regeneration of natural resources, can be identified. These elements, along with the objective circumstances that promoted and strengthened them, were

- a strong community stake in their NRB facilitated by almost total or crucial dependence on it,
- local control over local resources, resulting from isolation and inaccessibility that induced a degree of autonomy, and
- resource users' and decision-makers' functional knowledge of limitations and usability of their diverse NRB resulting from the people's close physical proximity and access to resources.

The incorporation of the three elements into the present resource-use systems may help in rehabilitation and conservation and should be promoted. However revival of historically associated objective circumstances (e.g., exclusive and almost total dependence on local resources, semi-closed communities, physical proximity) is neither possible nor desirable. Hence, the challenge lies in creating present-day functional substitutes that can promote the three elements and induce communities to protect and regenerate their watershed resources. In fact remedial approaches indicated in Table 2 sum up the prerequisites for successful PIWM.

When reinterpreted in the context of PIWM, the understanding of traditional arrangement could be put in terms of factors favouring and those obstructing participation in watershed (or natural resource) management. Table 3 summarises them. Though most factors

Table 1: Factors and processes associated with the community approaches and usage of natural resources in fragile mountain areas under the traditional and the present systems

Situation under traditional systems	Situation under present-day systems
<p>A. <u>Basic objective circumstances</u></p> <ul style="list-style-type: none"> • Poor accessibility, isolation, semi-closeness, low extent of and undependable external linkages and support; subsistence-oriented small populations • Almost total or critical dependence on local, fragile, diverse NRB <p>Bottom line: High collective concern for health and productivity of NRB as a source of sustenance</p> <p>B. <u>Key driving forces/factors generated by A</u></p> <ul style="list-style-type: none"> • Sustenance strategies totally focussed on local resources • Sustenance-driven collective stake in protection and regeneration of NRB • Close proximity and access-based functional knowledge/understanding of limitation and usability of NRB • Local control of local resources/decisions; little gap between decision-makers and resource users <p>Bottom line: Collective stake in NRB supported by local control and functional knowledge of NRB</p>	<ul style="list-style-type: none"> • Enhanced physical, administrative and market integration of traditionally isolated, marginal areas/communities with dominant mainstream systems on the latter's terms; increased population • Reduced critical dependence on local NRB; diversification of sources of sustenance <p>Bottom line: Reduced collective concern for local NRB; rise of individual (extractive) strategies</p> <ul style="list-style-type: none"> • External linkage-based diversification of sources of sustenance (welfare, relief, trade) • Disintegration of collective stake in NRB • Marginalisation of traditional knowledge and imposition of generalised solutions from above • Legal, administrative, fiscal measures displacing local controls/decisions; wider gap between decision-makers and resource users <p>Bottom line: Loss of collective stake and local control over NRB; resource users respond in a 'reactive' mode</p>
<p>C. <u>Social responses to B</u></p> <ul style="list-style-type: none"> • Evolution, adoption of resource-use systems and folk technologies promoting diversification, resource protection, regeneration, recycling, etc • Resource use/demand rationing measures • Formal/informal institutional mechanisms/ group action to enforce the above <p>Bottom line: Effective social adaptation to NRB.</p>	<ul style="list-style-type: none"> • Extension of externally evolved, generalised technological/institutional interventions that disregard local concerns/experiences and traditional arrangements • Emphasis on supply-side issues ignoring management of demand-pressure • Formal, rarely enforced measures <p>Bottom line: NRB over-extracted as open access resources</p>
<p>D. <u>Consequences</u></p> <ul style="list-style-type: none"> • Nature-friendly management systems evolved and enforced by local communities; facilitated by close functional knowledge and community control over local resources and local affairs <p>Bottom line: Resource-protective/regenerative social system-ecosystem links</p>	<ul style="list-style-type: none"> • Over-extractive resource-use systems, driven by uncontrolled demands • Externally conceived, ineffective and unenforceable interventions for protection of NRB • Little investment and technology input into NRB <p>Bottom line: Rapid degradation of fragile NRB; 'nature pleads not guilty'.</p>

Source: Table adapted from Jodha (1997)

favouring participation or collective action are interlinked they can be broadly grouped as economic, social (cultural), historical, and (for want of any other appropriate term) operational factors (Table 3). Most of these factors favour small watersheds. According to

Table 3, the factors that promote participation include commonality of perceived interests or a collective stake in the watershed, possibilities of integrating diverse interests and developing functional interdependencies, and upscaling of participation in

Table 2: Approaches and constraints to revival of key elements of traditional natural resource use systems in the present context and remedial approaches

Community stake in local natural resources	Local control over local natural resources	Recognition and use of resource users' perspectives and traditional knowledge systems
Constraints		
<ul style="list-style-type: none"> Formal legal, administrative fiscal controls/restrictions creating a range of perverse incentives; reactive mode of community behaviour as individuals Highly depleted status of NRB creating no hope and no incentive to have a stake in it More diverse and differentiated communities with different individual rather than group-based views on community resources 	<ul style="list-style-type: none"> State's in-built resistance to self-disempowerment through passing decision-making power to local communities; focus on 'proxy arrangements' e.g., village <i>panchayats</i> Faction-ridden rural communities driven by diverse signals and concerns NGOs as key change-facilitating agents, often governed by own perspectives and concerns 	<ul style="list-style-type: none"> Top-down interventions with a mix of 'arrogance, ignorance and insensitivity' towards local perspectives and traditional knowledge systems Focus on old context-specific forms of traditional practices rather than their rationale for use in the current context Rapid disappearance and invisibility of indigenous knowledge
Possible remedial approaches		
<ul style="list-style-type: none"> Genuine local autonomy for local resource management; legal framework and support system for NR users' groups Resource protection, investment and use of new technologies for regeneration/high productivity of NRB Collective stake through planned 'diversification' and 'shareholding' system in natural resource development and gains 	<ul style="list-style-type: none"> Genuine decentralisation, decision-making powers and resources to communities; raising latters' capacities to respond to the above (with the help of NGOs) Rebuilding 'social capital', mobilisation and participatory methods using NGO input; focus on diversified, high-value products from rehabilitated NRB Required changes in NGO approaches/perspectives by introspection; involving small local groups and unlabelled agencies 	<ul style="list-style-type: none"> Promotion of bottom-up approaches to resource management strategies using participatory methods and NGO help Focussed efforts to identify present-day functional substitutes of traditional measures for resource management R&D to incorporate rationale of traditional knowledge system using experiences of successful initiatives

Source: Table adapted from Jodha (1997)

Note: Most remedial measures require new/changed institutional arrangements at micro- and macro-levels as indicated by Jodha (1997)

natural resource management. Furthermore, most of the above possibilities are directly linked to participants' close and functional knowledge of the watershed resources and a history of collective action in the past. Most factors mentioned above are social phenomena, and they need to be understood fully before action is taken. How to set the boundaries of PIWM? How to choose the size of PIWM: big versus small?

Participation is a social phenomenon and neither a biological nor a physical entity. Hence the choice of a big or small watershed as a unit of management is likely to be dictated by socioeconomic circumstances characterising the watershed or its users. Furthermore, participation (and size of participating groups) is context specific. The context is provided by the watershed. The biological and physical features of a watershed (and the functional knowledge of the users) and the degree to

Table 3: Dynamics of Participation in Natural Resource Management and Choice of Large Versus Small Watershed

Factors favouring participation	Factors obstructing participation
<p>Economic: Commonality of interest (collective stake) based on sharing of common (or similar) products, meeting common demands, following common/similar resource-use practices/systems, diversification of resource-use involving inter-linked activities; physical proximity and knowledge of resource potential/limitation help in evolving collective or integrated measures.</p> <p>Social: Possibility of integration of diverse interests in common stake through 'social capital', i.e., perceptions of collective inter-dependence despite diverse uses and products using shared values, trust, mutuality, perceived inter-dependencies, etc, promoting group action; community's closer knowledge; and control of natural resource base helps in promoting collective perceptions for common stake</p> <p>Historical: Learning and dependence on traditional systems of group action and resource management systems</p> <p>Operational: Possibility of upscaling participation through diversification and federating small units or integrating production-processing-marketing activities rooted in WS potential (see Table 4)</p>	<ul style="list-style-type: none"> • Diversity/heterogeneity of products/supplies, resource-use practices and requirements • Diversities of demands or expected gains from natural resource base <ul style="list-style-type: none"> - The larger the size of the watershed (WS) or users group, the greater are obstructions to group action • Lack of physical proximity and practical knowledge of resource base, awareness of nature-society interactions in the past, oral history of traditional sharing system, etc <ul style="list-style-type: none"> - The larger the WS, the greater are the above gaps, which obstruct the building of collective stakes, 'social capital'. - Traditional arrangements and their oral history being more location specific, they lose their immediate relevance/ effectiveness with increased size of watershed and number of users. • Participation in natural resource management is not scale neutral. For reasons of biological-physical and socioeconomic diversities, operational logistics, etc, participation cannot grow in a linear fashion as required in a large watershed.

which the resource base, its products, gains, etc is shared provide the context in which social and economic interactions take place. The area of social-economic interactions thus sets the boundaries of a watershed as a functional spatial unit. In other words the boundaries of social group action when superimposed on the biological-physical boundaries create spatial units in which social system and eco-system links reinforce each other. Thus watershed size for PIWM is decided more by non-physical features and less by physical ones. In view of this, the size of a watershed cannot be fixed. Yet if one thinks in terms of boundaries of effective social interactions, a small watershed has a better chance of facilitating PIWM.

While talking of big versus small, we talk of the functional unit rather than the specific area of a watershed. The preference for small is guided by factors facilitating participation. The issues involved are summarised in Table 3. To reiterate, commonality of interests or common/collective stake; possibilities of integrating diverse inter-

ests into a common stake through 'social capital'; possibility of learning from and dependence on traditional/indigenous knowledge and practices; and scope for upscaling participation may help to promote PIWM. An intimate understanding and knowledge of the resource base (both potential and usability) may help in the above processes. It may also be added that all of the above factors and their imperatives tend to weaken with an increase in the size of the watershed and its users' group.

Other problems associated with past efforts to promote PIWM will decrease with small watersheds. For instance, the extent of irrelevant standardisation imposed through top-down approaches; problem of 'leakages' of resources for unintended purposes; gap between decision-makers and resource users can be reduced with the greater focus afforded by small watershed units. Due to greater transparency and visibility of association between efforts and gains, local resource mobilisation for PIWM will have greater chances of success when focussed on small watersheds.

How should diverse concerns be reconciled? How should participation (horizontal and vertical) be augmented ?

To reconcile participation supporting small watersheds with the benefits of macro-level approaches/logistics favouring larger units, participation must be upscaled. Firstly, measures supporting participatory efforts (planning, funding, R&D, etc), where group action by primary stakeholders is not involved, can focus on the larger scale within the watershed. Secondly, in order that small units benefit from macro-level arrangements the upscaling of participation can be addressed in two ways: horizontal and vertical (Table 4).

Horizontal upscaling of participation means arrangements for federating small watershed units through PIWM. There are several examples in the fields of agriculture, horticulture, dairy farming, etc. Small units are established in keeping with locational specifics and advantages, and to capture the advantages of scale, they have purpose-specific federating arrangements. They retain flexibility and autonomy of decisions suited to local requirements while securing the benefits of macro-level arrangements. The promotion of this approach will help address concerns associated with participatory natural resource management (Table 2). Diversification of

watershed-based activities in response to today's economic and social circumstances is another approach to upscaling participation.

Vertical upscaling of participation means expanding the range of stakeholders by extending activities beyond biomass (crops, timber, etc) into agroprocessing and other value-adding activities. This is also another form of diversification involving responses to market opportunities. This may also extend the watershed beyond its physical boundaries into the economic catchment and facilitate further integration of the diverse interests of groups dependent on its resources. This may also help to address concerns mentioned earlier (Table 2): (i) focus on the economic rather than biological-physical context; (ii) focus on economic gains rather than just biomass production; and (iii) revival of some elements of traditional systems of natural resource management.

The above suggestions may amount to thinking aloud but they are supported by scattered field experiences. Explaining their potential through pilot-scale initiatives may have a high pay-off compared to mainstream participatory approaches to integrated watershed management.

Table 4: Approaches to Upscaling Participation (moving from smaller to larger watersheds)

Form of upscaling	Potential gains
HORIZONTAL UPSCALING <ul style="list-style-type: none">• Focus on small watershed units• Product/purpose-specific federating of smaller units• Diversification based on spatially differentiated but economically interlinked activities rooted in the watershed resource base• Facility of access to macro-level services, inputs without discarding flexibility and priorities of local watershed units	<ul style="list-style-type: none">• Recognition and use of factors favouring participation in PIWM (see Table 3) and also benefits of scale <p>Constraints: Logistics of covering large-scale watersheds by PIWM through federating arrangements are more difficult than large-scale investment; needs innovative institutional arrangements</p>
VERTICAL UPSCALING <ul style="list-style-type: none">• Qualitative shift in diversification by focus on high-value/value-adding options (products/services)• Going beyond biomass production, incorporating processing/marketing, etc, of watershed products• Lessons from arrangements covering vegetable/spices, horticulture, food grain/seed production, processing/marketing in different areas	<ul style="list-style-type: none">• Potential extension of watershed boundaries and watershed management activities to wider economic catchment of watershed communities and their partners in other watershed <p>Constraints: Resistance to acceptance of innovative approaches by government agencies; lack of appropriate institutional arrangements</p>



Big Watershed



Small Watershed

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