THE GLOBAL MOUNTAIN PROGRAM

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Annual Report 2005

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The Global Mountain Program is a system wide program of the Consultative Group on International Agricultural Research (CGIAR). It was created by the CGIAR to respond to Agenda 21 to address key issues identified in Chapter 13 on the sustainable management of fragile mountain environments, especially as it related to issues in Chapter 14 on Agriculture. Since Johannesburg commitments to achieving the Millennium Development Goals (MDGs) provide additional relevance to the program.

Mission
To support the Millennium Development Goals the GMP seeks to bring together scientific expertise of the CGIAR, local knowledge of mountain people and partner institutions to find solutions to foster sustainable mountain development

Broad goals
1. Increased food and economic security that improve the well being of mountain people
2. Improved upper watershed management that enhance rural livelihoods and environmental services
3. Conservation, understanding and use of the wealth of mountain biodiversity for the benefit of mountain people.
4. Better mountain policies developed through informed and participatory policymaking.
5. Sustainable agriculture as stated in chapter 13 of Agenda 21

It does this through
1. Engagement in the Global Discussion on mountains.
2. Development of a CGIAR wide platform for joint work for mountains.
3. Support of research to better understanding of the biophysical and socio-economic processes directly impinging on the livelihoods of mountain people.
4. Enhancing the exchange of knowledge of successful experiences between mountain regions.

Governance
The GMP is governed programmatically by a Steering Committee that meets once a year. Overall, legal governance oversight is provided by the CIP board. Chair is elected for a three year term.

Members of the Steering Committee
Dr. Ann Stroud (Coordinator AHI), Dr. W. Gabriel Campbell (Director ICIMOD), Dr. Hector Cisneros (Coordinator CONDESAN), Dr. Jimmy Smith (CIDA), Dr. Adolfo Cazorla (unitl & new Spanish Representative to be advised), Dr. Ola Smith (GFAR), Chair Dr. Hugo Li Pun (until May 2005 new representative to be advised) , Dr. Peter Trutmann (GMP coordination).

Management
Coordination: Dr. Peter Trutmann

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2005 OVERVIEW

2005 was a year of major changes in the Global Mountain Program. There were changes in the management and the vision of the convening center CIP. There were unforeseen changes in the Steering Committee, changes in the funding of the program, changes in directions to Centers due to new directives from the Science Council. These changes led to substantial reorientation of the program. The reorientation is reported on in Planning and Reorientation Section of the report.

Nevertheless, the fluid environment has not prevented solid achievements by the Program. Two commissioned reports became available this year: one on NRM policy in the East African Highlands with ICRAF and the University of Nairobi, and the other the status of crop genetic diversity with IFPRI carried out by Makerere University. The African Node of the Mountain Forum (MF) became operational in Uganda through full funding by the GMP and joint supervision of the manager with African Highlands Initiative (AHI). The MF is the official international information network organization for mountain People and the principal information support organ for the GMP. The seed systems research and development by CIP made strides and provided a report on the bottlenecks to potato seed. In preparation for 2006, a thematic area was developed on Rural Urban Linkages for sustainable mountain development and a Research Fellow selected to develop the theme in Ethiopia who will start in 2006. Finally an agreement was signed through CIP with FAO to support analysis of mountain policies in the Andes.

The new Science Council guidelines prompted planning the Medium Term Plan (MTP) to fit the new guidelines and to move the program more effectively as a vehicle to channel the CGIAR resources and knowledge to support sustainable mountain development. The program now has three outputs:

1. Collection and analysis of CGIAR products for mountains and support research and coordination for better information systems for mountain people.
2. Strengthening Rural Urban Linkages (RUL) in mountains. We will elaborate further on the theme in later sections of the report. The theme's first benchmark site is being developed in close collaboration with the African Highlands Initiative (AHI), and the Urban Harvest Program in Africa and substantial support from ICRAF. The first benchmark site will be Addis Ababa in Ethiopia.
3. The third output is on Mountain Policies. In this we linked our own activities in Africa with those of the Sustainable Agriculture and Rural Development in Mountains (SARD-M) Project of the Adelboden Group at FAO.

A further output on a highly important theme of vulnerability and Global climate and economic change has been addressed in the Planning Section of the report, but is kept on hold for elaboration in the future.

The report this year is organized around these outputs, whilst at the same time keeping a section for research which in 2006 will be eliminated from the new GMP areas of activity. Reasons for their exclusion will be given.

In December the fruits came to fruition of a years labor working with the SARD-M Project of the Adelboden group at FAO. We succeeded also in efforts to develop the first joint activities with our Andean partner CONDESAN. A joint SARD-M policy project was started in two countries of the Andes that links into a global effort coordinated by FAO.

The GMP participation in the Global dialogue on mountains was reinforced through our 1) membership in the Adelboden Group's Bureau, 2) with the initiative of the GMP to follow up on the Cusco meeting 2004 by moving forward the Sustainable Agriculture and Rural

Development in Mountain (SARD-M) Initiative of the official international platform on mountains, the Mountain Partnership (MP), by moderation of an e-consultancy on the priorities, structure and future of the initiative. It is to be distinguished from the SARD-M project of the Adelboden Group. The SARD-M project is part of the SARD-M Initiative of the MP. By all reports the consultancy was very successful.

A substantial amount of time was spent building up relations with institutions and donors. In January CIDA and IDRC were visited; in March the SDC; and in July USAID. Partners were visited and consulted including AHI, ICRAF, ILRI, CIAT, CIFOR, IWMI, ICIMOD, CONDESAN, the Mountain Research Initiative (MRI), CDE (University of Bern), Ethiopian Institute for Agricultural Research (EIAR). This list is far from complete, but gives an idea on the efforts that have been made to strengthen the GMP's visibility, donor relations and partnerships.

I would like to use this opportunity to acknowledge and thank the GMP supporters. In particular, I would like to thank the Government of Canada for their generous support of the program. Their contributions have made the possible most of the activities and the core developments of the GMP. I would also like to thank the Government of Spain for using the GMP to support activities in mountainous countries of Latin America. Finally, I would like to thank the Government of Switzerland for their longstanding support of the program in the past.

Finally, in the name of the Global Mountain Program I would like to thank to Dr. Hubert Zandstra and Dr. Hugo Li Pun for their support to the program in the past. Similarly, I would like to extend a warm welcome to Dr. Pamela Anderson, the new Director General of our Convening Center, as well as to Dr. Charlie Crissman the new Director of Research. The GMP looks forward to working with you to develop a very positive and strong partnership in the future.

Sincerely,

Peter Trutmann
Leader
Global Mountain Program
Lima, August 2006

I. PLANNING AND REORIENTATION

The CIP Vision document, developed in 2003 resulted in a restructuring of the research program. The System wide and Ecoregional programs hosted by CIP were accorded separate project status consistent with CGIAR practice. The GMP was moved from obscurity as a subprogram of the NRM Program of CIP to a separate Partnership Program on the CIP organizational chart. Since late 2004, the GMP for the first time enjoyed it own leadership. A steering Committee (GMPSC) for independent programmatic governance structure has been set up since the end of 2003 that includes regional SWEP partners, CONDESAN in the Andes and the African Highland Program (AHI) in East Africa, as well as the International Center for Integrated Mountain Development (ICIMOD) in the Hindu Kush Himalayas. In addition, the GMPSC includes representatives from donors and other groups like the Global Forum on International Agricultural al Research and Development (GFAR). New funding was secured from CIDA and INIA Spain. The CIP board in 2005 welcomed the changes and the strengthening of the program.

The year 2005 has been a year of facing unexpected realities for the GMP. The new organizational structure at CIP in 2004 had been very positive. Yet, the positive changes had funding consequences. Substantial funds that had previously flowed though the GMP and had financed the MTP activities remained in the new CIP NRM DIVISION where the GMP had been housed. Without these funds various MTP 2005 milestones could not be achieved.

In 2005, there were substantial management changes at CIP. In May the new Director General, Dr. Pamela Anderson, took over from Dr. Hubert Zandstra. The position of chair of the GMP Steering Committee occupied by Dr. Li Pun became vacant. Later in the year, Spain INIA responsibilities for supporting Latin American INIAs and for the PhD program were moved to other CIP units, leaving the GMP a smaller operational budget than anticipated. In fact, the move had a positive effect on the GMP by liberating it from responsibilities for which it had not been given the tools to manage. The activities had been managed directly through the office of the CIP Director for Corporate Development. The decision brought clarity.

In 2005, the CGIAR Science Council moved the CG Centers to a more tightly controlled, Research 'Output' based MTP. Center performance and funding is to be based much more strictly on compliance with the new MTPs. As a consequence, major efforts took place at CIP and the GMP worked to comply with the new modus operandi. It was also clear that without previous levels of funding of the GMP that the MTP 2005 goals presented and approved by the now chair less Steering Committee could no longer be met. In response, the GMP leadership took the initiative to move through a strategic reorientation process for the program to develop the new MTP, consulting and working with individual GMPSC members, keeping the GMPSC informed on the outcomes.

The process was conducted in a very limited period of time and budget. However, key partners and previous mountain priority documents, as well as the draft CG Priority document were consulted in the process. In addition, emphasis was given to the relevance to the Millennium Development Goals (MDGs). The process included a target mapping exercise that followed a similar process as used by CIP to develop its new vision.

A proposed plan of action

In the future the GMP intends to be a leading integrator of CGIAR activities in mountains, spearheading system wide discussion and research in key areas, collecting and sharing knowledge associated with poverty alleviation, food security, NRM and environment in mountains and contributing evidence based results to the global dialogue and conventions in mountain development.

Refocusing the GMP

Consultations over the last decade have defined numerous problem and priority areas for support of mountain ecosystems and mountain people. This proposal builds from several of these including: The NGO Consultation on Mountains, The Priorities of Sustainable Agriculture and Rural Development (SARD-M) of the International Mountain Partnership, 2004; and the UN Millennium Development Goals. The GMP will seek to assist the CGIAR to implement the MDGs in mountains taking note particularly of the following articles:

- **Poverty eradication (MDG Plan of Implementation 6a, d, e h, j and k, l 7c,d and e, 8f)**
- **Changing unsustainable patterns of consumption and production (MDG Plan of Implementation 14d, 15c, 21a)**
- **Protecting and managing the natural resource base for economic and social development (MDG Plan of Implementation 24e, 25b, 30h, 35 and 36, especially Agriculture 38a through r and Mountains 40a through f)**
- **Implementation articles 40a to f that emphasize mountain eco-systems. These support particular livelihoods and include significant watershed resources, biological diversity, and unique flora and fauna. Many are particularly fragile and vulnerable to the adverse effects of climate change and need specific protection.**

Thus the GMP will seek to support:

- **Research and development that integrates environmental, economic, and social components of sustainable mountain development and actions that strengthen international cooperation on poverty eradication programs.**
- **Research that addresses deforestation, erosion, land degradation, loss of biodiversity and disruption of water flows.**
- **Development of gender sensitive policies and programs that help eliminate inequities in mountain communities, especially indigenous communities.**
- **Research and activities that promote diversification of traditional mountain economies sustainable livelihoods and small scale production systems, including specific training programs, and better access to markets, communication taking into account the particular sensitivity of mountains.**
- **Full participation of mountain communities in decisions that affect them and integrate indigenous knowledge, heritage and values in initiatives.**
- **The mobilization of support for capacity building and applied research for the effective implementation of sustainable development in mountain ecosystems and address the poverty in mountains.**

Priority GMP research activities with be guided by its original Steering Committee approved priority action areas:

- **Increased food and economic security to improve the well being of mountain people**
- **Improved upper watershed management for rural livelihoods and environmental service**

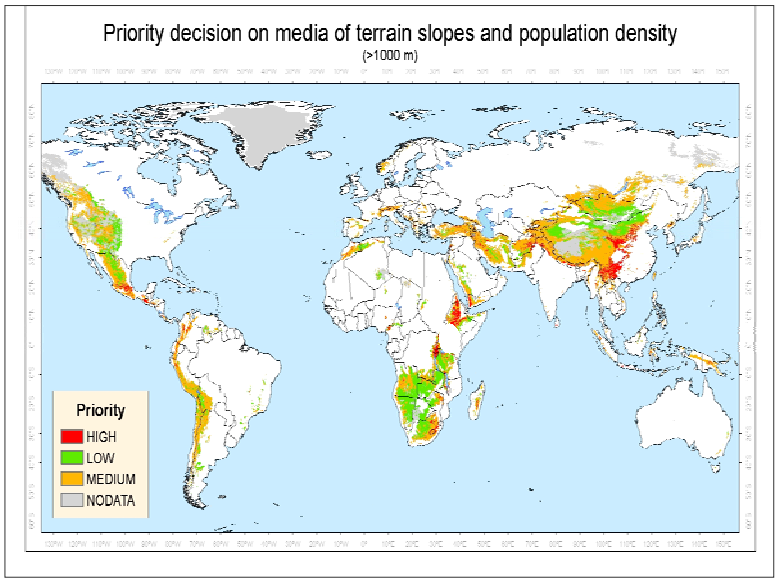
Conservation, understanding and use the wealth of mountain biodiversity to benefit mountain people.

- **Facilitation of better-informed and participatory policymaking.**
- **Promotion of sustainable agriculture within the Mountain Agenda as stated in chapter 13 of Agenda 21**

Geographic priority areas

A poverty target-mapping exercise for mountains (1000 masl and above and 450 masl and above if ecological zoning occurs following UN classification) was completed. We considered slope, population density and poverty level of >25% at < US$1 and <$2 per day.

Poor people on mountain slopes were used as principle indicators of urgency, because it posed the greatest risks on degradation and reduced functionality of mountains, and loss of the resource base to escape poverty cycles. The greatest concentration of people on slopes (in red) was in Africa and China. Secondary centers appeared in the Andes and Central America, HKH and SEA.



Taking into account income levels Africa figures as the primary focus region in the group of <$1.00 a day. China figures as the most important region in the <$2.00 per day. Similar results were obtained when using elevations above 450 masl and 1000masl as the criteria for mountains in order to approximate the UN definition for mountains. It was clear SA (India) and SEA (Vietnam, Myanmar, Cambodia Laos, Papua New Guinea, Philippines figured more strongly as an important region in the <$1.00 per day category in the transition sloped elevations (450-1000 masl).

Using these findings five priority categories were established:

- **Category 1A**, (<$1.00 per day) **Africa:** there are 3-4 hotspots: (>450-1000 masl and >1000 masl) Ethiopia, the Great Lakes region, South African highlands and to a lesser degree Madagascar (Table 1). Ethiopia is the largest of the hotspots.
- **Category IB** (<$1.00 per day) **SA and SEA:** there the ring of high elevation regions (>1000 masl) of northern India, Nepal, northern Pakistan, Bhutan, Tibet and the lower elevation mountainous (450–1000 masl) countries, Myanmar, Vietnam, Laos, Cambodia, Philippines, Papua New Guinea and south western India.
- **Category 2A** (<$2.00 per day): **China:** two hot spots stand out: the south west and central west. These regions are undoubtedly have the greatest density of people on earth living on highly sloped lands in mountains.
- **Category 2B** (<$2.00 per day) **Latin America:** especially in Colombia, Peru, Bolivia, Mexico and Guatemala.
- **Category 2C** (<$2.00 per day) **Caucus's and Central Asia:** Less densely populated but yet substantial regions where people live in sloped lands. Especially, the mountainous belt from Georgia, Armenia, Azerbaijan, Iran, Turkmenistan, Afghanistan, Tajikistan and Kyrgyzstan.

Opportunities

Reflecting on the role of the CGIAR in mountains, it is apparent that over the years there has been a substantial investment and research effort in these regions by individual centers. Much capacity and experience is available in areas of agricultural technology, forestry, natural resource management, management of genetic diversity and policy. The problems in mountains are complex and often process based, rather than purely technological. To date, few issues in mountains have been dealt with in an integrated manner by the CGIAR, nor has there been systematic dialogue on development of coherent strategies by the system to have broad impact in these complex fragile systems.

The proposed GMP action plan

The GMP will concentrate on creating linkages, collecting and disseminating successful experiences and tools particularly in areas related to livelihoods that depend on agriculture and NRM for sustainable mountain development around the world. It will also promote research on key issues that integrate research of the CGIAR with development activities. These activities are aimed to better empower local communities and enhance the overall ability to escape poverty, obtain food security, effectively managed natural resources and management of the environment in mountains. Together, we believe the selected action areas these will increase the effectiveness of the CGIAR in supporting the MDGs and further the mountain agenda.

Objective 1

Information and support for mountain people. Collect the CGIAR "offer" (information, tools, technologies produced in the last 20 years) for mountains; make it accessible, and promote research that enables better access of mountain people to information and support for sustainable mountain development.

The program proposes the following mechanisms to do so:

1. **Access**: Local information and knowledge networks: Bring together current knowledge and research how they function, who or what are the key sources and how to together with communities develop and test realistic, affordable models to strengthen key information support components.
2. **Technical**: Work with groups including the CGIAR Information Technology Groups, to use state of the art Information Technology to deliver more intelligent information systems appropriate for mountain people in the next 10 years. This will be done in collaboration with the Mountain Forum which is the international organ for this purpose and with which we have already signed an MoU to together work towards developing an 'Innovation Marketplace' for mountain people. Connect and Develop cutting edge expertise relevant technical information systems for mountain people.
3. **Products**: The basis of all information and support systems are real products that address real needs. There are many already available, but not collected or processed to be useful for mountain communities. The first task of the GMP is to collect and synthesize the CGIARs "offer", or inventory, of mountain experience, tools technologies and information and to make these easily accessible. Much has been done in the last 25 years that is of relevance today or at least should be provided as options. It is striking that with all the support for CGIAR research over the years there is today no place the information can easily be found.
4. **Expand the role of the CGIAR in the international mountain debate:** The GMP intends to continue to be active in the global dialogue on mountains though close partnership in organizations set up to implement Agenda 21 conventions on mountains.

Expected impact: Effective collective CGIAR action in mountains with governments and other key mountain groups, leading to better support for sustainable mountain development.

Objective 2
Develop and use priority themes to integrate CGIAR experience to enable inter-center collaboration on defined mountain priorities.

Theme 1: Investigate key prioritized issues for mountains with the perspective of Rural-Urban Linkages (RUL)
Urban centers are having ever-greater impact on surrounding rural areas especially in mountains, by being increasingly powerful sinks for rural products and resources. These include water, minerals, and forests for fuel and building material, agricultural products and of people through migration. Without considering the interconnection between these urban centers and rural areas, efforts to support sustainable development of rural communities and the fragile environments in mountains are unlikely to be successful. The success of developing market chain for people and Payment for Environmental Services are intimately connected to understanding rural urban linkages.

If one looks at the programs of the CGIAR and other institutions it is clear that good research is being done. One striking element however, is often the disconnect between each of the studies and sites. Even the Science Council priorities are on the whole a set of relatively disconnected themes. What would happen if we connected some crucial elements that are associated with Rio and the MDGs in mountains? The various strengths of CGIAR centers in policy, germplasm, water, NRM, institutional issues, forestry etc. could be brought to bear on the key issues to produce better chance of joint impact in rural and urban development together with diverse partners. The concept is compatible with the defined needs and priorities in mountains and has the advantage of being a means of bringing together the strengths of the CGIAR in a synergistic manner to have impact with partners on the MDGs in selected benchmark sites around the world.

The RUL theme has been greeted with enthusiasm within and outside the CGIAR. It is also a means of tacking many of the priorities of the CGIAR Science Council in an integrative manner in mountains.

Theme 2. Reducing vulnerability of mountain people and ecosystems to global changes
Mountain people deal with the high variability and uncertainty of mountain environments through complex strategies, based on diversity, flexibility of choices to enhance maneuverability. Climate change and globalization are important concerns for mountain people. The GMP has considerable experience in developing GIS models and tools for decision-making. Key to developing effective, locally appropriate strategies is to learn and incorporate knowledge of lessons learned by mountain people and using new scientific knowledge and tools to mitigate negative impacts.

The objective of the theme would be to provide knowledge and tools that enable communities to better cope with environmental and economic vulnerability in agriculture and NRM in mountains to avoid conflict and prevent or reduce the impact of future crises arising from climate as well as economic changes The theme would target understanding and synthesis of time tested knowledge, tools and systems in mountains especially of indigenous people and building on these with in new science options and tools and opportunities. The research would work in close collaboration with farmers to enable them to design better local systems whilst contributing with the knowledge to the overall design of agricultural/NRM systems needed for sustainable mountain development the future.

This theme has been put on hold for the time being to give priority to starting up of the first new activities. However, theme 2 is a key element in the programs overall vision.

Expected impact: Decision support tools, technologies, methodologies, information and capacity become available to mountain people to deal with increased risk.

Objective 3
Analysis of mountain policies to promote sustainable agriculture and rural development in mountains

Mountain resources are playing an increasingly important role in development processes of countries, but specific challenges of development are rarely reflected in national policies. Enabling policies are regarded by some sources as the single most important factor influencing the sustainable development of mountain areas. Only few countries have adopted coherent policies for the development of mountains. The most evident places of failed or non-existent policies are those where there here conflicts over resources or territory. Identified conflicts include over water, mining, and forests. In other cases such as soils and cultural, bio and genetic diversity there are wide spread, but less politically visible crises. Often these problems are related to centralized, sectorial, rather than decentralized territorial resource allocations and lack of opportunity for rural populations and a lack of policies that provide incentives for stewardship of resources.

The opportunity lies in providing both local communities as well as lawmakers with information on the actual situation and tools to improve the development of enabling and effective policies for SARD-M.

Expected impact: Better available information on the effectiveness of policies and ways to improve policy development for SARD-M in mountains.

II. RESEARCH

The research will be reported in the form of the new MTP framework. Activities which now lie outside the framework will be presented in a separate section. These activities will be phased out in 2006.

1. Seed Systems research

(These activities are to be suspended in 2006)

a. Status of Crop Genetic Diversity in the E. African Highlands: Case study SW Uganda

A study was finished on, 'Assessment of the status of Plant genetic resources in Kabale Highlands. Uganda: a case of cultivated crop species.' One on the status of crop genetic diversity in SW Uganda together with Makerere University, the African Highlands Initiative (AHI) and the International Plant Genetic Resources Research Institute (IPGRI).


Assessment of the status of Plant Genetic Resources in Kabale Highlands, Uganda: A case of cultivated crop species

The study documented genetic diversity and genetic erosion in cultivated crop species so as to develop effective strategies for conservation and sustainable utilization of these resources. Data were collected from a random sample of 120 farmers in 6 parishes using a structured pre-tested questionnaire and analyzed by SPSS for descriptive statistics. Germplasm was collected using IPGRI germplasm collection form. The major cultivated crop species were banana/plantain (*Musa* spp), sorghum (*Sorghum bicolor*. L), peas (*Pisum sativum*. L), beans (*Phaseolus vulgaris* L.), potato (*Solanum tuberosum*. L) and sweet potatoes (*Ipomea batatas*. L) and 25, 10, 6, 28, 13, and 17 cultivars/varieties of these crop species, respectively were identified on the farmers' fields. Minor crops grown include Yams (*Dioscorea* spp), tobacco (*Nicotinum tabacum*), groundnuts (*Arachis hypogea*), coffee (*Coffea* spp), cassava (*Manihot esculenta*), sugar cane (*Saccharum officinarum* L), maize (*Zea mays* L), finger millet (*Eleusine corocana*). L), wheat (*Triticum aestivum*), fruits and Vegetables. Much genetic erosion had occurred to sweet potatoes, potatoes, beans and peas as many varieties were lost completely and others were on the verge of extinction. Other threatened crop species were finger millet (*Eleusine corocana*. L), wheat (*Triticum aestivum*), and pumpkins (*Cucurbita* spp).

The most underlying cause of genetic erosion as mentioned by many farmers (93.7%) was introduction of new varieties. There were two main sources of farmers' seeds (formal and informal). The formal one was mainly used for new/modern varieties as many farmers (50.8%) relied on cash purchase from market and informal one for traditional varieties as many farmers (81.5%) relied of their own stock. There was a lot of seed exchange of modern varieties between the farmers. This has resulted in fast and wide spread of modern varieties and has led to the abandonment of the traditional ones. Sixty seed specimens representing four crop species (beans, sorghum, peas and maize) were collected and conserved at MUARIK, Gene Bank. The loss of traditional varieties results in reduction of the genetic base of the remaining varieties that may have a consequence upon changing environmental and ecological conditions. Therefore, the loss of landraces is a threat to national food security and future genetic improvement programs. There is therefore, an urgent need to collect, document, characterize, conserve and utilize the traditional crops and formulate policies that will protect them from further genetic erosion.

b. Potato bottlenecks to variety adoption, to markets and the use of Farmer Potato tuber multiplication schemes to improve potato production in E. Africa

Poverty alleviation and food security in mountains relies on opportunities of income from crops like potatoes, expansion of markets or development of new markets and the development or maintenance of genetic diversity to ensure against vulnerability. Since potatoes in Africa are a relatively recently introduced crop and to date crop genetic diversity is mainly introduced from centers of diversity in the Americas. CIP plays an important role in this work

The GMP requested CIP to conduct a study to conduct a 'Rapid Appraisal' of variety development models and uptake pathways pinpoint some of the problems. The report noted continued important institutional problems in potato varietal development programs in Ethiopia, Kenya and Uganda:

1. A relatively long period of time from genotype (clones) introduction to variety naming.
2. Low participation of farmers, consumers, processors and other stakeholders (clients) in variety selection process.
3. Researchers' limited knowledge of key variety characteristics preferred by farmers, processors, consumers and other stake holders.
4. Limited ability of national program scientists to design, record and analyze stakeholders perceptions in variety selection
5. Looking at the variety development process in the 3 countries, as well as in many other SSA countries, there is a step on 'On-farm' evaluation that is not adequately handled. Testing varieties under farmer managed conditions, using farmers' cultivars as check is missing.
6. Lack of a clear business strategy by national programs to produce enough quantity of quality seed for launching variety diffusion immediately or shortly after naming of a new variety.

Farmer preferences

Potato variety characteristics preferred by farmers, processors and consumers: Marketability, then disease resistance and taste as secondary factors.

Processor preferences

In Nairobi there is a large demand for crisps and French Fries. Processors are asking for specific quality attributes: distinct, uniform, stable varieties, round tuber shape with shallow eyes, specific gravity under 1.080, dry matter greater than 20%, reducing sugars less than 0.15%, white to light yellow or golden yellow flesh color, tuber size 45-60mm, typical flavor with no off flavor.

Unfortunately, the study is as yet incomplete, emphasizing mainly supply side issues and farmer preferences, rather than consumer, merchant and processor preferences and institutional issues. Since market acceptance is of primary importance to farmers growing potatoes new varieties be grown primarily when merchant have demand for the variety or consumers directly like them. Clearly, a full picture of absence of consumer and merchant preference information that this part of the potato market chain need to be more seriously addressed.

Quality control of commissioned or supported research products is an issue that the GMP has to address. Up to now the GMP has had little control over the products, nor visibility.

There is a need in the program to verify quality of products and to determine follow up action so that individual investments are used to make overall outcomes more effective. At present we do not have good mechanisms for this.

Follow-up of studies and use of the information making available the information in an easy accessible manner is an other. Both these issues will have to be addressed in 2006.

Variety promotion and diffusion methods

Last year we reported the training of 2400 farmers in positive selection and quality seed production of their potato varieties to improve the quality of their seed tubers and on farm potato productivity without new germplasm. Through improving selection methods significant yield increased were obtained. The extension of the process has continued in 2005. This year we are reporting work supported with CIP Africa using the same selection methods to increase production and broaden the gene-pool of local potato germplasm through introduction of new varieties, including those with new sources of resistance to biological constraints. The main outputs of the activity are presented in Table 1.

Table 1. Main outputs per category, and milestone achievement in 2005

Output category*	Output	Milestone 2005	Achievement (%)
Materials	Quality seed of improved varieties available to NARS	13 000 good quality mini-tubers of 15 potato varieties produced and distributed to 9 countries of the PRAPACE network	Achieved in collaboration with PRAPACE, GMP, NARS)
Practices	Strategies for promotion of varieties in seed systems tested	One method for promotion and diffusion of varieties through partnership with extension services, National potato programs, NGOs and farming groups tested	Achieved in collaboration with PRAPACE, GMP, NGOs and NARS
	Method to empower farmers in improving quality of self-supply seed using positive selection technique demonstrated	Method to empower farmers in improving quality of self-supply seed using positive selection technique demonstrated in Kenya, Uganda, Ethiopia	Achieved in collaboration with PRAPACE, GMP, NGOs and NARS
Capacity	Extension workers and farmers empowered in improving quality of self-supply seed using positive selection technique	Over 30 Extension workers and 1000 farmers empowered in improving quality of self-supply seed using positive selection technique in Kenya, Uganda, Ethiopia	Achieved in collaboration with PRAPACE, GMP, and NARS
	Capacity of seed growers enhanced in seed potato production	Capacity of over 30 informal and formal seed growers enhanced in Kenya, Uganda, Ethiopia	Achieved in collaboration with PRAPACE, GMP, and NARS
Other kinds of knowledge	Bottlenecks in variety promotion and diffusion documented	Bottlenecks for variety promotion and diffusion in Uganda, Kenya and Ethiopia documented	Achieved in collaboration with PRAPACE, GMP, NGOs and NARS

***** Output categories are based in the form used for the last year Division Report (see attached document with explanation and examples).

An innovative variety promotion and diffusion strategy was designed and tested. The strategy consisted of (i) strengthening linkages and communication between potato researchers, extensions services, NGOs, informal/ formal seed multipliers, table potato farmers and potato consumers/buyers, (ii) Training of extension workers on techniques to improve quality of farmers' self-supply planting materials, (iii) Selecting and training informal/ formal seed potato growers in strategic potato growing zones, (iv) selecting and training groups of potato farmers on disease identification and techniques to improve quality of self-supply seed using positive selection, (v) Increasing farmers awareness through on-farm demonstration trials (seed from positive selection versus farmers' selected seed) on seed degeneration and need to periodically renew planting material, (vi) Introducing in farmers fields improved varieties available in national program but not yet adopted by recipient farmers' groups.

During discussions on MTP priorities with the CIP Directorate the GMP was asked to drop work on Potato seed systems, since these activities were directly related to CIP's mandate and not those of a System Wide Program. Thus, in 2006 new financing for these activities by the GMP was halted and responsibilities were assumed by CIP. Some GMP funds remained to finish the activities in 2006. Residual funds will be used to finalize studies and activities. Studies on Crop Genetic Diversity will, for the moment be added to the mountain policy portfolio.

2. Information and Support for Mountain People (including preparation for GMP Output I MTP 2006-8)

Information and Communication in mountains of Africa

The GMP supported communication and information activities as well as action oriented research in Africa funded by CFA/CIDA. The basis for the 2006 output target was begun in 2005 by funding the MF position in Uganda through AHI. The node Manager was hired in May and received training in Nepal with the MF Secretariat at ICIMOD. Communication activities began by reestablishing capacity in Africa to run the Mountain Forum. Through AHI, an African manager was employed and trained. At present an e-consultation is being concluded in Africa priorities.

This year the MF node manager was employed through the African Highland Initiative and was trained at ICIMOD by the Mountain Forum Secretariat. The node held an e-consultation on Africa mountain priorities and participated in various other e-consultations organized by the MF. In 2006 a priority of the MF node manager will be to support the collection and analysis of the CGIAR offer for sustainable mountain development in Africa, especially that of AHI and ICRAF. Access to the information is valuable for the mountain/highlands and is part of output 1 of the GMP MTP.

Collection of the CGIAR 'offer' for mountains

Part of the program of the MF Africa in 2006 will to collect the information, tools and technologies of AHI, ICRAF and ILRI in Africa.

Participation in the Global agenda for Mountains

The GMP was an active participant in global forums on sustainable mountain development in mountains. The GMP is a member of the managing bureau of the Adelboden Group, and the focal point for the Andes in the Sustainable Agriculture and Rural Development in Mountains (SARD-M) project based at FAO. It is coordinating and executing together with CONDESAN partners a study to collect and analyze the effectiveness of policies for sustainable mountain development.

In October for the Mountain Partnership, the GMP moderated an e-consultation on priorities, organization and future activities of the global Sustainable Agriculture and Rural Development in Mountains initiative of the Mountain Partnership. The SARD-M project is part of this initiative. It was technically supported by the Mountain Forum Secretariat in Katmandu and was well attended and concrete conclusions were able to be drawn.

The GMP also attended international conferences on mountains and contributed to the final document of the large European Union funded GLOCHAMORE project.

Throughout the year the program was promoted and contacts strengthened with donors such as CIDA, IDRC, USAID and SDC. Centers were visited including CIAT, ICRAF, ILRI, IPGRI and IFPRI and contact was established with centers like IWMI, CIFOR, and CIMMYT.

Capacity building

Managing a PhD program for INIA Spain. This program was managed through the GMP from 2004-2005. In all 23 scholarships of LA national program personnel were provide with scholarships to universities in Spain as part of the Spain-INIA mandate. In August, as part of a decision by the CIP directorate the PhD program was moved to the CIP training group for backstopping.

Promotional materials

Work on new promotional material is progressing and there are plans to develop a new website to replace the outdated site. This work is urgently needed but progress has been slow due to time and funding constraints. A new leaflet on the program is close to being finished. However, with changes in program orientation it is again almost out of date.

3. Strengthening Rural-Urban Linkages to improve Livelihoods and NRM in Mountains
(Preparation for GMP Output II MTP 2006-8)

To make operational the RUL theme we aim to facilitate the setting up of a framework to connect research to development activities and MDGs.

1. The GMP will facilitate setting up of benchmark sites in mountains in different continents. These will serve both as sites were national and international groups can work together but also where impact can be measured. They also serve as basis for international Public goods since information can be compared globally, and national groups will be able to share knowledge and experience with other groups around the world.
2. The GMP will facilitate the setting up RUL platforms in each benchmark site to bring together key rural and urban groups and sectors, and to link research closely and development groups.
3. A research support group with a core CGIAR participation and national participation will be set up to support development groups with information, tools and technology options that enable RUL to be strengthened. The GMP will play a role in developing baseline data if possible with partners on livelihood issues and options and land use, on product flows and policies. These data can be used to direct decisions and provide the basis for monitoring and evaluation of impact on MDGs in 10 years time. CGIAR research centers and partners in alliance will tackle key linkage issues to develop the best tools and options for planners and communities that optimize livelihood and NRM improvement scenarios for rural and urban poor.

The Rural-Urban Linkage theme in Ethiopia

A benchmark site has been identified in Ethiopia in close collaboration with AHI and the Urban Harvest program. A joint visit to Addis Ababa in May 2005 discussed the concept with the Addis municipality, the Mayor and NGOs. The concept had already been discussions with the DG of EARO, who was enthusiastic about the concept. Already, some researchable RUL constraints and opportunities were identified by partners.

The GMP is in the process of hiring a Research Fellow using CIDA/CFA funding to coordinate RUL activities and provide baseline data on livelihood options for people with different degrees of access to urban areas to provide baseline livelihood information. The slowness of the participatory process of defining the terms of reference and hiring the person has been frustrating. It was partly due to the consequences of the AHI leader's serious illness.

However, we are now able to make an offer the top candidate. We expect to have someone on board in Ethiopia by March 2006.

4. Mountain Policy research
(Preparation for GMP Output III MTP 2006-8)

Africa

In Africa, a GMP funded study entitled, ***'Review of Natural Resource Management Policy Studies in the East African Highlands'*** authored by C.N. Ritho, has been completed. The study was conducted by the University of Nairobi, with and was integrated also in the activities of the African Highland Initiative and the International Center for Research on Agro-forestry (ICRAF). The author concludes that one of the main limitations to effectiveness in NRM policy has been the failure to integrate natural, economic and governance components in formulating strategies.

The study points out research gaps on documenting or evaluating successful processes to manage soil fertility, forests, and water. The effect of new or various management practices need to be evaluated empirically. It was clear that people need to be enabled to experiment with new methods.

Some common sense lessons learned for policy development: For successful community management of forest resources, the local community has to appreciate the value of the forest, own the resource (even if it is co-ownership with the state), control its use, monitor and enforce regulations, have mechanisms of resolving conflicts and discourage incentives to exploit it for short term individual gain. Success of small-scale irrigation schemes is more likely if farmers are consulted in the design, construction and management. Local committees should control and popularly elected individuals and entrusted with day to day management are answerable to the community. Local communities strongly feel the need for better incentives and greater participation, with greater control of resources and a local institution with required capacity for management.

In the report key gaps for policy research were outlined:

1. Identify ways of integrating natural, economic and governance components in research for NRM (to overcome) policy problems.
2. Identify cost effective ways of implementing research recommendations so that policy makers are confronted not only with the constraints but also with tangible 'way forward' to reducing them.
3. Concerns for soil fertility and crop productivity need to prompt further research on options for exploring intra-zonal variation in crop productivity to ensure that farmers with below average yield increase it to the average level.
4. Identifying farmer based institutions to provide services previously provided by the public sector.
5. Facilitating profitable participation of the private sector in providing goods and services needed to earn sustainable livelihoods fro NRM.
6. Harnessing the synergies from production of commercial crops and articulating the positive commercial production spillover to NRM particularly at farm level.

Latin America

Much time was spent this year preparing a mountain policy analysis project with SARD-M in collaboration with CONDESAN through the NGO Cuencas Andinas. The agreement was finally signed in December for support of $35,000 through FAO. The program is being co-funded by the GMP both in kind and to cover additional costs. The first phase will enable both collection and analysis of water, land and forest policies in upper watersheds in Colombia and Peru to take place. The studies are linked to other studies in the Hindu Kush Himalayas coordinated by ICIMOD, the Mediterranean, Europe, Case studies in Piura, Peru, and Colombia. The Andean work differs from the other collections and analysis in that firstly

our work begins by looked at policies in specific areas identified by partners where problems existed critical to sustainable mountain development: water, land/soil management and forest management. Secondly, a study was conducted to determine local peoples perceptions to compliment those of experts and analysis of laws and local guidelines. This is the first common project that connects the GMP and CONDESAN.

III. FINANCES

The GMP finances in 2005 were somewhat shaken. The basis for the stability of the program was provided through the funds from the Canadian International Development Agency's (CIDA) Canada Fund for Africa (CFA). However, its use was restricted to SS Africa related activities.

The GMP had budgeted in 2005 for INIA Spain funds to support Latin American INIAs including a small allocation specifically to support the operational unit of the GMP. Most of these funds however were flow-though to national programs and the NRM Division of CIP. It included also funds for a PhD program. In the course of 2005 the new CIP management decided to move the responsibility for the project from the GMP to the CIP core groups. Payment of the amounts allocated by Spain INIA specifically to support the GMP operations failed to eventuate due to disagreements between CIP and Spain INIA over payments to CIP.

A contract with FAO to for collaborative activities on mountain policies took more time than anticipated. The agreement was finally signed in December. Funding is expected in 2006.

Two proposals were submitted to the ADB and SDC. We were not successful in obtaining funds from the ADB and still await official word on the application to the SDC. The program is hopeful on a positive decision by the SDC on funding; however, there is uncertainly due difficulties between CIP and the SDC over use and reporting of previous funds allocated by the SDC to CIP for "Inter Center Mountain Agriculture".

Overall, these changes reduced the overall GMP budget from 1.4 million to 375,000.

Funding in 2005

Donor	Budgeted ($)	Actual ($)	Spent ($)
CIDA Canada	315,618	315,618	277,451
INIA-SPAIN*	24,600	0	910
FAO**	35,000	0	0
Total	**375,218**	**315,618**	**278,361**

* Originally $1,085,727 was budgeted. However, the project was removed from the GMP portfolio and moved to CIPs Training group. The remaining fund were those specifically budgeted by INIA Spain for support of GMP operations.

** The Agreement for the project was signed in December 2005.

IV. PARTNERS

Global
The Mountain Forum (MF),
The Mountain Partnership (MP),
The Sustainable Agriculture and Rural Development in Mountains Project (SARD-M) at the United Nations Food and Agriculture Organization (FAO).
The Adelboden Group
The International Potato Center (CIP)
The International Plant Genetic Resources Institute (IPGRI)

Africa
The African Highland Initiative (AHI),
Kenyan Agriculture Research Institute (KARI),
National Agricultural Research Institute (NARI),
Ethiopian Institute for Agricultural Research (EIAR)
World Agroforestry Center (ICRAF),
System Wide Urban and Peri-Urban Agriculture Initiative (UH)
University of Nairobi
Makerere University

Latin America
Consorcio para el Desarrollo Sostenible de la Ecoregion Andina (CONDESAN),
The Cuencas Andinas Program,
Instituto para la Desarrollo Regional "Chawpin Peru" (INDERCHAP),
Fundación para el Desarrollo sostenible Territorial (FUNDASOT),
NARS of Costa Rica, Mexico (until August)

V. PUBLICATIONS

Reports
GMP (2004) Annual Progress Report. Global Mountain Program, Lima Peru

GMP (2005) Annual Report, Global Mountain Program, Lima Peru

Mbabwine Y, Sabiiti E.N., Kiambi D. (2005). Assessment of the status of Plant Genetic Resources in Kabale Highlands, Uganda; A case of cultivated crop species. Commissioned by GMP to IPGRI.

Ritho C.N., (2005) 'Review of Natural Resource Management Policy Studies in the East African Highlands'. University of Nairobi, Commissioned by the GMP through AHI.

E-Consultations
Summary of the consultation on the priorities, organization and future of the SARD-M Initiative of the Mountain Partnership; Lead by the GMP in collaboration with the MF. September 2005.

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