Implementation proposal for the

"Mesoamerican Agroenvironmental Programme" (the MAP)

CATIE
Solutions for environment and development
Soluciones para el ambiente y desarrollo

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ACRONYMS – MAP[1]

ACICAFOC	**Central American Indigenous and Peasant Association for Communal Agroforestry**
AECID	**Spanish Agency for International Cooperation and Development**
AFE-COHDEFOR	**National Forest Administration – Honduran Corporation for Forest Development**
AFS	**Agroforestry Systems**
AFTCOM	**Adaptation of timber harvesting and commercialisation policies for agroforestry and silvopastoral systems (sub-component of FINNFOR)**
BCIE	**Central American Bank for Economic Integration**
BNPP	**Bank of Netherlands Partnership Program**
CAC	**Central American Council of Agriculture**
CAFTA	**Central American Free Trade Agreement**
CATIE	**Tropical Agricultural Research and Higher Education Center**
CBD	**Convention on Biological Diversity**
CCAD	**Central American Commission for the Environment and Development**
CDM	**Clean Development Mechanism**
CENTA	**National Center for Agricultural and Forest Technology (El Salvador)**
CEPREDENAC	**Coordination Center for the Prevention of Natural Disasters in Central America**
CERs	**Certified Emission Reductions**
CETA	**Center for Technical Agricultural Studies (Nicaragua)**
CI	**Conservation International**
CIFOR	**Center for International Forestry Research**

[1] Many of these have been translated from the Spanish original

CIPAV	**Centre for Research on Sustainable Agricultural Production Systems**
CIRAD	**French Agricultural Research Centre for International Development**
COAs	**Cooperatives and Associations**
COMISCA	**Central American Council of Ministers of Health**
COP	**Conference of the Parties**
CPU	**Communication and Policy Unit (of MAP)**
CTB	**(Central American) Technical Forestry Committee**
DAAF	**Department of Agriculture and Agroforestry; now part of CATIE's Research and Development Division**
DANIDA	**Danish International Development Agency**
DICTA	**Direction of Agricultural Research, Science and Technology (of SAG, Honduras)**
DP	**Degraded Pastures Project (MFA-Norway)**
DRNA	**Department of Natural Resources and Environment; now part of CATIE's Research and Development Division**
EARTH	**EARTH University**
EfD	**Environment for Development**
ERAS	**Regional Agro-Environmental and Health Strategy**
EU	**European Union**
FAO	**Food and Agriculture Organization of the United Nations**
FDL	**Local Development Fund (Central American University, Nicaragua)**
FINNFOR	**Forest and Forest Management Project (component of MAP)**
FINNIDA	**Finnish International Development Agency**
FLEG	**Forest Law Enforcement and Governance**
FNPP/FAO	**FAO and Netherlands Partnership Program**

FOCUENCAS II	**Innovation, learning and communication on integrated watershed co-management in Central America (CATIE ASDI project)**
FOGUAMA	**Guatemalan Environmental Fund**
FONDEAGRO	**Agricultural Development Fund (Nicaraguan programme supported by ASDI)**
FORMACOM	**Strengthening of smallholder timber production through the application of sustainable forest management practices (sub-component of FINNFOR)**
FRAGMENT	**Developing methods and models for assessing the impacts of trees on farm productivity and regional biodiversity in fragmented landscapes (INCO/EU)**
GAMMA	**Livestock and Environmental Management (previous CATIE Thematic Group now converted into a Programme)**
GAT	**Technical Support Group (of NTO, Nicaragua)**
GEF	**Global Environment Facility**
GEO 4	**Global Environment Outlook (Report 4)**
GM	**Global Mechanism (of UNCCD)**
GWP	**Global Water Partnership**
IARNA (Guatemala)	**Natural Resources, Environmental and Agricultural Institute**
ICC	**Interagency Consultative Committee (of ERA)**
ICTA	**Institute of Agriculture Sciences and Technology (Guatemala)**
IDB	**Inter-American Development Bank**
IFAD	**International Fund for Agricultural Development**
IFC	**International Finance Corporation (of WB)**
IICA	**InterAmerican Institute for Cooperation on Agriculture**
INAB	**National Forestry Institute (Guatemala)**
INBio	**National Institute for Biodiversity (Costa Rica)**

INCAE	**Central American Business School**
INFOP	**National Institute for Professional Education (Honduras)**
INIA	**National Institution of Agricultural Research (various countries)**
INTEGRACOM	**Integrated forest landscape management in Mesoamerica (sub-component of FINNFOR)**
IPPC	**Intergovernmental Panel on Climate Change**
IRBIO	**Regional Institute for Biodiversity (part of CCAD and thus of SICA)**
IUCN	**The World Conservation Union**
LAC-NET	**Regional Network of Model Forests for Latin America and the Caribbean**
LACEEP	**Latin American and the Caribbean Environmental Economics Program**
M + E	**Monitoring and Evaluation**
MAEF	**Ministry of Foreign Affairs (Finland)**
MAGFOR	**Ministry of Agriculture and Forestry (Nicaragua)**
MANCORSARIC	**Communities of the Mayan Trail in the Municipality of Santa Rita, Copán Ruinas, Cabañas and San Jerónimo, Honduras**
MAP	**Mesoamerican Agroenvironmental Programme**
MARENA	**Ministry of Environment and Natural Resources (Nicaragua)**
MBC	**Mesoamerican Biological Corridor**
MDG	**Millennium Development Goals**
MEA	**Millennium Ecosystem Assessment**
MFA	**Ministry of Foreign Affairs (Norway / Finland)**
NGO	**Non Governmental Organization**
NINA	**Norwegian Institute for Nature Research**

Nitlapán	**“Time to Harvest” (NGO, Central American University, Nicaragua)**
NORAD	**Norwegian Agency of Development Cooperation**
NTNU	**Norwegian University of Science and Technology**
NTO	**National Technical Office (of CATIE)**
ORGUT	**Swedish consulting group for rural and urban project preparation and management**
PACA	**Central American Agricultural Policy**
PCC	**Central American Cacao Project**
PERFOR	**Central American Strategic Forestry Programme**
PES	**Payment for Ecosystem Services**
PPP	**Public Private Partnership**
PRISMA	**Salvadorian Programme for Development and Environmental Research**
PROMECAFE	**Regional Cooperative Program for the Technological Development and Modernization of Coffee Cultivation in Central America, Panama, Dominican Republic and Jamaica**
REFCOM	**Removing barriers to forest plantation investments in Mesoamerica (sub-component of FINNFOR)**
REMBLAH	**Honduran Network for Broadleaf Forest Management**
RIABM	**Ibero American Network of Model Forests**
RDD	**Research and Development Division (CATIE: from 2008)**
RUTA	**Regional Unit for Technical Assistance (World Bank, FAO and others)**
SAG	**Ministry of Agriculture and Livestock (Honduras)**
SICA	**Central American Integration System**
SICTA	**Central American Agricultural Technology System**
Sida	**Swedish International Development Cooperation Agency**

SLM	**Sustainable Land Management**
SLU	**Swedish University for Agricultural Sciences**
SPS	**Silvopastoral Systems**
TG	**Thematic Group (CATIE: converted into programmes in 2008)**
TNC	**The Nature Conservancy (USA)**
TOR	**Terms of Reference**
TROFCCA	**Tropical Forest and Climate Change Adaptation (CATIE EU Project)**
UNCCD	**United Nations Convention to Combat Desertification and Land Degradation**
UNDP	**United Nations Development Programme**
UNEP	**United Nations Environment Programme**
UNFCCC	**United Nations Framework Convention on Climate Change**
UPEG	**Strategic Planning and Management Unit (of SAG, Honduras)**
URL	**Rafael Landivar University (Guatemala)**
USAID	**United States Agency for International Development**
USDA	**United States Department of Agriculture**
WB	**World Bank**
ZAMORANO	**Panamerican Agricultural School (Honduras)**

Implementation proposal for the "Mesoamerican Agro-environmental Programme"

EXECUTIVE SUMMARY

CATIE proposes to establish the Mesoamerican Agro-environmental Programme (the "MAP"); an ambitious inter-sectorial multi-partner knowledge and innovation platform using a livelihoods approach that will multiply ecologically healthy, economically competitive and socially equitable use of natural resources to achieve Sustainable Land Management (SLM) that improves human wellbeing in rural areas of Mesoamerica. The MAP will support the development, testing and communication, in a diversity of rural territories, of methodologies, technologies and policies designed to integrate production and conservation. It will include a focus on the farm, territory, national and regional levels promoting value chains, enhanced equity and good governance at the landscape scale. Hence the **development objective** of the MAP is "*Mesoamerican societies use sustainable land management (SLM) strategies that provide ecosystem goods and services that reduce rural poverty"* and the **programme objective** is "*Local, national and regional organizations implement SLM technological innovations, policies and programmes"*.

The expected main results of the MAP are: 1) rural families and farmers organizations in Mesoamerican priority zones adopt sustainable production and natural resource management practices and are integrated into value chains; 2) local governments implement effective environmental and governance mechanisms; 3) national organizations and decision makers use the production technologies and natural resource management experiences generated by the MAP; 4) Mesoamerican organizations and decision makers use the knowledge, tools and recommendations from the MAP; and 5) CATIE enhances its capacities to collaborate with and support local, national and regional partners in designing and implementing effective strategies and policies. The main thematic areas of the MAP will be: adaptation to climate change; ecosystem services (including mitigation of climate change); and markets and value chains. These three areas will contribute to the overall objectives of achieving Sustainable Land Management.

The programme objective can only be achieved by creating a highly integrated structure, involving many different levels, partners and donors from within and outside of the region: i.e., the consolidation of an inter-sectorial platform to support innovation and better governance in rural areas through participatory research and development approaches. Through collaboration and effective knowledge management, technologies, methodologies, tools and policies will be developed and communicated to local, national and regional institutions for the benefit of rural families. The innovation of the MAP is not only in the elements but in their integration, a necessary condition to achieve positive impact on rural landscape management and livelihoods.

In addition to safeguarding and improving ecosystem services from agricultural - forested landscapes, the MAP is designed to respond to the demands, needs, opportunities and limitations of different actors in rural areas. Implementation strategies of the MAP will include: 1) integrating existing pilot/project activities that had different starting points (e.g., value chain and landscape management perspectives); 2) developing Public Private Partnerships (PPP) so that

local, national and international businesses can contribute to and benefit from the MAP (e.g., link corporate social responsibility with marketing innovations); 3) emphasizing the importance of institutional anchoring (sustainability of initiatives), scaling-up and scaling-out even before this new programme is established (e.g., involving local and national partners from the private and public sectors, as well as NGO`s, from the planning stage); 4) creating a platform for collaboration with key regional partners such as IUCN, CCAD and the Global Mechanism (GM) of the UNCCD (e.g., seek to establish activities in the same key territories); 5) providing opportunities to share resources allocated to the MAP (e.g., include competitive innovation, municipal, environmental and strategic study funding schemes in the MAP); and 6) responding to the specific priorities of regional decision makers by contributing to the preparation and implementation of new regional initiatives that will provide legitimacy and political support for the MAP (e.g., act as a technical scientific backstopping programme for the Regional Agro-Environmental and Health Strategy -ERAS from its Spanish title - approved by the Mesoamerican Presidents in May 2008)[2].

[2] The preparation of this regional inter-sectorial strategy was requested by the Central American Ministers of Agriculture, Environment and Health.

1. INTRODUCTION AND BACKGROUND

The most recent global environmental policy documents have proposed a comprehensive agenda that addresses social, economic and environmental scenarios in an integrated fashion. For example, the Millennium Development Goals (MDG), the different environmental conventions such as the Convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification and Land Degradation (UNCCD) and the United Nations Framework Convention on Climate Change (UNFCCC), as well as the recommendations of the Millennium Ecosystem Assessment (MEA), all recognize that the consideration of human needs and opportunities is essential to achieve conservation, restoration, health and sustainable use of natural resources. As suggested by the MEA, economic, social, institutional, political and environmental issues need to be addressed in a systemic manner to meet the MDG.

The natural resources of the Earth are under increasing pressure, particularly in tropical countries where over two thirds of the ecosystem services show a degrading trend, as world population and consumption levels continue to grow (two times and six times respectively since 1960). In the case of Mesoamerica in particular, natural resources have been identified by many organizations as a foundation stone for development, especially for the actual and potential livelihood needs of the rural poor. For example, the Mesoamerican Biological Corridor (MBC), a flagship collaborative initiative of the Ministries of Environment of this region, is an exemplary effort to protect natural renewable resources at the same time as promoting sustainable development. Nevertheless, in rural areas, in between and surrounding protected areas (national parks, biological reserves, etc), reconciling the livelihood needs of the neighbouring population with conservation objectives remains a challenge. Agricultural expansion and intensification have resulted in a significant liberation of greenhouse gases, progressive loss and fragmentation of forest habitats,[3] loss of landscape connectivity, increased pollution of rivers and aquifers by agro-chemicals and extensive loss of biodiversity. Despite positive advances in some countries, limitations include: 51% of the population live in poverty, particularly in rural areas; high population growth rates (around 2.5%) increases pressure on natural resources; the region has a high vulnerability to natural disasters, which are increasing in frequency; national economies are small; trade liberalization brings new risks, especially for the agricultural sector; and public institutions are weak.

In this context, the Ministers of Agriculture, Environment and Health of the Mesoamerican countries requested that the Central-American Commission for the Environment and Development (CCAD), the Central-American Council of Agriculture (CAC) and the Central American Council of Ministers of Health (COMISCA)[4] join forces in an inter-sectorial initiative to prepare a Regional Agro-Environmental and Health Strategy (ERAS from its Spanish title). The secretariats of these three inter-ministerial councils formed an Inter-agency Consultative Committee (ICC) to advise on the drafting of ERAS: CATIE, IUCN, Global Mechanism (GM), FAO, RUTA, IICA and ACICAFOC, amongst other regional organizations, played a substantial role in the ICC and hence in the preparation of this strategy.

[3] According to FAO (2002), in this region only 35% of the original forest cover is in place.
[4] The secretariats that support the respective councils of Ministers within Central American System of Integration (SICA)

Simultaneously CATIE developed this proposal to establish a Mesoamerican Agro-environmental Programme (the "MAP"); an ambitious international inter-sectorial initiative to develop, test and communicate, in a diversity of rural territories, methodologies, technologies and policies designed to integrate production and conservation. The ultimate goal of the MAP is to improve human wellbeing by promoting competitive strategies and practices for Sustainable Land Management (SLM). This includes a focus on the farm (household), territory, national and regional levels; e.g., enhanced equity and good governance at the landscape scale. In the May 2008 summit in San Pedro Sula, Honduras, the presidents of the SICA countries requested the assistance of the regional organizations to implement ERAS (point 6 of the joint declaration): thus ERAS provides a framework for the MAP and the MAP could become one of the principal instruments to back stop the implementation of ERAS. MAP also will be able to contribute to the implementation of PERFOR (Central American Forestry Strategy) and PACA (Central American Agricultural Policy) which are cross referenced and consistent with ERAS; e.g. see proposal in Annex 2.1 for the AFTCOM (agroforestry) sub-component of the FINNFOR project (Forest Component of MAP), which has the support of CTB as the first proposal to be presented to the International Collaboration under PERFOR. Since CCAD has also requested that CATIE provide technical coordination for the preparation of the Regional Strategy for Climate Change (ERCC from its title in Spanish) CATIE has immediate opportunities to achieve policy impact through its role in ERAS, ERCC, PERFOR as well as its support for PACA.

The MAP will strengthen the institutional role of CATIE; e.g., CATIE`s focus on developing, validating and communicating concepts, approaches, methods and technologies in order to assist other organizations to take advantage of new opportunities as well as to resolve challenges in the rural sector. This programme has been prepared specifically for Mesoamerica but its concepts could easily be extended to other regions: e.g., to South American countries such as Bolivia and Colombia where CATIE has active programmes. The MAP will also reinforce the capacities of CATIE to work at the research-policy interface contributing to the assessment and formulation of relevant local, national and regional policies as well as communicating results in formats and language appropriate for policy makers (i.e. policy briefs). Research and development work is carried out by CATIE and its partners, with local groups, in key territories and pilot zones. However communication of the results has to service a much wider clientele and should be carried out by an extended set of local, national and regional organizations. This new inter-sectorial programme will cover this broad range of activities and partners seeking to establish a comprehensive agro-environmental approach as the basis for rural development of Mesoamerica.

The MAP proposal also reflects the interest and accumulated experience of CATIE and its principal donors in managing regional projects within which greater integration of resources, activities and information, to ensure efficient and effective use of the funds provided by International Cooperation, is one of our goals: this interest is directly related to the international agreements to harmonize and align development aid (Paris Declaration, etc) as well as the recognition of the value of more integrated and collaborative initiatives to address the complex problems faced by the region. Over a period of two years, intensive internal (in CATIE) and external (with partners and donors) discussions have taken place resulting in the preparation of this Proposal that explains how the MAP will be established, managed and operate through existing and new projects, as well as through novel value added actions designed to integrate, systematize and use knowledge.

2. THE MAP APPROACH

The MAP is an **inter-sectorial** initiative that integrates a **rural livelihoods approach**[5] with a **landscape (or territorial) approach**[6] to achieve **Sustainable Land Management** (SLM) in order to improve the **well-being** of rural people: it is focused on the production, competitiveness and environmental issues of the most important agricultural and natural resource sectors of the region[7]. More specifically it will identify the circumstances and requirements that determine how to integrate livelihoods and territorial approaches for the greatest benefits for the rural poor as well as for environmental conservation and management. Both supply and demand-led mechanisms[8] will be used, acknowledging that there is no "one size fits all" for policies, technologies, methods and tools: appropriate combinations are needed to provide relevant responses for different contexts and situations.

The basic premises of this programme include: 1) the development and use of SLM strategies and technologies can only be achieved with interdisciplinary interventions at all levels from the field to the Minister's office; 2) achieving a positive impact with the international environmental conventions (e.g., CBD, UNCCD and UNFCCC) depends on applying them in agricultural and forest production as well as in conservation areas (i.e., in managed as well as protected areas); and 3) it is feasible to develop a positive feedback cycle, whereby implementing environmentally friendly and equitable agricultural and natural resource strategies can contribute to reducing poverty, which in turn contributes to reducing pressure on natural resources, replacing the actual perverse downward cycle where inequality and environmental degradation contribute to greater poverty, which in turn leads to more pressure on natural resources and hence increased environmental degradation. Thus the MAP has been designed to contribute to improved environmental management while addressing the major production and other concerns of farmers, local and national organizations. For example, the MAP will contribute to the development and promotion of: 1) more profitable as well as more sustainable land use systems,

[5] Sustainable livelihoods approach (SLA) is a conceptual and methodological approach used to analyze and assess economic, social, environmental and productive aspects in a rural context. It has been adapted, and broadened to consider seven capitals (natural, human, cultural, social, financial, built and political) in order to analyze governance and governability of natural resources, as well as to make interdisciplinary assessments of the impact of agricultural research on poverty reduction.

[6] The landscape or territorial approach refers to an intersectorial and interdisciplinary intervention that is in between the farm scale (or any other management unit such as a protected area or forest concession) and the country scale: its size may range from some thousand hectares up to a few million ha. It should serve the role of linking the national level (e.g. policies and strategies) with the operational level in order to optimize the capacity of a given territory to provide, on a sustainable basis, ecosystem goods and services for human well-being as well as enhancing governance, equity, competitiveness and environmental sustainability.

[7] In this proposal, agriculture is used in a broad sense to include livestock, agroforestry and managed forests. Selection criteria for sectors will include: 1) land area affected by each sector; 2) importance in local, national and regional economies; 3) number of poor farmers, labourers and families who presently depend on the sector, 4) predicted vulnerability to climate change and other global / regional changes (e.g., Free Trade Agreements); and 5) actual and potential negative and positive effects of each sector on the provision of ecosystem services, particularly those related to water, biodiversity, carbon and soil conservation.

[8] Supply led includes anticipating future demands that may not be requested at this time. In the public sector, an example of a supply led intervention would be helping Ministries of Agriculture and Environment to promote SLM in degraded agricultural areas, whereas an example of a demand led intervention would be promoting low input specifically referring to pesticides) and organic food production technologies in response to requests from the Ministries of Health.

with an emphasis on quality, local transformation and certification (and any other option to 'add value'); 2) quantification and valuing of ecosystem goods and services; 3) sustainable rural businesses, involving farmers` associations and cooperatives (COAs) as well as private companies; 4) diversification and low input agricultural and natural resource management technologies; 5) technologies and strategies to maintain and enhance capacities of local and regional populations to adapt to the expected effects of climate change; and 6) collaborative landscape management. In this context it should be noted that the principal global agro-processing companies (Kraft, Nestle- Nespresso, etc) have started to develop "green" initiatives and environmental labels (e.g., low carbon footprint) providing an opportunity for an agro-ecological programme such as the MAP to have an impact on main stream markets and not just in niche markets such as those provided by organic certification.

Landscapes are created by mankind; i.e., they are a social construction. Thus the MAP should contribute to the social and political processes that can improve these landscapes creating a better future for their inhabitants. Moreover many development experts have stressed the need to strengthen social capital in order that technological solutions can be adopted and implemented even after a project is completed. Hence this programme seeks to contribute to developing an enabling environment and the capacity (includes advocacy) in the region to introduce more productive sustainable land and resource use *via* the immediate beneficiaries of the MAP who are local, national and regional organizations. At the field and landscape levels, the projects that make up the MAP will develop and test conceptual and operational frameworks that articulate productive processes and value chains (including processing and marketing) with effective mechanisms for governance that will permit the environmental sustainability of these productive schemes.

The MAP has a medium-long term perspective where the role of CATIE and its partners will change over time within the different sectorial (or value chain) and environmental (or territorial management) initiatives that are supported. It will include: an innovations research focus (e.g., quantify and value ecosystem services resulting from the implementation of different certification schemes); an educational focus (e.g., provide opportunities for postgraduate students to be incorporated in interdisciplinary research and development teams); a training focus (e.g., use and promote participatory research and training methods such as farmer field school); an entrepreneurial focus to assist in marketing (e.g., identify bottle-necks in value chains and facilitate links to the private sector); a communications focus (e.g., improve two way information flow in the policy-research interface); and a coordination focus (e.g., management of different funding mechanisms as well as institutional collaboration to efficiently and effectively channel financial and human resources to partners).

Despite the efforts to promote exchanges between projects and coordinate activities of different donors and agencies in the region, inefficiencies and missed opportunities can easily be identified. Initiatives to resolve such limitations, of existing research and development programmes, have been undertaken at international (e.g., Paris Declaration on Harmonization and Alignment), regional (e.g., ERAS), national (e.g., Prorural in Nicaragua) and institutional levels (e.g., establishment of a more horizontal institutional structure, based on interdisciplinary collaboration, of CATIE's programmes). In the case of CATIE, a logical next step is to determine how to integrate compatible projects into one programme which, while maintaining the capacity

to serve certain sectors[9] can combine their resources, experience and knowledge to address common limitations and opportunities, in particular inter-sectorial initiatives. In the case of the MAP, examples of these common interests and inter-sectorial initiatives are: 1) development of criteria and schemes for the payment of ecosystem services; 2) modification of forestry and water-related laws/regulations to promote on-farm tree planting, management and use; 3) different certification schemes (organic, fair-trade, Rainforest, etc.) including verifying the scientific base and economic as well as ecological justification of each scheme; 4) assisting the countries to implement, in particular in agricultural areas, the different international environmental conventions that they have signed; and 5) dissemination of information on SLM, including its use in marketing initiatives (private and public sectors, governments, companies, consumers organizations, etc).

Some of the key territories where the MAP will support the development of new governance mechanisms, technologies, etc. will be the pilot zones where CATIE projects, actually financed by Norway and Sweden (Annex 1), have already developed valuable experiences; i.e., the MAP does not have to "start from scratch". New key territories, activities, actions, and projects, at national as well as regional (trans-frontier) levels, are also proposed for the MAP (for examples, see Annex 2). The number of these exemplary territories and actions will depend on the number of partners and resources available for the MAP, taking into consideration possible synergies with the existing or planned projects of the possible partners as well as the priorities of national and regional organizations.

Widespread impact of a programme such as the MAP can only be achieved by scaling-up and scaling-out[10] of successful experiences through organizations mandated to this role. At a national level, these organizations could include the National Agricultural Research Institutions (INIA's) (e.g., CENTA in El Salvador), farmers` organizations (e.g., the ¨Alliance¨ in Costa Rica), national NGOs (e.g., Nitlapan in Nicaragua), national networks (e.g., REMBLAH in Honduras) and national agencies (e.g., INAB in Guatemala). CATIE`s National Technical Offices (NTOs) should take a central role in facilitating the links between CATIE Programmes and projects with national partners. Scaling-up at a regional level could be achieved through the Central American Integration System (SICA; specifically through CCAD and CAC) and through collaboration with regional organizations such as IUCN, FAO and the multilateral banks (e.g., BCIE, IDB and WB). CATIE and IUCN have a golden opportunity to prepare the ground for future scaling-up and scaling-out as part of the ICC of ERAS. Scaling-up and scaling-out at a regional level also could be achieved through regional sectorial networks such as PROMECAFE (active members include all the national coffee institutes of Central America as well as CATIE), regional networks of public institutions such as SICTA (formed by the Central American INIAs), the Central American network of cacao producing organizations (Central-American Cacao Project (PCC): project to be incorporated into the MAP) and the Ibero American Network of Model Forests

[9] For example, in the case of the actual Norwegian support to CATIE, these are coffee, cacao, horticultural and livestock.

[10] Scaling-up and scaling-out refer to seeking impact at higher levels (politicians, decision makers) and broadening the spread of impact at the same level (partners use the results in new communities / territories), respectively. Criteria for choosing partners for scaling-out could include: 1) lowest cost for a facilitating agency like CATIE and/or for the target group(s); 2) number of rural poor who will benefit; 3) sustainability of the intervention; and 4) time frame.

(RIABM) which has developed out of the Regional Network of Model Forests for Latin America and the Caribbean (LAC-NET).

The selection and responsibility of local, national and regional organizations, for specific components or activities of the MAP, as well as being part of the team guiding this programme, has to be a starting point; i.e., institutional anchoring[11], at all levels, has to be proposed during the establishment of the MAP even before implementation starts (see section 6.5.1). CATIE constructed such a foundation for institutional anchoring during the development of the Focuencas II project and more recently when planning the PCC (regional cacao project). Likewise during the development of this MAP proposal a large number of organizations and individuals were consulted (Annex 3) some of whom can contribute to this need.

A principal characteristic of this programme is that it will **integrate** projects, resources, organizations and knowledge, seeking efficiency and impact at different levels through targeted interventions that will assist regional, national and local partners to take advantage of new opportunities as well as resolve agro-environmental problems. The MAP will promote the following kinds of integration:

1. Inter-sectorial in a country (e.g., assisting PRORURAL in Nicaragua) or a region (e.g., ERAS in Mesoamerica);
2. Collaboration between the Mesoamerican countries respect the implementation of the international environmental conventions that they all have signed (e.g., *via* CCAD respect the CBD and UNFCCC; and with GM respect the UNCCD);
3. Harmonization and alignment (Paris Declaration etc) of donors, advanced research institutes, universities and international NGO`s (including CATIE) with regional bodies such as CCAD and CAC;
4. CATIE with national partners in Mesoamerica leading to a strengthening of research and development institutes (e.g., the INIAs) as well as educational opportunities through universities;
5. CATIE internally, to take full advantage of one of its institutional foundations (integration of research, education and outreach), which has been identified as one of its main strengths (e.g., ensure that CATIE`s NTO`s have a strategic role in the MAP collaborating with CATIE`s Programmes: see Annex 4.1 for suggestions respect this role);
6. Local experiences obtained in pilot zones through documentation and synthesis of CATIE`s and other`s work to gain value added, impact, methodological lessons, inputs for policy formulation, etc (e.g., collaboration with PRISMA, El Salvador);
7. Linking pilot and demonstration zones with national and regional initiatives designed to disseminate, scale-up and scale-out successful experiences;
8. Inter-disciplinary teams formed from members of CATIE`s Programmes together with individuals from other organizations (external experts and evaluations have stressed that

[11] In the context of the MAP, institutional anchoring refers to the goal of achieving sustainability of an initiative through its incorporation in the work of local, national and/or regional organizations or institutions, which are able to continue developing, promoting and using the same focus or approach without needing the on-going assistance of CATIE (after a defined time frame). Some organizations may be reluctant to commit themselves to incorporating new approaches and technologies until they can see some concrete results of such a programme; hence some flexibility about their initial degree of involvement is needed. For more information re institutional anchoring, see section 6.5.1.

CATIE has acquired a significant comparative advantage in inter-disciplinary research and development; the MAP will build on this invaluable base);

9. Linking private sector projects, activities and certification schemes ("Best Practices", etc) with CATIE and public sector initiatives (e.g., CATIE has increasing contacts and joint activities with global businesses, as well as with smaller local companies and COAs, in developing differentiated market opportunities for coffee and cacao as well as carbon investments *via* tree planting in the same plantations).

The MAP seeks to achieve this integration by planning and implementing, together with a wide range of partners, specific activities in three thematic areas, which are presented in detail in Section 4 below. These areas are: 1) adaptation to climatic change; 2) ecosystem services (including a strong focus on mitigation, CDM, REDD, etc); and 3) markets and value chains (Figure 1). The combination of the work in these three areas will allow the MAP to make significant contributions to the all encompassing theme of SLM and to our overriding goal of improving livelihoods of rural communities. These three thematic areas, along with SLM, are the priorities of ERAS.

3. MAIN OBJECTIVES, RESULTS AND PROGRAMME INDICATORS

3.1. Objectives

Development objective

Mesoamerican societies use sustainable land management (SLM) strategies that provide ecosystem goods and services that reduce rural poverty.

Programme objective

Local, national and regional organizations implement SLM technological innovations, policies and programmes

3.2. Main results[12]

Result 1. Rural families and farmers organizations in Mesoamerican priority zones adopt **sustainable production and natural resource management practices** and are **integrated into value chains**

Result 2. Local governments implement **effective environmental and governance mechanisms**

Result 3. National organizations and decision makers **use the production technologies and natural resource management experiences** generated by the MAP

Result 4. Mesoamerican organizations and decision makers use the knowledge, tools and recommendations from the MAP

Result 5. CATIE enhances its capacities to collaborate with and support local, national and regional partners in **designing and implementing effective strategies and policies**

[12] In the MAP documents the term result refers to a trinomial integrating the client (families; local, national and regional organizations; CATIE itself), the scale of intervention (farms, local territories, country, Mesoamerica) and the product (innovations, better local governance mechanisms, national regulations, regional strategies, etc).

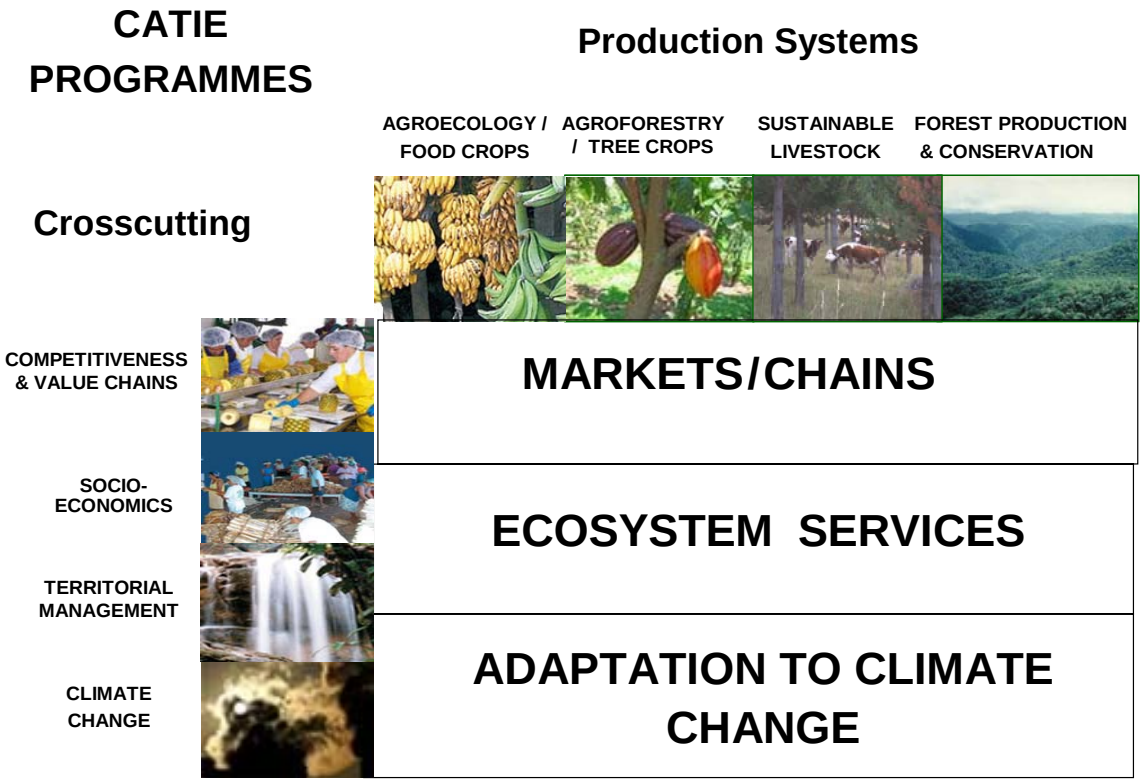

Fig 1. Interactions between CATIE`s production systems programmes (columns) and cross cutting programmes (lines) to implement the three thematic areas of the MAP[13]

3.3. Programme indicators[14]

The first step towards formulating the indicators of the MAP at a programme (not project) level is to define the indicative elements that will be the basis to define the indicators in an iterative fashion during the first year of implementation of the MAP when the MAP base line will be constructed as well as revising and refining the M and E procedures.

[13] There will also be interactions between column programmes (between production systems) and especially between line programmes (cross cutting) for the implementation of MAP's three thematic areas; these CATIE programmes are not limited to any particular area or collaboration

[14] The indicators referred to here are for the programme and not for the component projects; each project has its own specific logical framework, indicators and M and E system that will continue in parallel to the monitoring of progress at the programme level.

MAP OBJECTIVES AND RESULTS	INDICATIVE ISSUES
Development objective: Mesoamerican societies use sustainable land management (SLM) strategies that provide ecosystem goods and services that reduce rural poverty.	-Increase in the quantity and equitable distribution of the benefits, to rural families and communities, generated by a reduction in vulnerability and greater access to goods and services
	-Maintenance or recovery of natural capital
Programme objective: Local, national and regional organizations implement SLM technological innovations, policies and programmes.	- *Learning organizations*: Organizations at all levels have increased their use of organizational tools and knowledge (e.g., monitoring capacity) to make decisions respect SLM strategies that have been installed with the help of the MAP
	-*Scaling-up*: replication of SLM strategies at different levels facilitated by institutional networks
Result 1: Rural families and farmers organizations in Mesoamerican priority zones adopt sustainable production and natural resources management practices and are integrated into value chains.	1.1. *Sustainable systems and practices*: Rural families experiment and adapt production and natural resource management systems that balance conservation with increased productivity and diversify products
	1.2 *Value chains*: Farmers' cooperatives and other organizations improve the level and distribution of the benefits among producing families through increased management efficiency and commercial activities
Result 2: Local governments implement effective environmental and governance mechanisms.	2.1 *Territory*: Increased number of local Governments implement mechanisms and models for adaptation to climate change, conservation, payment of environmental services (PES) and other examples of environmental management at the landscape scale (including local land use planning)
Result 3: National organizations and decision makers use the production technologies and natural resource management experiences generated by the MAP.	3.1 *Technical assistance programmes*: Qualitative improvements (technical innovation, conceptual and instrumental) in national technical assistance programmes
	3.2 *National policies*: Inclusion in the national political agenda of the key aspects that favour the sustainability of the experiences from the MAP (scaling up) as well as its replication (scaling out)
Result 4: Mesoamerican organizations and decision makers use the knowledge, tools and recommendations from the MAP.	4.1 *Regional agendas*: the agendas of regional organizations and decision makers include the key MAP themes
	4.2 *Regional policies*: key aspects that favour the sustainability of MAP results and experience (scaling up) as well as its replication (scaling out) included in regional political agenda
Result 5: CATIE enhances its capacities to collaborate with and support local, national and regional partners in designing and implementing effective strategies and policies.	5.1 *Knowledge*: The lessons learnt from the MAP are systematized, disseminated and internalized throughout CATIE in its daily work
	5.2 *Collaboration*: Increased quantity and diversity of opportunities for local, national and regional discussion focused on sustainable rural development in which CATIE participates as a key advisor (ERAS etc)

4. THEMATIC AREAS OF THE MAP.

The preceding sections present the philosophy behind the gestation of the MAP and provide an outline of the approach. The MAP proposal should be read as a hybrid between strategic institutional and project operation plans providing a framework to guide the integration of different specific activities and projects in order to gain added value and impact. The activities, tasks and projects described in this and the following sections will contribute to the overall results and indicators defined above for the MAP and through these to the overall goal of improving environmental management and reducing rural poverty for different livelihood groups. These activities include: developing new technology and concepts from the farm to the regional political level; training and education; and increased emphasis on scaling up and scaling out activities to help create favorable conditions for SLM and widespread dissemination of the knowledge obtained.

The MAP has as an all encompassing goal the development and promotion of SLM. In order to achieve this overall goal, work is proposed within three principal thematic areas which are: 1) adaptation to climate change; 2) markets and value chains; and 3) ecosystem services. In this section examples of the possible activities to be supported by the MAP in each thematic area, grouped in different kinds of tasks, are discussed from the programme point of view; i.e., the detailed descriptions of the activities to be carried out in each territory/country/region are not presented here. These details are part of the proposals and annual work plans of the existing and potential new projects that will be supported by the MAP (see following sections and Annexes 1 and 2).

The lists below provide the framework within which the MAP projects should be designed, established and implemented. Since this is a list of programme areas, tasks and activities, no one project will cover all of the actions described. The integration and synthesis of the results from the MAP projects (and other sources) will provide CATIE's response to the needs and opportunities identified below for these three thematic areas. In other words an increasing match between top down concepts (e.g., definition of thematic areas) with bottom up results (e.g., products of each project) will be sought through the implementation of the MAP; this will provide value added both for the projects (e.g., methodological inputs) and for the MAP (e.g., synthesis of comparable experiences to extract more general lessons learnt).

4.1. Adaptation to climate change

The presidents of the Central American countries, in their 22nd ordinary meeting in December 2002, adopted a strategic framework to counteract food and nutritional insecurity associated with droughts and climate change, including an agricultural action plan. The SICA presidential summit in May 2008 was organized to seek regional agreements respect actions for Mitigation and Adaptation to climate change: this summit lead to a request to CATIE to coordinate the technical preparation of the Regional Strategy for Climate Change (ERCC from its name in Spanish). National (e.g., the Government of Nicaragua) and regional (e.g., CCAD) organizations have identified **adaptation to climate change** as a top priority for Mesoamerica[15].

[15] Beer J. Informe de Viaje a El Salvador y Guatemala, March 5-9, 2007; Beer J. Informe de Viaje a Honduras y Nicaragua March 26-30, 2007; CCAD, Lineamientos de la Estrategia Regional de Cambio Climático, 2008.

Three of the major effects of climate change and climate variability in the region are: increased average and extreme temperatures, increased intensity of extreme weather events (droughts and hurricanes) and sea level rise. A significant area of the Mesoamerican Pacific watershed has been and will be subjected to ever more frequent droughts, while both the Pacific and Atlantic slopes will be repeatedly affected by intensive rainfall and hence floods that result in the loss of lives, property and infrastructure. A list of some of the possible tasks that the MAP could address, to contribute to the efforts in the region to prepare for and adapt to climate change in the context of other challenges (CAFTA etc), are included below. Most of these activities, through SLM, will also contribute to mitigation (reduced emissions and/or capture of greenhouse gases) and the MAP will seek to contribute to the implementation of the CDM and the marketing of Certified Emission Reductions (CERs) from different land use activities, particularly in agricultural areas. Links to REDD initiatives in the region also will be explored since this new focus on reducing emissions by reducing degradation and deforestation includes a landscape approach, where the importance of SLM is recognized as a way of achieving the aims of REDD: this is highly compatible with the MAP approach (see following section 4.3 Ecosystem Services for more details).

Task 4.1.1. Selection of crop germplasm and promotion of efficient water management technologies. CATIE and its partners will use hydrological studies to determine the vulnerability of relevant crops (current and new) and the potential availability for water for different uses (i.e., irrigation, rural communities, ecosystem maintenance, etc.) under different climate variability and change scenarios. In collaboration with international and national research organizations, technical agencies and producer organizations, alternative crop[16] and forage species, more adapted to the new (or predicted) climatic conditions, will be identified considering their commercial value, impacts on the environment, local knowledge and social acceptance. Varieties of the key crop and forage species, presently used in Mesoamerican agricultural systems, will be developed/ adapted, seeking resistance or tolerance to drought, higher temperatures and the other consequences of climate change as well as increased water use efficiency. CATIE's longstanding collaboration with the CGIAR system (e.g., CIAT, CIFOR, Bioversity) is already providing many opportunities to develop new initiatives is this area of work that is central to the goals of the CGIAR; e.g., FONTAGRO projects in which INIAs also participate. Efficient agricultural water management technologies will be explored together with the testing of new germplasm; molecular marker technologies will be used to accelerate germplasm improvement.

Task 4.1.2. Management of integrated crop/livestock/forest systems. Traditional Mesoamerican rural landscapes are characterized by complex plant and animal communities many of which are of high importance for modern markets; e.g., certified timber plantations as well as cacao and coffee shade systems. In dry areas, livestock production in silvopastoral systems supports the livelihoods of the rural poor; timber and non-timber resources obtained from forests can be of key importance (e.g., safety nets) particularly for the poorest communities living in isolated areas. The suitability of the different plant components (species) of these diverse systems will be affected by climate change and hence organizations such as CATIE will have to assist farmers and their supporting organizations (local, national, etc) to develop and validate modifications of traditional and new combinations for their specific site conditions, and to design new management tools (e.g., intensity and frequency of coffee shade tree pruning; tree cover and

[16] In this text "crop" also includes timber trees.

fodder banks in pastures; promotion of natural regeneration of valuable species in degraded forests) to reduce the impacts of climate stress (e.g., increased fire and pest risk in forested and agricultural areas). Integrated pest management, diversification of production using agroforestry systems and environmentally friendly landscape management, traditional strengths of CATIE, will continue to be important approaches to strengthen the resilience of farming and forest systems to changes in economic as well as ecological framework conditions. CATIE can not be expected to address all the issues corresponding to increased risks from human, plant and domestic animal diseases but it does have competence and an obligation to contribute to monitoring of the expansion and control of some of the important plant diseases and pests, such as coffee leaf rust, coffee berry borer and the pine bark beetle; e.g., the regional network of national coffee institutes (PROMECAFE) and forestry authorities of the Mesoamerican countries, respectively, have requested assistance from CATIE and its collaborators to address these problems, which are increasing due to climate change. Local knowledge and participatory research approaches, involving households, research institutions and universities, will be used to develop integrated crop/livestock/forest systems that are more resilient to climate stress or variability, and that contribute to improved farm productivity, securing assets and capital of farmers and/or communities, as well as generating ecosystem services. Participatory training of producing families in adaptive management techniques, which enable them to adapt production systems and management techniques to their changing social, environmental and economic conditions, will be emphasized to contribute to the sustainability of the initiatives.

Task 4.1.3. Conservation and management of biodiversity. Climate change is causing a world wide impact on biodiversity; because of complex feedback mechanisms some of the possible negative consequences certainly have not been recognized yet. CATIE already has projects that address this issue (e.g., TROFCCA, GEF/Silvopastoril, BNPP/Biodiversity) but much more needs to be done to protect, as far as is possible, this key resource for the region; e.g., support local biological corridors to enhance the capacity of species and ecosystems to adapt to climate change. Collaboration with INBIO, IRBIO (CCAD) and IUCN will be emphasized. The work will be conducted at a local (plot and or farm) and landscape scale, in the context of the Central American Biological Corridor, to develop a mosaic of land uses (e.g., agroforestry and livestock systems, riparian and other natural forest, forest plantations, etc.) that are resilient to climate change and enhance the conservation of biodiversity.

Task 4.1.4. Develop decision support tools: model economic, environmental and social impacts of climate change (stress). An absence of precise information on the consequences of climate change and variability is one of the major limitations affecting rural populations and policy makers. Models that predict peak and minimum flows from key watersheds, considering different land use permutations (actual and foreseen), facilitate risk management and irrigation planning. CATIE, local stakeholders and partners will promote collaboration of meteorological institutions, as well as ministries of agriculture and environment, with financial institutions to develop financial risk management tools (e.g., agricultural insurance) for farmers' organizations, agricultural planning and policy makers. CATIE will work with local (e.g., municipal), national (e.g., Governments including the national climate change offices that contribute to UNFCCC), regional (e.g., CCAD) and international (e.g., CIRAD) organizations to develop models to evaluate the possible environmental, economic and social impacts of climate change in order to enhance the social and ecological resilience of territories; e.g., these models could be used to

identify hot spots in Mesoamerica where climate change could have severe impacts on livelihoods, biodiversity and/or water resources if appropriate measures are not taken.

Task 4.1.5. Local (territorial) and national land use planning and conflict management. The feasibility and competitiveness of different crop/livestock/forestry options will be altered by climate change. Hence local land use mosaics will change; e.g., in areas that become drier, livestock may replace crops and forest relics. In addition to local social processes that gradually transform landscapes, macro-economic trends related to climate change (and other factors) can lead to even faster land use change in larger areas with wide ranging economic, social and environmental consequences; e.g., the actual priority given by Mesoamerican governments to biofuels could lead to drastic modifications of sensitive ecosystems found in coastal areas of both the Caribbean as well as the Pacific. The possible impacts on different agricultural sectors (and hence land use) of CAFTA (Central American Free Trade Agreement) and the Agreement of Association of Central America with the European Union will also have to be considered. Local and national authorities (e.g., the national climate change offices) will have an ever greater need for tools and mechanisms for land use planning, conflict as well as risk management to reduce the possible negative consequences of such changes; e.g., reduced water yield and quality from key watershed recharge areas. This an area of work where CATIE will have to depend more heavily on partners who have already developed relevant capabilities and have identified key territories; the MAP will seek to use the predictions of existing global and regional models (e.g., recent agreement made to work with CIATs GIS team) in order to design and manage specific sectorial and territorial adaptation initiatives.

Task 4.1.6. Mechanisms and schemes to compensate for ecosystem services (see also section 4.3). CATIE will continue to contribute to the development and systematization of economic incentive schemes and price premiums (e.g., LACEEP and EfD initiatives; see Annex 1.5 and 1.6) that seek to leverage better land use and hence the resilience of the rural sector to climate change as well as other framework changes (CAFTA etc). This work will include the quantification and valuation of the real costs and benefits of certification of agricultural and forestry products adapted to climate stress (e.g., water/biodiversity friendly bean, maize, coffee, livestock and timber production). Effective ecosystem service provision schemes, based on the interaction of agriculture and other sectors of the economy and society, will be developed. The MAP will support the development and presentation of national and local proposals within the context of the CDM, REDD and the development and marketing of CERs.

4.2. Markets and value chains

Agricultural and forest value chains provide an opportunity to integrate and reinforce the community and livelihood capitals of rural populations. Agricultural and forest production require the environmental capitals of soil, water and biodiversity, using human knowledge capital and harnessing the physical capital of farm production systems together with financial capital to cover operational costs. The marketing of the products and provision of other services requires social capital within the context provided by political capital. In order to maximize the benefits from a value chain, all these capitals need to reinforce each other; i.e., a value chain is primarily a reinforcement of the social capital, provided by the relationships between actors in the chain and those that provide services to the chain, in order to improve human knowledge capital to create a quality product. The production of this quality product will often require improvements in financial and farm infrastructure physical capitals. Above all, in the case of chains with social and

environmental value, environmental capital will be reconstructed and the income (financial capital) of rural families improved. Thus the market forces of value chains may be harnessed to recuperate ecosystem services and reduce rural poverty.

Examples of the kind of activities, to be supported by MAP, for the development and implementation of sustainable production systems are included above in Section 4.1. The strategy of the MAP also includes developing the capacity in the region to meet the demands for and potential of these sustainable value chains. The MAP will contribute to this goal in key territories, where training of partners for scaling out will be carried out. CATIE seeks to develop and transfer new concepts, approaches and methodologies respect value chains but will avoid getting too heavily involved in the implementation of large scale development projects.

Task 4.2.1. Development of business capacities in producer cooperatives and organizations (COA`s)

- Re-planning of many small scale COA`s, that were conceived as social rather than business organizations, is critical for successful participation in markets
- Social cohesion, responsiveness to members, transparent management and equality of representation in directing bodies needs to be improved
- Business administration, planning and auditing skills (new concepts for many of them)
- Assistance and training to develop the criteria and skills for quality control (includes innocuity), certification and traceability
- Analysis of the potential advantages and costs of value-adding through primary and secondary processing and of different certification /marketing options
- Preparation of financial planning, risk assessment and management options to survive periods of low market prices
- Develop capacities to analyze and engage markets to take advantage of changing demands
- Forging of alliances and building trust relationships which requires improved negotiating skills and communication capacity

Task 4.2.2. Strengthening the capacities of service providers so that the services indicated above are available to producer organizations

- Promoting and facilitating the establishment of new specialized business and technical service providers
- Development of participatory research and training methods that can be used by local technical service providers
- Strengthening effective and quality business development service providers through stimulation of market based mechanisms and demands for service delivery
- Articulation between technical, business development and financial service providers

Task 4.2.3. Improving the political and development context (enabling environment at local, national and Mesoamerican levels) conducive to producers responding to the potential demand from socially and environmentally orientated markets

- Political-legal frameworks and design of rural development programs: recommendations for the simplification of agricultural, forestry and environmental legislation as well as incentives and bureaucratic procedures

- Regulatory framework: harmonization of standards; mandatory *vs* voluntary certification systems; review of environmental, forestry and agricultural laws and regulations.
- Private sector policies: industry developed standards; risk and benefit sharing mechanisms; joint investment schemes; building of trust relationships; corporate social responsibility.

4.3. Ecosystem services

The Millennium Ecosystem Assessment classifies ecosystem services as: provisioning (e.g., food, timber and water), regulating (e.g., reducing erosion and biological control), cultural (e.g., recreation and traditional knowledge) and supporting (e.g., nutrient cycling). Ecosystem services are of particular importance for poor rural communities and their importance is increasingly recognized by Mesoamerican governments, as has been demonstrated by their ratification of the principal international environmental conventions. Given the complexities and multiple dimensions of ecosystems, the MAP is specially suited to implement a systematic and integral effort to identify, quantify and value ecosystem services in the region. Moreover, CATIE has already accumulated significant experience in the evaluation, design and implementation of economic instruments that provide incentives to land managers and resource users for the protection of ecosystem services. The work in this area will continue to be done in collaboration with local and international partners and at all territorial scales, from regional (Mesoamerica) to the farm.

CATIE's recognized capacity to help Governments, local and national organizations to develop initiatives that contribute to mitigation will be one of the foundation stones of this component. For example, the Climate Change and other CATIE programmes have developed and disseminated: i) methodologies to quantify and value carbon capture in agricultural and forested areas; ii) pilot schemes to channel carbon credit funds to farmers; iii) methods and processes to develop projects within the CDM. Through further strengthening of these programmes, the MAP will be able to support partners at different levels to take advantage of and contribute to the opportunities offered by CDM, REDD and similar international programmes. SLM practices are very important for successful climate change mitigation; they are also one of the few agricultural practices that might be integrated into carbon trading schemes.

Task 4.3.1 Selection and promotion of specific research /development themes. Eco-systems services of regional importance include: 1) hydrological (e.g., domestic, irrigation, hydroelectric, recreation, livestock); 2) bio-geo-chemical cycles (e.g., sedimentation / contamination, nutrient cycling, carbon capture); 3) biological (e.g., biodiversity, soil formation). Eco-system themes that the MAP should address include: 1) methods and schemes to pay for ecosystem services taking into account property rights, poverty, indigenous and gender issues, with a special focus on possible negative as well as positive impacts for different groups resulting from the payment of ecosystem services; 2) development of participatory land use planning methodologies and criteria for the selection of priority zones (e.g., for hydrological recharge or a biological corridor) to improve the targeting of economic incentives; and 3) policy and governance issues such as the development of regulatory frameworks, decentralization, multi-stakeholder negotiation platforms and the role of public private partnerships (PPP).

Task 4.3.2. Integrate existing information from the region. Provide a data base and state-of-the-art reports, based on the experiences, instruments and methods used to quantify and value ecosystem services. Promote cooperation, exchanges and alliances between the diverse organizations that are focused on ecosystem services; e.g., seek agreement on concepts and terminology. A "best practice" approach to agricultural development as well as the management of ecosystems services is urgently required, given the high demand for this type of instrument in the region.

Task 4.3.3. Development and evaluation of pilot schemes that seek to provide ecosystem services. In key territories evaluate which ecosystem services are being provided by and to which different interest groups. Discuss the results with local authorities (e.g., indigenous and municipal) in order to influence decision making and eventually local and national policy, plans and actions in order to improve or create the legal, institutional and operational framework for the payment for ecosystem services. Develop a system to collect, document and integrate results and methods as the basis of a Monitoring and Evaluation scheme and systematize the experiences in each theme/ pilot area. The further development and refinement of participatory methods in pilot areas for the different kinds of partners and levels will be part of an integrated training and communication strategy (task 5 below) as well as a mechanism to obtain results. A participatory action–research approach will provide feedback for MAP planning and management, as well as for the development of models and expert systems designed as efficient tools to facilitate decision making at different levels. The MAP should be able to offer seed money to local governments and NGOs to test PES; e.g., through an environmental fund (see section 6.9.1).

Task 4.3.4. Integrate information on strategic ecosystem services and evaluate trade-offs. In the context of this agro-environmental programme, identify and analyze the strategic (key) ecosystem services at the regional, national, landscape and farm scales, evaluating trade-offs and synergies between these services (uni-functional to multi-functional focus), as well as methods to integrate information across scales for different combinations of land use. A key input for the design of payment schemes is a biophysical production function; the MAP can contribute with hard science to improve the current state-of-the-art in this particularly complicated area of research.

Task 4.3.5. Training, communication of results and promotion of methods to manage, develop, monitor and evaluate ecosystem services. Beneficiaries and collaborators will include private and public sectors (academic; local, national and regional Government; industry; NGO; etc) seeking both scaling-up and scaling-out. Reference pilot areas, to demonstrate approaches and impacts, will be the foundation of an intensive training and education programme in which the CATIE postgraduate school and students, as well as national universities and their students, will be some of the main beneficiaries as well as principal channels to achieve wide-scale as well as local impacts.

5. MAP PROJECTS

5.1. Existing projects (Annex 1)

The MAP approach will be tested across a range of agro-ecological conditions in pilot areas and key territories already chosen for their importance for different sectors (e.g., case of the PCC [Cacao Project]) or for the ecosystem services that they provide (e.g., case of the FOCUENCAS

project). Another example of an ongoing program that is particularly well suited to be part of MAP is the Environment for Development Program for Central America (EfD-CA). This program is part of a global capacity building initiative focusing on research, policy advice and teaching in the field of environmental economics. There are similar centers in China, Tanzania, Etiopia, South Africa, and Kenia. The main objective of the EfD-CA is to create state of the art knowledge that can used as an input into key policy processes in the Central American region, with the final aim of alleviating poverty *via* a better and more sustainable use of our environment. Current key research topics include adaptation to climate change, adoption of sustainable agricultural practices, evaluation and funding of conservation initiatives like protected areas and payment for ecosystem services and water resource management. Moreover, EfD-CA is in permanent contact with policy makers in the region, who have the dual role of defining the EfD-CA research agenda as well as being the main recipients of its results. In that sense, the EfD-CA is expected to work closely with the proposed CPU of MAP.

An additional example of an ongoing program is the Latin American and Caribbean Environmental Economics Program (LACEEP). The main objective of this program is to raise research capacity in national universities, public research institutes, etc. The only way to truly achieve a sustained development is by creating local capacity, capable of understanding the causes and consequences of environmental degradation and finding the most suitable means to tackle these problems. LACEEP provides grants for research in environmental economics, networking among scholars in the region, high level capacity building courses and access to literature and guidance.

Initially the MAP will be formed by joining together a number of CATIE`s existing relevant initiatives and adding new projects: i.e., some of the key transnational territories where CATIE actually works will continue to be the focus of technological and methodological research as well as development work that will be extended to new key territories. However the focus of the work will change in the key territories, broadening the scope of the actions to ensure that both environmental, governance and value chain issues are given similar levels of attention: the precise nature of the interventions will be determined by the particular needs of each key territory. This will create an integrated set of mid/long term case studies in which different technologies are developed, validated and, when successful, implemented more widely. The systematization, synthesis and comparison of these case studies, together with other experiences of governmental institutions, partners and NGOs, will produce general methodological “lessons learnt” to guide similar interventions in other zones. In this way the MAP projects will provide input to a body of knowledge (knowledge centre) that will contribute to fulfilling the goals of the MAP’s thematic areas described in the previous section. Conversely these wide thematic areas provide the framework for the design and implementation of the more focused regional MAP projects. All of these projects will contribute directly to the MAP’s overall goal of promoting Sustainable Land Management (SLM). However, as detailed below in the Budget Table (Section 6.11; Table 3), the MAP projects will contribute to different thematic areas. By bringing existing projects together, and designing new ones in the context of the MAP approach, greater impact can be achieved when promoting and assisting the implementation of SLM. The MAP is principally formed from projects but its products and impacts have been conceived for higher and broader goals; e.g., scaling out and scaling up.

Such a strategic programme has to be formulated as a medium-long term initiative, and hence consider different phases. An initial transition phase is foreseen, during which some existing CATIE projects (Annex 1) will be integrated, together with new initiatives (Annex 2), into one programme (the MAP): these existing projects presently have different agreements and hence different time frames, budget sources and structures, commitments, geographical and thematic frameworks, types of partners, levels of intervention, levels of development / validation of technologies, etc. After this transition phase, a consolidation phase will fully test the basic premises which have lead to the postulation of the MAP. All of the existing projects that will be incorporated into the MAP can contribute to one or more of the MAP's five main results and three thematic areas. Through the top-down influence of MAP planning and integration activities these projects will broaden their focus and develop a more systemic approach; on the other hand, the bottom up experience with existing MAP project logical frameworks, structures, relationships and results will help to form a critical mass and the capacity of the MAP to develop, promote and transfer SLM – ERAS initiatives for different regions and sectors.

Scaling-up and scaling-out will be carried out mostly by CATIE`s partners and other organizations, who will benefit from the training and communication actions of MAP; these actions will not be restricted to key territories but rather will be promoted as widely as MAP and partner resources permit. Some of MAP`s resources will be allocated to these partners so that they can fulfill this role. The MAP will also expand the process of working more closely with national and regional authorities, an aspect of CATIE`s agenda which has been growing gradually over the past two decades; e.g., the work to quantify, value, develop and disseminate methods to compensate for ecosystem services, a component of many of CATIE`s projects.

5.2. New projects (Annex 2)

The existing regional projects, which will be integrated into the MAP, are focused on agricultural sectors, such as livestock, horticultural crops, coffee and cacao, or on governance and environmental services, such as the watershed management project Focuencas and the socio economic platforms such as LACEEP and EfD. Forests, a key component and sector of the landscapes where the MAP will work, were not adequately covered by the existing projects and hence are a priority when selecting and designing new regional projects to be incorporated in the MAP. This section describes various forest-based initiatives that CATIE proposes to support and that will make fundamental contributions to the holistic development of the MAP landscapes.

5.2.1 Forests and forest management (FINNFOR project)

Optimal management of the different components of landscapes, to produce goods and services for the well-being of human society and for ecosystem sustainability, is a fundamental goal of an agro-environmental programme. Nevertheless, the forest components in most Mesoamerican territories are under great pressure and suffering continuous degradation. Mesoamerica presents a stark contrast between some exemplary sustainable forestry and conservation experiences with the immense challenges and threats constraining forest conservation and the sustainable use of natural resources.

The forests and forest management strategy proposed by MAP aims to identify, analyse and remove the barriers to achieve sustainable production of forest goods and services. Successful forest management experiences in a limited number of areas of Mesoamerica include: community participation and organization; strategies for community-based forest management; local capacity

building; development of methodologies for the sustainable management of natural and planted forests; implementation of innovative forest policies for community forest concessions; public-private- community institutional arrangements; private reforestation; natural forest management projects; and payment for environmental services. However the lessons learned about conservation and sustainable use of Mesoamerican forests need to be integrated and complemented in order to initiate a regional renewal of strategies for the sustainable production of forest goods and services and to address the current critical lack of institutional capacity. The MAP will facilitate the consolidation of national and regional technical networks, leading this process with an emphasis on the development and validation of new tools as well as on capacity building for decision making.

In order to address these issues, the MAP forest strategy considers four forest-based approaches that will contribute to the overall focus of Sustainable Land Management (SLM) and to the three main thematic areas of MAP presented above:

1. Forest governance issues include regional, national and local policies; the official procedures and requirements for defining the different stages of production, transformation and marketing of goods and services are key aspects. MAP's capacity to produce policy advice and impact, based on hard data, could improve policy frameworks and their monitoring. Other approaches related to forest governance include strategies to increase stakeholder participation in decision making processes regarding forest production and rural landscape management, such as co-management arrangements, biological corridor committees and model forest boards.
2. The role of Mesoamerican forests in supporting livelihoods of poor rural communities, as well as adaptation to and mitigation of climate change, together with the production of other environmental services of local and regional importance, is fundamental for the study and development of information, tools and methodologies for local, national and regional decision making.
3. Some of the main modifications to improve the performance of the forest sector in the countries and in the region should be derived from analyses of sustainable forest product value chains. These analyses would aim to eliminate some obstacles and limitations to achieving more efficient producers' organizations, higher production and profitability, modernization of industry, more valuable products and better trade conditions, as well as the environmental protection that is the basis for viable continued forest production.
4. The capacities of different stakeholders in the forest sector need to be improved, diversified and up-dated. Actual forestry training is focused on bio-physical subjects; the tools to influence policy development are not provided. Although some groundbreaking forest owner organizations have evolved in the region there are very few examples of forest owners assuming, administrating and planning (for the long term) their own forest production. Most decision makers influencing natural resource management in Mesoamerica possess a limited knowledge of the significance and the real potential of forests within a sustainable landscape management focus. Integrated strategies to maintain important ecosystem services, as well as to support socioeconomic development, are lacking. The MAP forests strategy will seek to produce change across all these levels.

These four strategic elements are addressed by the Forests and Forest Management MAP Finnish Project (FINNFOR), as an integral and coordinated element of the MAP Program. Thus within the conceptual framework provided by MAP, the following four corresponding sub-components of FINNFOR are proposed:

5.2.1.1. Adaptation of timber harvesting and commercialisation policies for agroforestry and silvopastoral systems (AFTCOM)

Mesoamerican farmers who wish to harvest timber in agroforestry systems (AFS) and silvopastoral systems (SPS) are obliged to follow the criteria, procedures and forest policies (laws and regulations) established for timber harvesting and commercialisation in forest plantations and/or native forest. Corresponding transaction costs are not viable for farmers, illegal logging in AFS and SPS is frequently the result, environmental damage is not controlled and farmers are paid a fraction of the real value of the timber because the product is illegal. Given that timber production from SPS and AFS could help satisfy growing demand as well as contribute to diversifying farmers` income and creating rural employment opportunities, the Central American Forestry Services, collaborating in the Central American Technical Forestry Committee (CTB) of CCAD, have asked CATIE to help them elaborate simplified forest policies (laws, regulations and incentive schemes), as the first project under PERFOR (Forestry Ecosystems Management Strategic Regional Programme), to enhance tree planting and sustainable harvesting and commercialisation of timber in AFS.

5.2.1.2. Strengthening of smallholder timber production through the application of sustainable forest management practices (FORMACOM)

In Mesoamerica, the rural poor often depend on natural forest resources for part of their livelihoods. The provision of ecosystem services and food security, for rural people in particular, is diminishing as forest resources dwindle and become increasingly degraded by non-sustainable use. This second sub-component of FINNFOR proposes to forge links between forest enterprises and small forest producers in order to increase the economic viability of sustainable forest management, increase job opportunities for the rural poor and improve their income and livelihoods. As a result, the competitiveness of the Mesoamerican forest sector will increase and sustainable forest use, an important option for conservation, will be demonstrated. In turn, the degradation of ecosystem services will be reduced, adaptation capacity respect climate change will be increased, and the landscape-scale integrity of the ecological processes that underpin the viability of fragmented natural forest ecosystems will be maintained.

5.2.1.3. Removing barriers to forest plantation investments in Mesoamerica (REFCOM)

In addition to traditional research on timber species and plantation management, innovative institutional and financial tools are needed to promote reforestation of deforested or degraded areas as well as multifunctional management of tree plantations and secondary forests. Forest plantations should be considered in the context of national, regional and international policies and mechanisms such as the Latin America and Caribbean Forest Law Enforcement and Governance (FLEG) initiative of the World Bank, PERFOR at the regional level and the conventions on Climate Change and Biodiversity at the global level. Through this third sub-component of FINNFOR, the scientific basis for economic, technical and political strategies for reforestation will be reviewed, in order to promote forest plantations as viable private, environmental and social business options.

5.2.1.4. Integrated forest landscape management in Mesoamerica (INTEGRACOM)

More holistic and integrated landscape management in Mesoamerica requires a transversal and integration perspective: this fourth sub-component of FINNFOR has been created to unify efforts and resources to address common concerns. Shared issues include: 1) competitiveness of forest investments; 2) organizational capacity of stakeholders; 3) the ability of political and market institutions to invest in forest goods and ecosystems services; 4) sustainable use of genetic diversity in strategic forest and agroforest ecosystems; 5) consideration of territorial management and connectivity for the sustainable use of strategic forest and agroforest ecosystems; and 6) centralized information management system for MAP stakeholders.

6. STRUCTURE AND OPERATION OF THE MAP

The structure and operation of the MAP is designed to establish, facilitate, coordinate and gain added value from the contributions of different projects and diverse activities (hereafter referred to generically as "projects") as well as to channel financial and other resources to these projects, which will continue to be managed by different CATIE dependencies (e.g., programmes and NTOs) and/or by collaborators. These projects will change over time but one of the reasons for establishing the MAP is to contribute to the continuity and growth of an agro-environmental focus as a central institutional competence of CATIE and its partners. Hence the future selection of projects and actions to be supported by the MAP will depend on their potential to contribute to the MAP's thematic areas listed above in section 4. This programme will help CATIE to capitalize on its comparative advantage of providing an integrated and systemic research, educational and outreach service to a diverse range of partners in Mesoamerica.

In order to understand the structure of the MAP and how it should function, it is essential to recognize that the MAP is a programme and not a project: many projects will contribute to the MAP, as was outlined above in sections 2 and 5. The MAP will be inserted into CATIE's Research and Development Division (RDD) which has recently been restructured as a matrix of production system programmes and crosscutting programmes to promote and facilitate integration to develop and manage new initiatives (e.g., see Figure 2, which presents the programmatic foundations for the new MAP project focused on Degraded Lands); i.e., the development of the MAP already has had an impact on CATIE's institutional landscape (Result 5 of MAP). Conversely since the new organizational structure of CATIE closely mirrors the MAP's priorities and focus on integration, it will greatly facilitate the MAP reaching its goals. Information flows for planning, consultation, monitoring and evaluation will be needed at different levels; this will be a central role for the MAP coordination unit which is discussed below (Figure 3). In the CATIE hierarchy, the MAP coordinator will report directly to the Director of the Division (Figure 4; i.e. will have the same position as any other programme leader) but the regional projects will continue to be under the general guidance of the respective programmes where they are currently located. These relationships are discussed below in this section.

Matrix Structure of Programmes in CATIE's Research and Development Division

	Programmes focused on production systems			
Crosscutting programmes	CASA. Tree crops in agroforestry systems (coffee / cacao / fruit trees)	GAMMA. Livestock and environmental management (silvopastoril systems)	PCB. Forest production and conservation (natural forests / plantations)	PACA. Agroecological production of food crops (vegetables / Musa / root crops…)
GESTER. Territorial management of hydrological resources and biodiversity (watersheds, model forest, biological corridor)	*New MAP project: "Degraded Lands"*	*New MAP project: "Degraded Lands"*		
CeCoEco. Competitiveness and value chains				
CC. Climate change (adaptation / mitigation)	*New MAP project: "Degraded Lands"*			
GSEBSA. Governance and socio-economics of environmental goods and services				

Fig. 2. Matrix structure of CATIE's Research and Development Division

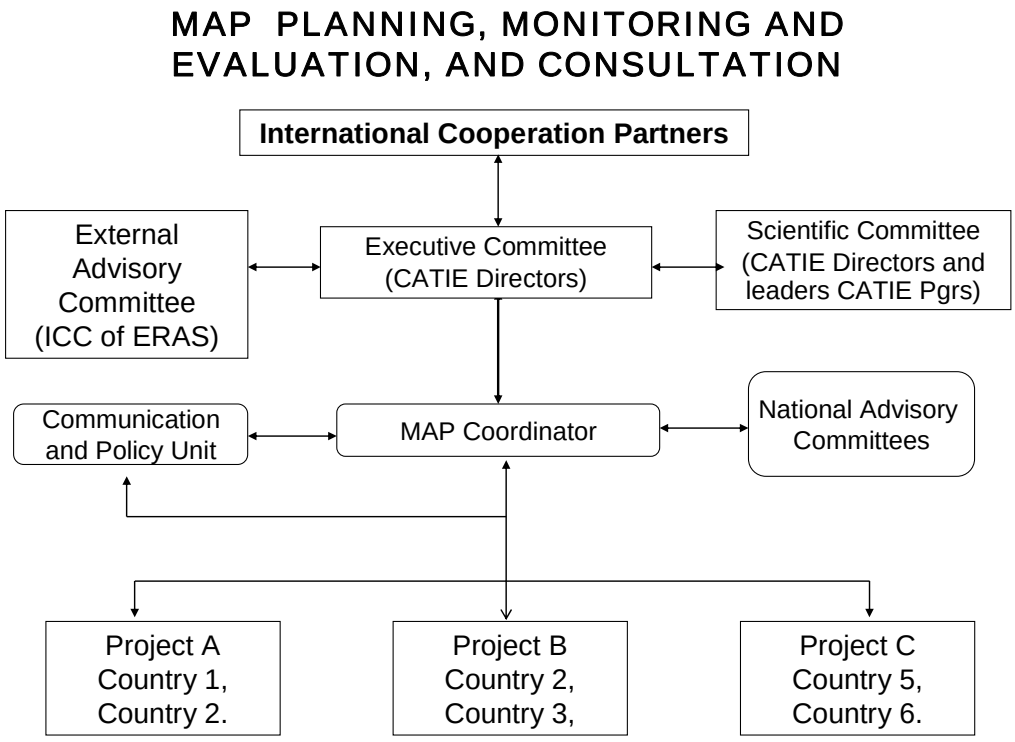

Fig. 3. Information flows for MAP planning, consultation, monitoring and evaluation

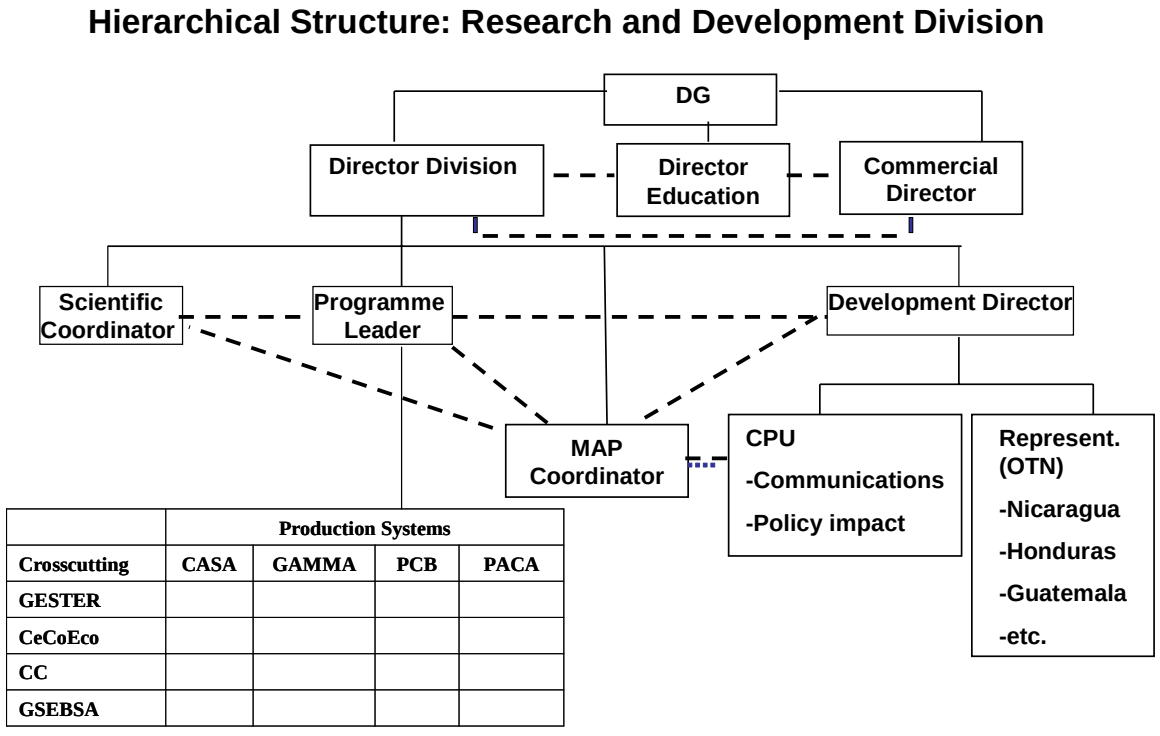

Fig. 4. Research and Development Division Organigram showing the relationship of MAP to the other sections (solid lines are management; dotted lines show obligatory consultation).

The identification of partners, donors and projects, that could contribute to and benefit from the MAP, will be included in the TOR of the MAP's Executive and Scientific Committees and MAP's External Advisory Committee (Figure 3). Some flexibility in the assignment and negotiation of resources will be needed to accommodate the different needs and contributions of this range of partners and donors. During the establishment of the MAP, CATIE's core operation will continue to receive contributions from MFA (Norway) and Sida (Sweden) as a continuation of their long term institutional collaboration. MAP resources will be managed using actual procedures, developed between CATIE and these Nordic countries, to channel support to CATIE and its partners. The Global Mechanism (GM) of the UNCCD and MAEF (Finland) also have expressed interest in collaborating with and supporting the MAP; it is hoped that other international organizations will join and /or support this inter-sectorial programme (e.g., New Zealand and Spain).

This section includes a discussion of the principal considerations underlying the design of the structural and operational characteristics of the MAP. These include (numbers refer to sub-sections that follow):

- The role of the MAP coordinator and supporting committees (Figures 3 and 4; 6.1)
- The MAP will operate with clear gender focus (6.2) at different geographical (6.3) and hierarchical (6.4: i.e., farm (household), landscape, country, region, CATIE) levels with a wide variety of partners (6.5)
- At the more complex levels (country, region), the MAP will seek to influence certification, policy and legislation through several processes, including various communication aspects of knowledge management through a Communication and Policy Unit (CPU; 6.6)
- The MAP will be implemented through phases to facilitate the incorporation of existing and new projects as well as the gradual testing and refinement of different mechanisms and processes (6.7). Due to the nature of this programme, a dynamic consultation, planning and reporting process will be developed (6.8)
- A combination of different budgeting mechanisms (6.9) is proposed (e.g., project and institutional support, competitive funds, targeted funds), designed to provide both focus and flexibility to allow for gradual organizational adjustments as well as the participation of other national and regional organizations in the implementation of the MAP
- Factors (risks) that could affect the impact of the MAP (6.10)
- An overview of the possible financial resources to be managed *via* the MAP (6.11).

6.1. Coordination

The Director of CATIE's Research and Development Division (RDD) will have an important role in the MAP, with a main emphasis on developing international cooperation in support of the MAP. A full-time coordinator and support staff, responsible to the Director of RDD, will execute the decisions of CATIE's (and MAP's) Executive Committee (formed by CATIE directors: the MAP coordinator will be the secretary of this committee) in order to implement this inter-departmental, inter-disciplinary and inter-sectorial initiative. Thus a main goal of the MAP coordinator is increased integration of projects and partners, and hence the achievement of the MAP's value added goals. Major decisions about new priorities and projects, to be presented to the International Cooperation (development partner) community, will be made by the Executive Committee in consultation with existing donors and partners; e.g., consultation with the External

Advisory Committee (Figure 3: ICC of ERAS) and CATIE's Scientific Committee (see 6.8). New initiatives will be discussed in the annual meetings with donors. In order to ensure the required integration of efforts and to resolve emerging issues that impact / require CATIE's attention, a fluid mechanism needs to be defined for the Executive Committee to be able to fulfill its role: i.e., this committee should have a regular meeting schedule (at least trimestral). Given the regional outreach goals of the MAP, and to balance the decision making power of the MAP project leaders (leaders and members of CATIE's programmes), the MAP coordinator will have the same hierarchical level as any other programme leader in RDD but will be closely linked to CATIE's Outreach and Development Director and the NTOs in countries where MAP activities are to be carried out.

Once project proposals (medium-term: 3-5 yr) and annual work plans are approved (in the annual meeting with donors), project leaders and their corresponding programmes should have independence, responsibility and accountability for the coordination and implementation of their particular projects and activities in line with actual procedures used by CATIE to manage projects supported by the Nordic countries. The MAP coordinator should have direct contact to project and programmes leaders in order to help them to develop: 1) new activities within a project (intra-project) that contribute to the MAP value added goals; 2) activities that contribute to integration (inter-project); and 3) ideas for new projects to be considered in the MAP. Internally ideas for new projects will have to be approved by the Executive Committee while intra and inter-project activities can be initiated with the mutual consent of the MAP coordinator and the projects that are involved. Once agreement has been reached on the general structure and procedures of the MAP, guidelines for these decision making processes, including the ways in which actual / potential partners of CATIE will be able to participate, will be drawn up by the MAP coordinator for presentation to all three committees: i.e., proposed role for CATIE`s Scientific Committee, the External Advisory Committee (ICC of ERAS) and the MAP Executive Committee all of which, we hope, will contribute to regional ownership and the success of the MAP. In each country the NTO will form a national advisory committee that will discuss the MAP's plans and reports. Likewise once the projects and resources available for the MAP have been agreed, a logical framework for the MAP`s overall goals (i.e., additional to the logical frameworks of the projects that will make up the MAP) will be drawn up by consultants and the MAP coordinator; this logical framework for the MAP will be regularly revised to provide a flexible instrument that can help guide future decision making including planning, monitoring and evaluations of the MAP.

In order to further develop this integrated programme, an in-depth analysis of existing projects is required: e.g., their successes and failures, structural and other characteristics, working approaches, geographical and thematic foci, collaborators, planning and management cycles. Thus organizing the **systematization** of the experiences of existing and previous inter-sectorial rural research and development projects should be another of the responsibilities of the coordinator of the MAP. Likewise the responsibilities of the coordinator of the MAP will include servicing the ongoing process of internal and external consultation, as well as the analysis of priorities and limitations, complementarily and competition, institutional structures, approaches and methodologies, that will be carried out at regional and national levels: e.g., with CCAD/IUCN and with ministries, national agricultural institutions and universities, respectively (see section 6.7).

6.2. Gender focus

The MAP will help CATIE and partners achieve a significant advance in the incorporation of gender considerations: i.e., make gender issues one of the central foci of research, development, training and communication supported by this agro-environmental programme. The following list will be used to generate indicators as well as relevant activities to be supported and monitored by the MAP:

- Inclusion of gender aspects in MAP research and development projects with the ultimate aim of providing: equality of opportunities for all family members (e.g., respect MAP education and training activities); equality of opportunities to generate and manage income (e.g., facilitating the management of resources by women's groups); equal access to productive activities and resources (e.g., land); and in general equal participation in family and community activities
- Diagnoses of new pilot zones or sectors will include the documentation and analysis of the knowledge, opinions, roles and situations of men and women separately, recognizing their different interests, aspirations, experiences and actual levels of participation in family decisions, productive activities, access to resources and in community organizations (formal and non formal)
- Dynamic design and planning of the MAP projects to include continuous adjustments to guarantee the participation of all family members, including a focus on young people, seeking to establish a balance between: numbers of men and women project staff; partners of MAP projects (e.g., balanced numbers of men and women beneficiaries within communities); attention to different necessities and solutions (for men and/or women)
- Training of the MAP and partner staff on gender issues (and CATIE´s gender policy), seeking equal inclusion of men and women in all the MAP activities
- Development of impact, effect and process gender indicators for the Monitoring and Evaluation scheme of the MAP: e.g., numbers of female headed *vs* male headed households with increased income (due at least partially to the MAP`s activities); percentage of women in leadership positions; and number of community initiatives/projects that incorporate gender aspects, respectively.
- Inclusion of gender and equity themes in CATIE`s and partners` strategic training courses, workshops and other activities that target actual and future leaders
- Inclusion of gender and equity themes in CATIE`s graduate courses and promotion of their inclusion in the programmes of collaborating Universities
- Development of thesis projects that include a focus on gender issues as part of the sustainable management of agriculture and natural resources.

Out migration of labour / youth is a framework condition that will affect the success and impact of the MAP, but which is largely beyond the programmes control. Nevertheless the MAP should include and promote actions to provide explicit support to women heads of family who are the victims of abandonment by partners who have migrated. If the MAP achieves a positive impact on livelihoods in rural areas (a basic premise of the programme) then there will be increased incentives for the rural population to remain in their communities. MAP projects, such as cacao (PCC), have a clearly defined and specific emphasis on education at school / college levels, thus offering rural youth new perspectives and rewards from maintaining rural life styles. MAP also has a clear goal of reducing poverty in rural areas, one of the key factors (together with security) involved in the decision to migrate. One advantage of our decision to use the SLA /"Capitals"

framework to develop the MAP is that this will ensure that we are focused on incentives (tangible and intangible) for the rural population to remain in their communities.

6.3. Geographical focus

The programme will support work throughout the Mesoamerican region (Belize to Panama) though it is expected that greater emphasis will be given to Nicaragua, Honduras and Guatemala, because of the greater needs of these three countries. Regional actions will be the backbone of the MAP but the foundation stones will be exemplary territories and farmers` organizations chosen in each country together with national and regional partners. Key territories (pilot zones) where the MAP will work should fulfill at least the following requirements:

- Located within priority areas identified as such in regional (e.g., Mesoamerican Biological Corridor) or national strategies;
- Stakeholders have expressed their interest to become one of the pilots and have proven leadership and social capital;
- Potential to internalize the costs of the provision of ecosystem services through different financial mechanisms;
- Correspond to CATIE´s expertise and in areas where there is potential for synergies within CATIE and/or with other partners.

Trans-frontier territories will be favored when possible. Possible examples of these are: (i) lands around the Gulf of Fonseca (El Salvador, Honduras and Nicaragua); (ii) Las Segovias, Nicaragua – Paraíso, Honduras; (iii) Trifinio (El Salvador, Honduras and Guatemala); (iv) Talamanca, Costa Rica – Bocas del Toro, Panama; (v) Peten (inside and outside of the Maya Biosphere Reserve), Guatemala – Cayo, Belice; (vi) Rio San Juan (Nicaragua- Costa Rica); (vii) Guatemala – Chiapas, Mexico - Belize; (viii) RAAN, Nicaragua – Mosquitia, Honduras; (ix) Copán, Honduras - Río Grande, Guatemala.

6.4. Levels of operation[17]

The MAP will support activities at five levels that correspond to the five main results:

- Farm and household, local farmers' cooperatives and associations (COAs) strengthen value chains: through participatory research, development and training activities, such as farmer field school plots managed through local groups of farmers and technicians, NGO`s and sectorial groups such as coffee cooperatives.
- Landscape: through collaboration with local stakeholders (especially local government) develop and promote sustainable and more profitable land use, as well as methods to facilitate planning, management, monitoring and evaluation, dialogue and integration that strengthen SLM and PES at the landscape level.
- National: through CATIE`s NTOs interacting with national stakeholders (e.g., Governments; a sectorial focus could also be used at this level, such as working with the national livestock association) to build capacity and promote internal collaboration to plan, communicate and evaluate environmentally friendly land use that provides better economic opportunities for rural communities as well as a general improvement in livelihoods.
- Regional: through activities initiated principally from CATIE´s Headquarters, interacting with other regional (e.g., CCAD and IUCN) and international stakeholders (e.g. Global

[17] For more detailed examples of the kind of activities that could be considered for each level, see Annex 5.

Mechanism of the UNCCD), to promote collaboration that will facilitate adaptation to changing environmental and economic conditions through consistent development of regulations, certification, regional initiatives (e.g., Central American Biological Corridor and ERAS) and educational programmes.

- CATIE: through coordinated and synergistic actions of its Departments, Programmes and NTOs, CATIE will increase its offer of products and services (e.g., tools, methodologies, technologies, data bases, networks, training and education) leading to greater impact at regional and national levels as well as greater institutional stability and attractiveness of CATIE as a research, development and educational platform.

6.5. Potential partners for institutional anchoring of the MAP

Potential MAP partners have to be identified for the different levels of intervention though many could collaborate at more than one level (see Annex 6 for examples of potential partners). The identification of partners may need to be opportunistic for particular projects and activities but CATIE will analyze the roles of existing and past collaborators (e.g., ministries, universities, chambers of commerce, NGOs, COAs) seeking to identify strategic partners and successful mechanisms that supported long term collaboration. This review will contribute to institutional anchoring (see 6.5.1 below) and to the identification of the support that partners need/ can be offered by CATIE; e.g., development of their human resources and their own assets. In the context of mutual beneficial sharing of resources and other possible contributions to/from CATIE`s activities (e.g., information, opportunities, concepts and methodologies), the following kinds of partners will be important for the MAP:

- International collaboration as a source of financial and human resources: donors; international NGOs with presence in MesoAmerica; international and regional implementation, political and financial bodies (e.g., development banks); private sector; and international research organizations including European and North American Universities and CGIAR organizations.
- Regional organizations with an influential role in: policy and planning (e.g., CCAD, CAC and COMISCA); research and technology transfer (e.g., SICTA and IICA); education (e.g., INCAE); and dissemination (e.g., IUCN`s Mesoamerican office).
- National organizations for planning, monitoring and implementation: MesoAmerican governments; rural development programmes; NGOs; farmers unions; universities; small and medium enterprises as well as larger private companies.
- Organizations that work at the landscape (local) and farm levels for planning, implementation and monitoring of pilot scale work: local governments; local NGOs; rural small and medium enterprises in the agricultural and forestry sectors; COAs; other development agencies, programmes and projects; local community development committees (e.g., Municipal water councils); and technical colleges and schools.

As has been stressed before, the key to the success of the MAP will be not only its ability to collaborate with all these organizations at the different levels but also to link them between levels in a holistic programme. Some of the proposed mechanisms to collaborate with partners are discussed below.

6.5.1. Institutional anchoring

One of the foundation stones of the MAP approach is to work with, through and for the above mentioned regional, national and local organizations. Wide scale and lasting impact of the MAP will only be obtained if these organizations assimilate, adopt (and adapt) MAP concepts, methodologies and results: institutional anchoring is vital for the success of the MAP. CATIE is already making significant efforts to achieve this aim: e.g., in the existing regional projects that will be incorporated into the MAP.

The integration of Governmental institutions is necessary to achieve sustainability and impact of the MAP's actions. However MAP partners represent a wide range of organizations (Annex 6) and hence a variety of mechanisms will be needed to achieve anchoring and impact; e.g., farmers` COAs, private sector companies, educational institutions as well as local, national and regional NGOs also can contribute in different ways to scaling-up and scaling-out of the MAP's products. Although recognition of the MAP "trade-mark" will be important to secure future support and impact of the MAP, it is equally important that MAP partners perceive collaborative actions as their own activities rather than as an external intervention by CATIE: CATIE's principal roles should be facilitation and technical support of these partners (this is a key indicator that institutional anchoring has been achieved; see Annex 6 for a check list that could be used to determine levels of participation and assimilation).

Actions to be taken with these partners, to contribute to anchoring of the MAP approach and products, include:

- Consultation at all stages and levels for the development and implementation of the MAP
- Joint preparation of annual work plans and budgets (e.g., for the new regional cacao proposal [PCC], one of the MAP projects)
- Contributions to regional, national and local steering committees (e.g., Focuencas has worked with "think tanks" and committees at these three levels)
- Providing partners with seed resources and the gradual transfer of authority to manage joint activities
- Identifying partner's priorities, technological and methodological products, capacities and capabilities in order to adjust and integrate the MAP interventions into their annual work plans rather than seeking to adjust partners` actions to the MAP framework (modifications of the plans and actions of partners is a product of successful collaboration)
- Improving framework conditions, through changes in national and regional policy and regulations, will facilitate and promote adoption of the MAP interventions
- A holistic web of actions at different levels is necessary to achieve positive change in the multi-faceted agricultural and natural resource sectors, and hence for the even-more challenging goal of introducing an inter-sectorial agro-environmental focus for their management; this holistic approach is essential to achieve lasting improvements in framework conditions
- In the medium-long term, one of the MAP`s greatest contributions to changing perceptions and hence anchoring will be *via* education and training, especially at the postgraduate level where CATIE and partners pretend to contribute to the formation of the leaders of the future: i.e., highly motivated professionals who can solve complex intersectorial problems.

6.5.2 Collaboration with IUCN and CCAD

IUCN's regional office for Mesoamerica and CCAD are strategic organizations that could facilitate and have a significant influence on the impact of the MAP; they also have a close collaboration with principal MAP Donors. Thus special attention will be devoted to seeking synergies and value added by linking activities carried out under the MAP with the related programmes supported and/or managed by IUCN – Mesoamerica and CCAD. This process was began during the planning phase of the MAP, through various meetings and communications respect possible partners, priority themes and key territories; e.g., possible collaboration with both IUCN and CCAD to support the Trifinio Commision in their efforts to safeguard water quality and quantity in this tri-national frontier zone (El Salvador, Honduras and Guatemala). CATIE's request that the ICC of ERAS, in which IUCN and CCAD are active participants, which continues to meet regularly, acts as an External Advisory Committee to the MAP, is one proposed mechanism to seek compatibility with the programmes of IUCN, CCAD and other ICC members (e.g., GM). Other possibilities to promote and facilitate a special relationship with IUCN and CCAD include:

- Assistance to the CCAD in the preparation and implementation, *via* national authorities, of a regional strategy respect climate change and variability.
- Linking CATIE and IUCN activities in pilot zones where both have or will have activities; e.g., the trans-frontier region of Talamanca (Costa Rica) – Bocas del Toro (Panama) as well as in the tri-national Trifinio zone mentioned above.
- Sharing resources when seeking to achieve impact on policy and regulations. For example: IUCN has an established capacity and channels / mechanisms to influence environmental decision making; CATIE has an in-depth technological / scientific capacity to contribute solid data bases and methodologies to underpin evidence-based decision making; CCAD has a responsibility for and direct access to the political decision making process in the region, and consequently in each country. Linking the efforts of these three organizations to contribute to regional, national and local policy and regulations could significantly increase the value and impact of their individual contributions.
- Collaboration on training and dissemination of information at different levels has existed for many years, especially between IUCN and CATIE. Past experience should be evaluated, together with the sharing of annual plans and the identification of new opportunities to work together to improve the impact of the training and dissemination programmes of both organizations.
- CATIE, being the only organization of this trio with a postgraduate programme, should seek to place some CATIE (and exchange) students with IUCN and/or CCAD teams to quantify and document the results of specific projects and activities; e.g., promote, as a possible theses topics, the systematization of results (including methodologies) of IUCN and CCAD projects. Such an experience would also be a valuable component of a student's education. Offering funding (CCAD or IUCN) for student's research year(s), incorporating CCAD and/or IUCN staff in student committees, and sharing responsibility for the dissemination and use of their results of a thesis (see Annex 4.2) are excellent ways to create understanding and collaboration between professionals and their institutions.

6.5.3. Regional agro-environmental and health strategy (ERAS)

CATIE is an active participant in the ICC that had the task of formulating the inter-sectorial ERAS for revision by the SICA secretariats and Ministers of Agriculture, Environment and

Health before its approval by the presidents of the SICA countries (May 28, 2008). CATIE had the responsibility, within the ICC, of formulating two of the four principal components of ERAS (Climate Change and Variability; Green Markets) as well as contributing to the development of the other two themes (SLM and Biodiversity). Thus, in addition to the permanent participation in the ICC of the Directors of both technical departments[18] of CATIE (Natural Resources and Environment[19]; Agriculture and Agroforestry), other CATIE staff members prepared and revised draft documents and presented corresponding proposals during the meetings of the representatives of these Ministers. An outline of the MAP proposal was presented to and approved by the ICC in its September, 2007 meeting: the possibility of the MAP contributing to the implementation of the ERAS has been discussed in subsequent meetings and is welcomed by the ICC, representing a major opportunity for CATIE and its partners to influence and improve framework conditions for agro-environmental development in the Mesoamerican region.

The mechanisms by which the ERAS might be implemented have yet to be defined. This implementation should occur at different levels with an ultimate goal of achieving impact throughout the region. ERAS is focused on five strategic topics which are highly consistent with the four thematic areas identified for the MAP. The ICC also suggested adopting the approach of developing and demonstrating the value of ERAS in pilot zones for subsequent scaling-up and scaling-out, the approach proposed for the MAP. Implementation of the ERAS will require commitments from different sectors to work together in each country, which implies that it will need guidance and support from the highest political levels (national and regional). Mesoamerican Governments and regional political bodies (e.g., CCAD) will be responsible for implementing ERAS; CATIE and MAP partners can not guarantee that the required priority will be given to the ERAS and that inter-sectorial integration will occur; indeed the degree of implementation of the ERAS will certainly vary between countries. However, CATIE can promote, facilitate and support the process at national and regional levels; at least in the latter case, collaboration with CCAD, IUCN, GM, IICA, etc. will be essential. The development of the ERAS and the MAP, although initially coincidental, has been intimately linked and the potential value of contributions from the MAP for the successful implementation and impact of the ERAS has been recognized by the participants of both processes from their inception. Thus while the final decisions respect how to implement the ERAS have not yet been made there is a high probability that the ERAS will provide a major channel for the MAP to achieve impact; e.g., to influence agricultural and environmental policy and regulations in the Mesoamerican region. CATIE's Council of Ministers, projects and representatives in other countries also provide channels to achieve a wider impact.

6.6. Communication and Policy Unit[20]

CATIE's main asset is knowledge and its core mandate includes generating, accessing, exchanging, systematizing, integrating, re-combining, using and disseminating knowledge. Through the establishment of this MAP communication and policy unit (CPU), in synergy with CATIE`s existing Communications Unit and the communication initiatives of MAP projects, the MAP aims to establish a high standard and benchmark for CATIE and its partners respect the

[18] In 2008 they were fused into the Research and Development Division.
[19] The Director General of CATIE was previously the Director of this Department.
[20] CATIE proposes to hire a high level consultant to help make an analysis of the communication needs and demands relevant to the MAP in order to prepare a comprehensive communications strategy for the whole institution.

handling of the entire process of knowledge management; i.e., from its generation to communication and use by different actors in different processes at various levels in the Mesoamerican countries. The communication and dissemination of results and knowledge at all levels is also one of the responsibilities of the medium term (3-5 years) regional projects that will make up the MAP and in certain cases the MAP could outsource some communications services. One of the roles of the MAP's CPU will be to manage and promote activities designed to integrate, synthesize and communicate specific results and methods of its projects and units (see also following section 6.7).

The CPU will focus on improving the effectiveness of information and knowledge management at the micro, meso and macro levels in order to contribute to innovation. Recognizing that this is a complex and huge task, the CPU will implement this role in different phases, allowing for a progressive learning and scaling-up process. During a first learning cycle, the CPU will analyze internal and external communication and information flows, patterns and demands between personnel, projects, partners and clients who are associated with the MAP (network perspective), to understand the different kinds of links or ties (strong and weak) between these stakeholders, and their effects on knowledge creation, learning, innovation and change. Based on this analysis, leverage points of action will be identified in order to foster information and knowledge management within and outside of the MAP. In a second phase, the MAP will extend the analysis to include other CATIE programs and projects as well as initiatives outside of CATIE; again leverage points for action will be identified and actions implemented, monitored and evaluated. Following this second learning cycle, the major stakeholders of the MAP will again be included in the process.

Another principal role of the CPU will be to facilitate the use of the MAP`s and others results and knowledge as inputs for the formulation / modification of agricultural and environmental laws and regulations. The means to achieve this goal will vary according to the nature, experience and contacts of the internal and external participants in the respective processes. CATIE and its partners already can show examples of high levels of participation of this kind; e.g., CATIE`s Climate Change programme has assisted country missions to prepare for and participate in Conference of the Parties (COP) meetings respect international environmental conventions; CATIE`s Cacao programme participated in the development of the cacao sectorial cluster in Nicaragua; and CATIE's Forest programme has assisted national governments and CCAD to assess illegal logging and propose better policies to reduce it. However, in other cases there is a clear need, recognized by the majority of CATIE staff, to join forces in order to obtain greater impact at this political level; e.g., to integrate the dispersed but mutually valuable experiences of different programmes in CATIE in quantifying, valuing and developing schemes to pay for ecosystem services (PES), one of the central thematic areas of the MAP. The CPU will seek to facilitate these synergies and to develop opportunities so that the inputs of these Programmes reach the key decision makers in an adequate format at the correct time. In this respect a close collaboration and communication between programmes – CPU – NTO will be required. Achieving the goal of contributing to policy formulation will not be simple and the CPU will need to study the corresponding experiences and seek collaboration from partners such as IUCN. It is proposed that initially one new experienced staff member be hired for the MAP CPU to cover this need to increase our contributions for the formulation of national and regional policies; i.e., help develop this capacity together with CATIE NTOs, Programmes and partners.

6.7 Mechanisms to facilitate the alignment, coordination, integration and incorporation of MAP project and partner results

In this section, the focus is once again on the value added actions of the MAP over and above what its individual component projects can achieve: e.g., to contribute directly to the communication capability of CATIE both internally and externally. Some suggestions of how the CPU and MAP projects can add value are provided below but the nature of this learning programme implies that the required mechanisms will have to be adapted with time.

- Biannual workshops of representatives of MAP projects to exchange concepts, methods, results and other information; the first workshop each year will precede the first annual donor meeting.
- All relevant MAP projects will be obliged to contribute to co-authored synthesis publications on results and methods: e.g., social, ecological and economic impacts of schemes to pay for ecosystem services; development of indicators to monitor sustainable land management.
- Regular interchanges of staff and collaboration between MAP projects will be organized. The possibility of reserving a predetermined percentage of MAP project staff time, so that they can provide technical, scientific and / or educational inputs to other parts of the MAP programme, including to NTO and partner organizations, will be explored (c.f. example of CIRAD staff seconded to CATIE who always have 1-2 months / year reserved to work in other projects/ organizations).
- Professional incentives will be provided to encourage inter-disciplinary and inter–project activities: e.g., financing of student research assistants and financing of attendance at international scientific meetings that have an inter-disciplinary focus.
- The MAP coordinator will negotiate the assignment of specific MAP tasks, activities and products to certain projects and partners: e.g., their incorporation in the corresponding proposals and work plans.
- Logical frameworks and the M+E systems of new projects will be based on the MAP log frame and M+E, including quantifiable indicators to measure the contributions of each project to the MAP. Existing project log frame and M+E will be adapted to the MAP log frame and M+E.
- CATIE's Executive and Scientific Committees, and the ICC of ERAS, will be expected to identify and help develop new resources, opportunities, activities, projects, partners and collaboration to cover specific MAP tasks and activities that are judged to be underdeveloped.
- Feed back (e.g., synthesis papers; manuals) will be provided to MAP projects and collaborators to promote consistent use of concepts, methods and dissemination approaches, whilst recognizing the particular circumstances, needs and opportunities of each project and collaborator.
- Explicit recognition of MAP support will be required in all publications and other products in order to establish the MAP "trademark", visibility and hence attract new collaboration and resources, as well as the use of MAP products.
- A MAP website and other internal and external communication linkages will be established by the CPU within the CATIE communication system.
- A new staff member, charged with helping project staff to translate their results and experiences into policy inputs as well as seeking the means to communicate these to

decision makers (see above description of the CPU), will also have a key role in promoting internal cooperation and synthesis of MAP results.

- Policy briefs and expert systems derived from the results of the MAP. Resources, including funds to compensate for staff time, will be reserved to encourage participation in these synthetic, interdisciplinary and inter-project activities and to facilitate that programme staff provide support to NTOs; e.g., for meetings and workshops with decision makers in a particular country.
- The MAP CPU and projects will offer data bases, including information from external sources, on SLM technologies, research and development methodologies, MAP partners and their capabilities, etc.
- Assistance will be provided to prepare publications for CATIE`s institutional series including materials for farmers, making project documents widely available (e.g., proposals, base line studies and annual reports) and contributions to newsletters (CATIE's and others).

6.8. Governance, dynamic planning, consultation, reporting, monitoring and evaluation.

The MAP by itself can not develop all the topics identified in this proposal; local, national and international alliances will be needed to cover the range of goals and activities that have been listed. Moreover, the relative importance of these topics for Mesoamerica will change with time. Hence the governance and planning mechanisms of the MAP will need to include an ongoing process of consultation and priority setting amongst all the current options to seek maximum efficiency and impact from investments made *via* the MAP. Furthermore, the nature of a programme, such as the MAP, compared to a project is that the time frame, activity plan and budget are longer term and not pre-determined in detail. Hence, even more than is the case of existing regional projects, dynamic adaptive planning will determine the success of the MAP. This section includes suggestions for continuous planning, consultation and reporting processes at different levels (a central characteristic of the MAP) classed according to the geographical range covered by different participants; obviously there also will be interactions between the different levels and groups identified below. The Executive Committee, working through the MAP coordinator, will be responsible for supervising the planning, monitoring, consultation and reporting procedures outlined below.

The development of this MAP proposal included (in 2007 and 2008) an intensive process of consultation internally and externally (Annex 3; principally national and regional organizations) respect how to: i) integrate existing initiatives; ii) respond to priorities identified by CATIE's actual and potential partners; and iii) identify needs in a prospective manner. In 2008, CATIE carried out a round of consultation (workshops) in the "MAP" countries during which representatives of local, national and regional government and sectorial bodies, amongst others, were asked to comment on this proposal. CATIE has strong grass roots contacts with a large number of farmers as well as with the public and private sector and local organizations through the work in the pilot zones of the existing projects that will manage over 60% of MAP funding. These links help CATIE to orientate its work to the real problems and opportunities of local farmers and their organizations; e.g., the focus of our new regional cacao project (PCC), built around the interests, limitations and aspirations of cacao cooperatives and associations (COAs), was changed during the final planning to put more emphasis on production after these COAs advised CATIE that the original marketing focus was not their primary concern. The

involvement of Government bodies (especially local) in MAP projects such as Focuencas, is high. The MAP will continue to channel resources and hence have close links to all three levels of Government; i.e., through funds managed by the MAP coordinator and associated committees as well as by continuing actual procedures used by MAP projects to fund local initiatives, including municipalities.

6.8.1. Role of principal partners in planning, consultation and reporting at different levels

International (e.g., International Organizations, International NGO, EU, USAID, other Donors). Meetings with potential collaborators, who support activities in Mesoamerica but are not yet directly linked to the MAP, to identify existing and foreseen relevant programmes, projects or other initiatives that could overlap, contribute to and/or facilitate the implementation and impact of the MAP.

Regional (e.g., CCAD, CAC, IICA, GM, IUCN, IRBIO). The MAP`s External Advisory Committee (bi-annual meetings) will be formed from the ICC that was established to develop ERAS. Points of discussion will include CATIE/MAP plans (Strategic; Medium Term); consultation respect regional priorities; mechanisms to promote inter-sectorial collaboration; opportunities for synergies (and to avoid competition) with existing initiatives; gaps and new initiatives that could be developed together (e.g., how to assist regional and national bodies to implement ERAS). Meetings also should be organized with other regional (Central American) bodies, such as *CEPREDENAC, BCIE* and *PRISMA*, who are not members of the ICC of ERAS.

National (e.g., Governments, INIAs, Universities). Verification of national priorities: e.g., *via* re-establishment of CATIE`s national advisory committees (CAN) in each country and through sectorial (e.g., national cacao forums in Nicaragua and Guatemala) and inter-sectorial discussions of programmes such as PRORURAL in Nicaragua. This task would be one of the roles of CATIE`s NTOs in MAP, as well as of the MAP project leaders. Consultation will be focused on strategic partners in each country who operate at a national level in the thematic areas to be covered by the MAP. Research and educational collaborative mechanisms will be developed with universities and INIAs. Sectorial and inter-sectorial consultation (national level) can include: national livestock federations, national coffee institutes, cacao and forestry clusters individually but also in joint meetings to develop inter-sectorial methodologies of common interest (e.g., PES). Sector specific discussions would focus on limitations and opportunities to develop more profitable, diversified and sustainable land use avoiding “business as usual”.

Local organizations (landscape level). Implementation of the MAP at a landscape (local) level will be primarily the responsibility of the MAP projects and their partners. It will require permanent platforms for dialogue, negotiation and decision making among local interest groups, organizations, authorities and development agencies. Local planning processes are not only important to facilitate the immediate efficient implementation of MAP projects: they also should lead to improvements in local governance through the empowerment of local groups and authorities. It may be possible to build on existing public and private platforms or to improve local governance structures for public consulting and decision making: delegation and co-management structures may need to be arranged among these actors. The starting points are planning efforts at the municipality, community and COA level in order to identify possible contributions of the MAP projects that are adaptive and flexible to local conditions (not imposed from outside). Thus CATIE pretends to help local stakeholders learn how to create ownership and

commitment to common goals. In this sense, local planning is a sequence of negotiations among multiple actors who analyze conditions, define problems, find solutions and implement priority actions to improve land and natural resource management through innovative governance mechanisms. CATIE is a facilitating actor providing human and financial resources and helping to develop a common action research agenda to generate knowledge for scaling-up and scaling-out based on the lessons learnt from these local experiences.

Internal (CATIE). CATIE`s Scientific Committee (i.e., leaders of CATIE`s programmes with CATIE directors), together with the coordinators and leaders of the projects that will contribute to the MAP`s aims, will form the internal advisory committee providing input to the MAP's Executive Committee (CATIE Directors with MAP coordinator). Sub-committees of CATIE`s Scientific Committee may be formed to provide follow-up for specific thematic areas. The identification of potential new components (e.g., new regional projects) and activities to be supported by the MAP will be included in the TOR of CATIE`s Scientific Committee. The participation of CATIE`s Director of Education, who is a member of CATIE`s Scientific Committee, will ensure that this new programme continues to provide educational and training opportunities. The MAP will include novel competitive funding mechanisms (see 6.9) that will provide seed funding to promote collaboration between programmes, NTOs and external partners; the selection of proposals to be supported by such competitive funding mechanisms will also be part of the TOR of CATIE's scientific committee.

CATIE-Donor. Biannual planning and reporting meetings, with donors who directly support the MAP, will be organized: initially identified potential participants are MFA (Norway), Sida (Sweden) and MAEF (Finland). The first meeting each year (March or April) will include the presentation and formal approval (by donors) of the annual MAP technical report, including follow-up to items discussed during previous meetings and the identification of any problems encountered and possible solutions to the same. CATIE's annual report, work plan and externally audited financial report will also be provided to these donors before or during the March April meeting. The independent annual MAP audit report will be presented no later than June. The second meeting of each year (September or October) will be focused principally on the MAP work plan and budget for the following year. Other possible topics are a discussion of follow-up, specific methodological and procedural issues (e.g., criteria for the award of MAP funding) and possibly a site visit; e.g., to one pilot area where the MAP works. These meetings may be organized to coincide with the meetings of CATIE's Board of Directors and/or the CATIE Donors meeting. During these meetings strategic medium term decisions (five year horizon) will be made about the actual and potential projects to be supported, including their foreseen timescale and approximate total amounts of resources to be allocated to each. Such proposals will be presented to the potential donors and partners by the Executive Committee (includes the MAP coordinator) following consultation at the different levels mentioned above in this section.

6.8.2. Annual planning reporting, monitoring and evaluation procedures

The planning, implementation and management of the MAP, at the different levels, will be carried out by different units and partners. In the case of CATIE, at the farm, local and landscape level, it will principally be a task of CATIE's Programmes through the MAP projects while at the national and regional levels, it will principally be a task for the NTOs and the MAP coordination / CPU units, charged to synthesize, integrate and disseminate information. Resources pledged to

the MAP will be divided in a corresponding way: the second annual meeting with donors, in September or October, will provide the forum to confirm resources available during the following year for each project and integrating unit. Hence the annual plan of the MAP will be formed from a combination of project and MAP unit plans to be supported by resources channeled through the MAP together with other additional resources that each project and unit may access. No attempt is made in this MAP (programme) proposal to present the detail of these project activities, which are provided in the respective project proposals and work plans: the focus here is on the criteria and mechanisms to be used to make decisions respect annual planning and resource allocation at a higher (programme) level.

A common planning and reporting procedure, satisfactory to CATIE and all donors to the MAP, will have to be developed. CATIE hopes that this will be based on the actual procedures, developed between 2005 and 2007 by CATIE and the Nordic countries to manage institutional support to CATIE. All projects and units who receive support from the MAP will be asked to provide annual written and verbal (power-point) executive plans, budgets and reports, using a standard format for a precise and concise presentation of their goals and results as well as the problems and opportunities encountered, possible solutions and lessons learnt during implementation. These individual plans and reports will include quantitative and qualitative information about the contributions of each project / unit to the achievement of the value added goals of the MAP; i.e., to the MAP indicators. In some cases, prior negotiation between the donors, the MAP coordinator and the responsible project or unit staff, about the annual plans and budgets that a particular project or unit intends to submit, will be needed. The MAP coordinator will have the task of integrating these individual project documents and presentations into a single MAP report, plan, etc. However once approved, the implementation of the annual plans and budgets of the individual projects/units will be the responsibility of the designated project (or unit) coordinator. Detailed technological and scientific results and reports, respect a particular project, may be offered with different frequencies in annexes or as separate reports depending on the nature and the needs of each donor, project (unit) and of beneficiaries/ partners (e.g., Govs., Univs., NGO`s, etc). These specific reports will generally be in Spanish, while institutional and MAP annual reporting and external reviews will be prepared in English (with translation into Spanish if required).

The actual indicators of CATIE`s compliance with contracts with principal donors, who presently provide institutional support (see table 2 in section 6.11), are the delivery of annual work plans, annual summary reports on implementation and the independent annual audit report, all of which refer to the whole institution. Further development of CATIE`s internal monitoring and evaluation system, based on products (not activities), will provide one of the main sources of information for future annual reports. All MAP projects will undergo at least one final (or end of phase) evaluation prior to deciding whether to continue, modify or reallocate any remaining corresponding resources. This evaluation will be prospective as well as retrospective, seeking to integrate the experience and results gained by each project ("lessons learnt") into the future actions of CATIE and MAP partners. In the early years of the MAP, one specific goal of these evaluations will be to determine how to improve the contributions, synergies and integration of projects in the MAP: e.g., of projects that existed before the MAP was established. Comprehensive external evaluations of the MAP, including assessment of impact, will be carried out at intervals of approximately five years. Nevertheless the first of these external evaluations should be carried out after two - three years in order to improve the initial model (i.e., this

proposal) while the following evaluations should immediately precede and thus provide input for the external evaluations of CATIE.

This proposal was refined and the final version presented following the second annual meeting with development partners in October 2008. The first year of operation of the MAP will be an inception phase; the principal activity of the programme (as opposed to the ongoing/ new projects that are part of the MAP) during year one will be the construction of the programme base line, revision of the suggested monitoring and evaluation procedures and the refinement of the indicators in an iterative way as new information is obtained. Hence the first milestone for the MAP (April 2009) will be an inception phase report that will lead to modifications of this proposal; e.g., of the MAP's indicators.

The different impact levels of the programme are described in the framework provided above in section 3; the indicative elements listed there define the main commitments of the MAP. It is clear that these are only an approximation, since quantity, quality, temporality and location of measurement are aspects that will be defined at a later time; the actual presentation pretends to express the expected main kind of changes related to the different target groups. In order to measure the programme's impacts objectively it will be necessary to document the status of the indicators at the beginning of the programme, as well as during the programme's life. It will also be necessary to agree on a minimum protocol for the measurement of the indicators.

Thus the MAP will have to develop tools that are complementary to the framework: examples of these have been successfully tested by CATIE's regional project teams. The first tool will be a baseline of the framework indicators, to be derived from a diagnosis and other products to be obtained during the one-year inception phase of the programme. This baseline will provide information for each indicator, describing its situation immediately before the beginning of the programme, using when possible, qualitative and quantitative information systematized in tables, figures and maps.

The experience from developing the baseline will be used to refine a monitoring protocol for the indicators that will consist in a matrix that will establish the basic inputs for data collection, so that measurement of the indicators will be spatially and temporarily consistent. For each indicator, the monitoring protocol will establish:

- Definition: what does the indicator exactly measure and verify
- Important terms: clarification of the concepts used in the definition of each indicator in order to facilitate consistent interpretation.
- Observation fields: fields for which information must be collected. In some cases it will be necessary to specify how the information will be processed to establish the indicator's value.
- Means of validation: those included in the framework will be mentioned, but also others will be suggested in case the original ones are not sufficient.

This will be accompanied by a matrix that will establish basic operative aspects to be considered to ensure effective monitoring.

- How will the measurement be made?
- Who will collect and analyze the information?
- Where will the measurement take place? Localization.
- When? Year of data collection, besides baseline.
- Cost: estimated costs of activities necessary for collecting data and its processing that are not part of the programme's routine activities.

6.8.3. Mechanisms to manage the generation of new proposals for the MAP[21]

The presentation of new ideas for the principal MAP projects can start at any level: e.g., they could be considered first in an existing MAP project, be suggested by the external or internal advisory committee, or be presented as a concept note by the MAP coordinator in the annual meeting with the donors. Irrespective of the starting point, the final decision will be made during one of the annual meetings with the donors: i.e., an agreement to channel a given level of MAP funding / resources to the new initiative for a given number of years. Ideas for principal MAP projects obviously would have to go through a gestation period during which consultation with possible partners (actual or new), governments, donors and the different bodies of MAP (Figure 3) would lead to modifications in a highly participative manner (c.f. process to develop the PCC proposal).

The internal and external workshops and other collaborative events to be organized by the MAP coordinator, MAP CPU or MAP project(s) are also expected to generate new ideas and needs; e.g. respect conceptual and methodological issues as well as proposals for new projects or activities. An alternative route to starting a new initiative would be by presenting a concept note or proposal to the different funding mechanisms listed in the following section 6.9. These funding mechanisms were designed to include seed resources for internal (CATIE) participants and for partners by direct contracting or *via* competitive processes. CATIE's scientific committee will have a central role in making decisions in these cases. We also hope to see MAP partners and beneficiary organizations using MAP results, concepts and approaches to prepare and present their own proposals to other programmes and funding sources at a national and international level. The MAP coordination and CPU units as well as the MAP projects will seek to facilitate such initiatives; e.g. providing advice and input for such presentations.

Potential partners, postulating ideas to the MAP for new projects or activities, will need assistance from the MAP coordinator or CPU to understand the transparent and participatory processes that will be used to determine which initiatives offer the greatest benefits for achieving the MAP's goals; firstly they will need to recognize that the MAP is not a substitute for a donor.

The executive committee of the MAP will have an important role in deciding which initiatives fit in the framework of this programme and hence should be developed as full proposals; i.e., proposals that are consistent with the principles and strategies promoted by the MAP (inter-sectorial, collaboration, etc). Initially it is suggested that proponents (internal or external)

[21] CATIE would be delighted to implement MAP clones in member countries outside of Mesoamerica but they would have a different administration and are not considered in this proposal.

prepare 3-5 page concept notes to help avoid large investments being made in proposals that are not suitable for the MAP. No deadlines for receiving concept notes or subsequently full proposals are suggested though clearly the two annual meetings with donors are critical moments when available resources will be evaluated and funding allocations confirmed.

6.9. Management of resources

One of the reasons for proposing the MAP is to respond to the shared interest of Donors and beneficiaries to rationalize and coordinate the use of resources for development in more efficient ways that will lead to sustained impact (c.f. Paris Declaration on Harmonization and Alignment). Hence this proposal describes a programme that could be a model for the reengineering of CATIE; i.e., it proposes different mechanisms and themes that will promote and facilitate greater integration within the institution and with other organizations in the region that it serves and thus make CATIE a more effective partner for regional and national organizations. The MAP was designed so that different donors could join forces to support a medium long term holistic programme. Since the contributions to such a programme will not be received at the same time, the MAP has to have the flexibility to adjust its annual work programme to the resources available; hence a series of novel components are proposed that could be funded by different agencies and collaborators. Another advantage of setting up this shared programme is that continuity will not depend on any one source of funds and hence sustainability of the interventions suggested in this proposal should be improved through the establishment of the MAP. CATIE is committed to developing and implementing a financial strategy that aims at enhancing, in the medium to long term, the financial security of the institution in order to be better prepared to sustain its core activities, including MAP.

6.9.1. Novel financial management mechanisms

A diversity of financial management mechanisms that channel funds and resources to the participating groups and organizations, which include sections of CATIE as well as regional, national and local collaborators, will be presented to Donors and MAP committees. Procedures and criteria to manage these funds and resources have been drawn up; after an initial trial period of 1-2 years these procedures will be revised. In addition to conventional financial procedures, already established by CATIE and its donors,[22] it is proposed that MAP manage funds in other more novel ways:

- Seed funding could be managed by the CATIE NTO in at least four countries. This will be used to catalyze new initiatives and collaborative work between the NTO, programmes and national partners: e.g., proposal writing, systematization studies, state-of-the-art studies, feasibility studies and strategic studies (see Annex 4.1 for suggestions about this role for CATIE`s NTO`s in the MAP). Once the best way to manage such funding and collaboration has been identified, and subject to the availability of funding, this mechanism could be extended to other CATIE NTO.
- Funding could be channelled through the MAP to local and national partners to promote, facilitate and implement the lessons learnt in previous projects and key territories as well

[22] Conventional financial management of the projects that will contribute to the MAP should continue; e.g., of the recently approved Central-American Cacao Project (PCC from the Spanish title). Likewise CATIE is requesting continuation of institutional support, which Norway, Sweden and others have provided in the past, through the MAP in order to maintain HQ activities: e.g., postgraduate education and training; departmental, programme and other coordination units; and support services such as personnel, accounting and other administration needs.

as from the MAP`s own activities; e.g., to make greater use of the experience gained through the MIP AF project, which supported NGO`s who ran farmer field schools, and the Focuencas and Degraded Pastures (DP) projects` experience in channelling funds to municipal environmental initiatives. This funding could be managed directly by the MAP projects and/or units, as part of their annual budget, but using efficient and effective common procedures and mechanisms. In the latter stages of a project the level of responsibility of the partners and the proportion of a project`s annual funding channelled through this mechanism would be expected to increase.

- In CATIE itself it would be desirable to have an internal competitive funding option that could support new initiatives that again would be designed to promote collaborative actions; e.g., seed funds for proposal preparation (including state-of-the-art reviews) and for exploratory research, with the condition that at least two CATIE programmes participate with at least one other regional or national organization. Another option is a competitive student small grant fund for innovative thesis research not covered by existing opportunities. The purpose of these funds would be to facilitate the development of new research and development foci within the programmatic framework of the MAP, including resolving specific problems identified by the MAP. Such funding also would contribute to the development of human resources in MAP target countries and groups (e.g., women, local government staff, etc). This fund could also be supported by other research institutes (e.g. CGIAR institutes) and the private sector.
- Finally it is proposed that the MAP could also manage funding for activities that fall within its programmatic framework but which would be carried out by other organizations without CATIE being a direct partner in the implementation; e.g., for the systematization and scaling-up / scaling-out of successful results / approaches of other organizations/ initiatives. These funds could be managed with a direct contracting/ granting process: e.g., small grants programmes already managed by several CATIE projects and /or the municipal environmental funds managed by FOCUENCAS II. Alternatively a competitive fund, to which national and local organizations could apply (c.f. the Danish IUCN programme for Central America), could be established. In both cases CATIE should have a role in technical monitoring as well as financial management; it is not convenient for CATIE to take on a role in which it is only responsible for financial management without having any influence or feedback on technical implementation. This funding mechanism can only be set up if the total available annual MAP budget is greater than $10,000,000.

6.9.2. Common fund and "ear-marked" funds

CATIE proposes to integrate the donations to the MAP from different sources in a central common fund. This will be used to finance the MAP work plans that are agreed in the annual review meeting of MAP's Executive Committee, donors and MAP project leaders, including the novel financial management mechanisms described above. In this case, the traditional direct link of donor - pilot zone(s), donor – sector and/or donor – project will not exist.

A medium – long term commitment of the MAP`s principal partners and donors will be needed to achieve an impact with the MAP`s agro-environmental initiatives. An initial set of projects to be supported by the MAP (existing and/or new), each of which will have a 3-5 year time frame, will be confirmed or approved in the first annual review meeting. The subsequent introduction of new projects / themes will depend upon new resources being pledged to the MAP by founding

and/or new contributors and partners. When a project is close to completing its medium-term plan (3-5 yr.), a decision will be made in the annual meeting to: a) continue with a new phase of similar size and duration, normally with a new focus (e.g., focus on scaling-up and scaling-out of lessons / results from the previous phase(s)); b) gradually phase-out, reducing resources provided over 1-3 yr.; or c) close the project and re-allocate any corresponding resources that continue to be available to a new theme, project, etc.

Resources are also available for specific sectors or actions of interest to the MAP ("ear-marked" funds); i.e., it may not be possible to manage all the resources in a common fund. This possibility will be foreseen in a Code of Conduct agreement that will be signed by CATIE and the initial development partners for the MAP. Decisions in these cases will have to be made firstly by MAP`s Executive Committee (due to the frequent need for a rapid response) with subsequent presentation of the particular conditions during the annual MAP review / planning meeting. If required by the contributing organization, funds may have to be managed in a separate specific project account. All financial contributors to the MAP will receive a copy of an annual independent audit, carried out by one of the recognized international accounting firms, covering all resources received, managed and executed by the MAP in the common and ear marked funds during the preceding calendar year. Bilateral agreements will be drawn up between CATIE and each donor using existing institutional support agreements as models; i.e. these contracts could be for fixed annual contributions, over an agreed multi-year period, that require CATIE to deliver institutional products that demonstrate implementation of the agreements (see above section 6.8 respect proposed planning and reporting procedures).

6.10. Risks

6.10.1. Size and complexity of the proposed programme

The size, complexity and novelty of the MAP programme imply increased initial transaction costs for contributing individuals, groups and institutions. Staff in CATIE and partner institutions will have to be prepared to give a greater emphasis to interdisciplinary subjects and to devote more time to communication and collaboration with professionals from diverse backgrounds as well as with different kinds of clients and beneficiaries; e.g., using their knowledge and results to contribute to political processes. Ensuring that the MAP approach is widely understood, and its value for the different proposed levels recognized (from the farm to the Central American region), is another challenge. A basic justification for creating the MAP is that it will result in greater opportunities, impact and efficiency for all participants, contributors and beneficiaries. However this can only be achieved if all of these groups are willing to make an initial investment in this new integrated, inter-sectorial, more inclusive approach to sustainable rural development. In order to socialize these ideas and minimize the additional investment required, over and above that needed for traditional research and development approaches, the MAP was designed and refined through an intensive participatory phase, taking advantage of existing coordinating bodies within and outside of CATIE. Another key decision has been to establish a lean internal structure. The role of the coordinator, CPU and incentives (e.g., competitive funds), in attracting and maintaining the interest and commitment of these diverse participants will be critically important for the success of the MAP. Thus significant efforts and discussions have been and will be devoted to defining the role of the MAP`s coordinator, the CPU and of the competitive funds (transparent guidelines and regulations have been developed for each of these instruments). MAP will also require effective leadership, commitment and support from all levels of

management in CATIE; for this reason, the Director of RDD will maintain an active role in the MAP especially with respect to international collaboration (Donors and partners).

The agreement made in Paris (and subsequent agreements) formalized the interest of donors and recipient countries to harmonize and align national development programmes. A strong interest to harmonize and align regional interventions also now exists; e.g., respect Mesoamerica. On the other hand, the difficulties of efficiently and effectively managing an integrated programme such as the MAP, and avoiding that the MAP develops the same problems created by the unsuccessful integrated rural development programmes of the 80s and the integrated conservation and development projects of the 90s, should not be underestimated. Nevertheless, the MAP is different to those programmes since it will not replicate their centralized decision making units; rather it will seek to replicate the mechanisms that have lead to the existing successful collaboration and cross fertilization between CATIE's decentralized Programmes and their partners. Individual projects, activities and units, which are supported by the MAP, will have the autonomy to implement annual work plans and to manage resources. This proposal explains how the MAP will seek to add value by establishing and promoting actions to integrate and use knowledge and information produced by all these projects and participants.

6.10.2. Consistency of priorities of donors and potential partners

If the priorities of donors and potential partners (within and outside of the region) are not consistent, and hence they are unwilling to join forces to support the MAP, this programme will not reach its full potential. Donor agencies, as well as regional and national institutions, must respond to their respective Governments, each of which has developed programmes and procedures adapted to their own particular histories and circumstances; these sometimes change and not always in a homogenous manner. Many development workers and institutions, including CATIE, believe that lasting change and impact can only be achieved by changing perceptions (and subsequently mind sets and attitudes) at all levels in a society, a goal that usually requires a medium-long term sustained effort. Thus the MAP concept and its impact indicators are based on a premise that implementation will be supported for 5-10 years. If the priorities of some of the participating donors and/or recipient countries change drastically over shorter periods the potential of the MAP to achieve its goals will be impaired; for example, rapid changes of ministers and other national decision makers in the public sector of the Mesoamerican countries could limit the impact that a programme such as the MAP can achieve.

The same concern about changing priorities could be expressed about CATIE, with a new administration that took the helm in March 2008. Nevertheless the new Director General of CATIE (Dr JJ Campos) had a significant role in the preparation of this MAP proposal and he has suggested that the MAP approach should be the backbone of CATIE`s future programme. CATIE's Board of Directors and Council of Ministers have also expressed their full support for the MAP.

As with any major investment, designed to give returns over a medium-long term, there is a risk that other changes in framework conditions will affect priorities and results. Changes in geographical priorities (e.g., donor interest in Mesoamerica reduced) or in thematic priorities (e.g., national research institutes directed to work on intensive export agriculture or on biofuel monocultures) could have negative consequences for the MAP. However corresponding positive changes also could occur; e.g., negotiation of the Agreement for Association between the EU and

the Mesoamerican block leading to an increased international focus on this region, or the ERAS being fully adopted by Mesoamerican Governments leading to an increased priority for MAP thematic areas. Climate change, if extreme and rapid, could also negatively affect the viability of and the relative priority given to some of the actions proposed for MAP, and hence the interest of beneficiary countries/groups. On the other hand, since adaptation to climate change is one of the major areas of work proposed for MAP, the MAP`s relevance and potential positive impact (at least making significant contributions to ameliorating negative effects of climate change) will increase if there is a drastic change in this environmental framework condition. Other factors that could affect specific pilot zones or activities over the short, and even medium-long term, are civil unrest/security (e.g., in recent years conditions in the Peten of Guatemala have deteriorated) as well as an increased frequency of natural disasters, one of the consequences of climate change which already can be demonstrated by contrasting recent and historical data from Central America.

One way in which CATIE and founding partners of the MAP will seek to reduce the potential variability in resources and activity levels of this programme is by inviting other international donors to support the MAP and by involving a large number of regional as well as national partners as collaborators who will benefit from the MAP. Another ameliorative step, that CATIE and the MAP partners will take, is to establish dynamic adaptive planning procedures (see section 6.8) that can respond to new challenges as well as take advantage of new opportunities.

Higher crop commodity prices could lead to a switch in priorities in the region, possibly contributing to an increase in less sustainable basic grain monocultures. However higher input prices should favor many of the technologies that the MAP (SLM) seeks to promote, since these are designed to reduce reliance on external inputs. When considering risks, the greatest one is that the degradation of the environment and climate change in Mesoamerica get much worse more rapidly than the predictions of the most optimistic scenarios. Whatever the future holds, every day more people will be willing or forced to do more to address environmental degradation (policies, markets, consumers, industries, etc) including the problems faced by the agricultural sector; e.g., reports from the GEO 4 of UNEP, MEA, Stern, IPPC, etc. Over the next 10-20 years, economic models will be developed to internalize environmental impacts and compensate for sound management. Thus each year the MAP will become more relevant!

6.10.3. Incompatibility of administrative, planning, M+E and other procedures

The problem created by incompatible procedures can become exponentially more complicated when many organizations seek to pool their resources; i.e., the resources of many donors and partners. Attempts to develop standard planning, evaluation and reporting procedures, more efficient than the actual dispersed highly variable demands from existing donors, collaborators and clients (e.g., Ministers of Member Countries), have already been made in CATIE as a precursor to the MAP; e.g., the “Electronic Management System” (*Sistema de Gerencia*) development in 2006 – 2007 that was never fully adopted by the staff. A gradual modification of procedures and a flexible administrative structure need to be used to manage the MAP; however establishing new hierarchical levels in CATIE should be avoided. The new administration in CATIE has been charged to develop a strategic management system, including more effective planning, monitoring and evaluation mechanisms (the Balanced Score Card approach is proposed) as well as a more efficient system for budget allocation. This should help to reduce incompatibilities but will require discussion with donors who use different approaches. In this

respect this proposal still considers Logical Framework since that is the actual procedure used by many Donors and CATIE projects that will be integrated into the MAP; the implications of switching to Balanced Score Card will be analyzed and presented to Donors and partners.

6.10.4. Communication and collaboration

A key descriptor of the MAP is "integration", including integration between disciplines, organizations and levels of analysis. Achieving such integration is going to be one of the major challenges and determinants of the success of the MAP. For example, the philosophy, perceptions and priorities of indigenous groups, respect the development of their communities and territories, are rarely consistent with the approaches of international as well as national research institutions; in general, problems due to poor communication and misunderstandings between these different groups will continue to occur. In the MAP, a high emphasis will be given to reduce this risk through the establishment of the Communication and Policy Unit (CPU) described above (6.6) and to promoting communication/negotiation mechanisms/platforms such as ERAS's ICC, Advisory Councils and Landscape Committees at the regional, national and local levels, respectively. MAP projects will also have an increased emphasis on communication: e.g., MAP`s cacao project (PCC).

6.10.5. Anti-corruption measures

CATIE has internationally recognized management systems (e.g., these regulations have been certified by the World Bank), that include clearly defined transparent financial control systems. Independent external audits, carried out every year on the projects and institutional funds by internationally recognized companies, are presented to the International Cooperation as well as to CATIE's Board of Directors. Project funds are managed in the target countries as well as by CATIE staff in the headquarters (Turrialba, Costa Rica); CATIE maintains an administrative (and technical) office in the MAP countries to ensure efficient and transparent use of all resources. In cases where funds are advanced to project collaborators, signed contracts define outputs and agreed financial control procedures; these contracts are supervised by CATIE staff who are responsible for the correct and efficient use of these funds. The selection of project collaborators takes into account their capacity and record for respecting international standards and the use of donated resources. CATIE has an internal auditor, reporting directly to the Board of Directors and the Council of Ministers, who carries out random inspections of the accounting and administrative procedures used by CATIE projects and different sections (programme, NTO etc) in order to ensure that these comply with the conditions in the respective contracts as well as with the institutional rules and regulations based on international accepted standards. The internal auditor also seeks to improve the efficiency and effectiveness of CATIE programmes as well as to check for any misuse of resources by CATIE staff and collaborators.

Local and some national partners often have a commercial as well as development role: e.g., cooperatives and associations as well as some technical assistance agencies. Their administrative and management capacities have matured to different degrees. Many of these collaborators will manage part of the MAP funding, provided through MAP projects or through other funding mechanisms described above in section 6.9.1, to contract, execute and supervise MAP activities. The correct administration of these resources will be a goal and permanent concern of the MAP coordination as well as of the MAP project leaders. In order to minimize the risks which are inherent in developing the capacity of such partners through such "on-the-job" training in

financial, commercial and development implementation, CATIE will: 1) clearly define the responsibilities of each co-executor; 2) clearly define administrative, accounting and management procedures that are acceptable to the central CATIE accounting Department as well as to the International Cooperation partners; and 3) provide constant supervision of budget execution by each co-executor. Social and cultural values vary throughout the region and hence sensitivity and adaptability will be needed, in respect of the particular conditions pertaining to each partner, around a consistent basic set of resource management requirements. The MAP coordination unit, together with the NTOs, will provide the personnel resources needed for the detailed follow up of budget execution by all co-executors; thus MAP will have to support the increased responsibility of CATIE to provide accounting controls. The MAP's internal and external advisory committees (Fig. 3) will discuss the activities, responsibilities and results obtained as well as resources needed to implement the annual work plans, providing another mechanism for transparent follow up and control of the use of the funding provided through the MAP.

Another example of CATIE's commitment to implementing anti-corruption measures is our proven leadership in combating illegal logging in the region. One of our new proposals (Annex 2) is to work with the Technical Forestry Committee of the CCAD on the revision of forest laws and regulations in the region, respect tree harvesting, again showing our determination to confront and seek to reduce this aspect of corruption. Finally in March 2008 CATIE presented its institutional social responsibility policy developed in line with the United Nations Global Compact scheme. One of the four main principles of this CATIE policy is anticorruption.

6.10.6. Crime

Crime risk is a serious increasing concern in the region; e.g., CATIE has recently started to use a crime risk assessment tool, which all students have to complete before embarking on field work. Crime risk in pilot zones is discussed by Directors, project and pilot zones coordinators; e.g., discussions in 2007 lead to the concern that the increasing risk in the Peten of Guatemala could lead to the need to restrict CATIE's activities in a zone where we have a comparative and recognized advantage due to past and present positive impact of CATIE projects. The best option to reduce crime risk for programme and partner staff is local integration (indeed local staff), constant communication with local inhabitants and established procedures that are known and are clearly and easily visible to all participants: e.g., the emergency procedures and lists of key telephone numbers displayed in all CATIE project offices and houses. The development of economically viable alternatives and all educational / training activities of the MAP can contribute, at least locally, to improving livelihoods and hence indirectly, we hope, to reducing crime. However, reducing the potential negative effects of crime on national / regional implementation (e.g., MAP's Development Objective) is beyond the control of CATIE.

6.11. Budget estimate[23]

The financial situation of CATIE has recovered after a difficult time during the years 2001-2007. The total 2008 budget (as a reference) is US$24,719,215: its distribution between the main

[23] This suggested initial budget for the MAP only covers the external financial contributions required to implement the MAP. In-kind contributions from CATIE itself and from CATIE's collaborators (international, regional, national and local) have not been considered. Some collaborators make significant in-kind contributions to an organization like CATIE/ a platform of this kind; e.g., in 2007, CIRAD had five experienced scientists seconded to CATIE (context *Scientific Platform for Cooperation* [PCP]), equivalent to a contribution of at least $500,000 per year.

designated funds and the main sources contributing to each of these designated funds, is shown in Table 1. Assuming a similar situation in 2009, the proposed MAP budget (Table 3; $10,500,000/ year) would represent a significant proportion (42%) of the total budget of CATIE. This is due to the decision of CATIE and its main donors and partners to develop, in collaboration, an institutional strategic program (i.e., the MAP), which can partially mitigate the weak core budget of CATIE, in order to maintain and increase CATIE's capacity to serve the region. Another strategy that CATIE is developing in this respect is to strengthen its finances through new commercial activities, compatible with CATIE's mission and mandate, which could generate net income for its core budget. CATIE also expects that the gains in impact and efficiencies with the MAP program will result in greater contributions and positioning of CATIE and therefore attract further partnerships that will directly and indirectly strengthen CATIE's financial position. The budget of the MAP is considered under the designated fund "Projects", though the "Institutional Support" item of the MAP will pay some of the costs previously considered under "Core Budget". As mentioned above, MAP funds, including "Institutional Support", will be used to strengthen CATIE's capacity to effectively implement MAP; i.e., to provide greater services and impact in the region.

Table 1. CATIE's 2008 budget distribution by designated funds and main sources contributing to each designated fund.

Designated fund	US$	Main sources
Core budget	4,632,876	Member countries fees, IICA fee, donor support, education fees, commercial activities, project overheads, etc
Commercial activities	1,484,106	Commercial farm, housing, transportation
Projects	14,278,340	36 projects
"Funds in Custody"	4,323,893	Highly diverse group of income generating research, education and outreach activities of the programmes
TOTAL	24,719,215	

The MAP has been designed as a platform for new projects and other initiatives; i.e., most of the MAP's funds will be channeled through medium-term projects (3-5 years) to groups in CATIE and to partners in the region. Detailed budgets with fixed time frames are and will be available for each existing project (e.g., the projects included in Table 2 and Annex 1) and for each new project proposal (e.g., FINNFOR, see Table 3 and Annex 2). However the MAP has been designed as an open ended programme, assuming at least a ten year horizon, which can incorporate new initiatives, partners and resources in the future; i.e., by definition it is not possible to present a fixed term detailed budget for the MAP.

The sum of the annual budgets of existing "MAP projects" (Table 2; $7,068,000) was used as a reference point for the discussion of the possible total costs of implementing the MAP. Based on initial contacts with the existing donors and new potential contributors to the MAP, an increase of about 50% in total annual available funding for the MAP, compared to Table 2, was our goal in order to be able to finance the required additional MAP projects and activities. However CATIE budget support is not requested as part of this MAP proposal. This estimation of future financial

needs for the MAP (Table 3; $10,545,000 per year) considers new activities and funding mechanisms particular to the MAP as well as a new principal project (FINNFOR) focused on the forestry component of the territories where the MAP will operate (Annex 2). New projects can only be considered when substantial new funding is obtained or by replacing one of the existing regional projects. This medium-term core portfolio assumes that the existing Nordic funded projects will continue or metamorphose into new MAP initiatives, and that institutional support from the same actual donors will be continued through the MAP, with an overall increase in total levels of support in order to finance the new MAP activities, including increased institutional costs for the human and other resources needed to manage a larger portfolio. In future annual work plans and budgets for the MAP, the distinction between institutional and project support will gradually disappear.

CATIE institutional support (one of the budget lines in Table 3) will be used primarily to consolidate CATIE's capacity to provide technical support throughout the region, essential for the implementation of the MAP. This budget line will also contribute to the costs of CATIE's postgraduate education and training capacity and some central support services such as personnel, accounting and other administration units, corresponding to the needs of the MAP. These funds will pay personal and logistical costs of CATIE professionals, principally in the Research and Development Division (RDD), which are not covered by project or CATIE core funding. CATIE's scientific and teaching teams, now organized into eight programmes (Figure 1), are a valuable regional resource that can be used to implement programmes (such as the MAP) in a cost effective and efficient manner.

Increased financing of CATIE's Outreach and Communications Units, so that they can play a greater and more focused role in connecting CATIE's Research and Development Division to clients and partners in the region in order to increase the impact of CATIE's activities, is also foreseen in the proposed budget (Table 3). In the case of the NTO, the request is for additional resources (compared to what they presently receive from CATIE core funding) to allow NTO staff to concentrate on strategic actions, including an increase in dissemination and policy initiatives in each country, since they would no longer need to invest time in small projects and consultancies in order to generate funding (see Annex 4.1). Finally funding is requested for a MAP coordination unit whose role is to promote and manage a diverse range of new activities to increase integration within and outside of the institution (Figure 4) in order to gain added value from synergies, exchanges and interdisciplinary approaches (see Section 6.1 Coordination). The Coordination Unit will also have a central role in coordinating, planning, M+E, reporting and administration of resources (Figure 3); e.g. of the novel financial mechanisms described in Section 6.9.1.

Guidelines and regulations are being developed for the internal and external competitive funds as well as for the management of other funds that will be channeled through the NTO (Table 3). The amounts available for each of these instruments will depend of the total funding available for MAP each year. In the case of the OTN, the amounts will vary between countries depending on relative needs and circumstances; this will be decided each year as part of CATIE's annual planning exercise.

Table 2. Annual costs of existing Nordic projects (Annex 1) and agreements that will be incorporated into the MAP[a]

Short title	Countries[b]	Donor	Budget (US$/year)	Termination actual phase
Degraded Pastures	G, H, N	Norway	1,100,000[c]	Dec. 2008
Innovations	ES, G, H, N	Norway	1,200,000[c]	Nov. 2010
Cacao (PCC)[b]	B, G, H, N, R, P	Norway	1,100,000[d]	June 2012
Institutional support	CATIE	Norway	640,000[e]	Dec. 2007
FOCUENCAS	H, N	Sweden	1,480,000 [c, f]	Dec. 2008
EfD-CA[b]	Regional-Central America	Sweden	250,000	Dec. 2009
LACEEP[g]	Regional-Latin America	Sweden	300,000[g]	Dec. 2011
Institutional support	CATIE	Sweden	998,000	Dec. 2007
TOTAL			**7,068,000**	

[a] Includes existing projects and institutional support.
[b] (B) -Belize , (CR) – Costa Rica, (ES) – El Salvador, (G) - Guatemala, (H) - Honduras, (N) - Nicaragua, (P) – Panamá; PCC – Central American Cacao Project; Focuencas – Watershed Management Project; EfD-CA – Environment for Development Centre (Central America)
[c] Approximate actual annual spending (2008).
[d] Budget for first year (2008) of this new project
[e] For institutional support, total amount (US$) estimated for 2008
[f] Includes an overhead of approximately $166,000
[g] Latin American and Caribbean Environmental Economic Program; contribution from Sweden only (Canadian contribution is not included)

Table 3. Proposed MAP portfolio (2008-2012; annual costs)

Short title	MAP thematic areas[a]	Countries[b]	Budget (US$ / year)	Comment
Restoration of degraded lands	ES / ACC	ES, G, H, N	1,000,000	Incorporates scaling-out of Degraded Pastures project
Innovations	MC / ACC	ES, G, H, N	1,200,000	Base for MAP thematic area "Markets / Chains"
Cacao	MC / ES	B, G, H, N, CR, P	1,100,000	Approved December 2007
Watersheds and landscape governance	ACC / ES	G, H, N	900,000	Developed out of FOCUENCAS II
EfD Center for Central America	All	Regional	250,000	Develop other links to programme GSEBSA and LACEEP
LACEEP[C]	All	Regional	300,000	Second phase approved December 2007
FINNFOR	MC	Regional	2,000,000	Forestry component proposed to MAEF (Finland) October 2008
Communication and Policy Unit	All	Regional	200,000	Policy / Communications Unit (includes $90,000 actual core costs Comm. Unit plus a new "policy" position)
National Technical Office (NTO)	All	B, G, H, N, CR, P, ES	350,000	Develop new role NTO: coordination, communication and policy, seed funds
Outreach section	All	Regional	200,000	Strengthen CATIE impact in member countries (includes $80,000 actual core costs, plus a new Directors position)
MAP coordination	All	Regional	300,000	Coordinator, support staff and coordination logistics, travel
CATIE institutional support	All	Regional	1,500,000	Personal and some logistical costs (principally RDD)[b]
Capacity building (training/education)	All	Regional	95,000	Partial MSc. grants plus partial grants for strategic short courses
Competitive fund (CATIE – programmes)	All	Regional	250,000	Seed funding: new collaborative projects (programmes - partners)
Competitive fund (partners)	All	Regional	900,000	Pilot PES, systematization study, state-of-art report, etc.
TOTAL			**10,545,000**	

[a] Thematic areas of MAP: MC = Markets and Chains; ES = Ecosystem Services; ACC = Adaptation to Climate Change; All = all three thematic areas

[b] (B) -Belize, (CR) – Costa Rica, (ES) – El Salvador, (G) - Guatemala, (H) - Honduras, (N) - Nicaragua, (P) – Panamá; (RDD) – Research and Development Division

[c] Latin American and Caribbean Environmental Economics Program

7. ANNEXES

ANNEX 1. EXISTING CATIE PROJECTS AND HOW THEY MIGHT BE ADAPTED INTO MAP

A brief description of six regional projects or platforms that should be incorporated in the MAP, and the corresponding change in focus of these, is given below. We propose that at least three projects that are funded by Norway (the projects referred to as Degraded Pastures (DP), Innovations and Cacao (PCC)) and the Swedish funded Focuencas project together with Efd and LACEEP will be involved. Institutional support from Norway and Sweden to CATIE will also be considered in the MAP programme. Finally there is an interest from the Global Mechanism (a coordinating arm of the UNCCD) and from MFA-Finland to collaborate with the MAP (e.g, in the latter case in a regional project with a forestry orientation), which may lead to the inclusion of additional support/ actions/ projects in existing and/or new key territories as well as for regional and national initiatives (Annex 3).

Annex 1.1. Degraded Pastures (DP)

CATIE is implementing a project, which is funded by Norway (2003 – 2008), for the recovery of degraded pasture lands (DP) in Central America. This project actually works in one pilot zone in each of three countries (Peten, Guatemala; Olanchito, Honduras; Muy Muy, Nicaragua). The main purpose of DP is to use replicable participatory methods to develop and disseminate land use technologies, which will contribute to reducing environmental and livelihoods problems caused by pasture degradation, the most widespread land use challenge in both the seasonally dry and humid tropics of Latin America. If work continues in existing key territories (no decision has been made yet as to which if any of the actual key territories could continue to be focal points of MAP) it should be broadened to cover environmental issues seeking greater involvement and responsibility of local authorities as well as of livestock farmer organizations. A landscape scale approach needs to be added to the existing agenda in the DP territories to emphasize the identification, promotion and testing of alternative land uses for degraded pasture lands. These alternatives will not be limited to livestock activities but may include reforestation (plantations or silvopastoral systems).

A DP component of the MAP could rely on the detailed site specific experience developed by all the GAMMA projects (i.e., DP, FRAGMENT, GEF-silvopastoral and BNPP-biodiversity in managed landscapes) to promote a ¨mosaic¨ of land use practices in cattle farms to maximize the production and conservation values of these landscapes. One of the principle strategies used in the DP is the intensification of farm production in higher potential areas (e.g., protein and energy banks) so that farmers can identify marginal lands which can be taken out of production, typically for reforestation (addresses both environmental and production objectives). However in order for the ecosystem services from these farms to be fully appreciated, a landscape scale focus must be taken, and integrated into scaling-out activities. In seasonally dry livestock areas, land degradation and desertification is a major problem identified by Mesoamerican Ministries of Agriculture, CCAD, GEF and the Global Mechanism; a DP component of the MAP could promote the communication of silvopastoral technologies as a strategy to increase farmer and landscape resilience to climate change (“adaptation” focus) as well as options to contribute to mitigation of climate change.

Since livestock is such an important land use throughout the region, its importance in all CATIE key territories will be verified. Hence it is expected that the livestock focus in MAP will become much more decentralized with contributions in many key territories and that implementation will therefore have to depend much more on local partners than on direct interventions by CATIE teams. In the case of the existing DP project, which has a well developed portfolio of technologies and participatory approaches, adapted and fine tuned for adoption by national and local groups (e.g., national farmers' unions, local cooperatives, NGOs and national research and development institutions such as the INIA`s), the main focus of follow-up work should be to scale-out (disseminate) the experience. The use of DP results in new areas should be monitored by the MAP to feed back into the programme for further improvements of the approach. Scaling-out in the case of DP will be carried out using the institutional anchoring and communication plan developed in 2006. This foresees that key partner organizations, such as Nitlapan-FDL and FONDEAGRO in Nicaragua; INAB and FOGUAMA in Guatemala; and INFOP and AFE-COHDEFOR in Honduras, who have been working with the project since at least 2006, will be the medium to disseminate both the technological options (e.g., silvo pastoral) as well as the methodological approaches (e.g., farmer field school) to new zones and groups. CATIE has already started this process in 2007 with several new groups of farmers being attended by such national organizations (including federations of municipalities). The MAP will take a backstopping role but will remain involved to monitor, evaluate and to learn from the process.

The lessons learnt from DP and CATIE's livestock thematic group (GAMMA) indicate that a lack of financial capital for investing in silvopastoral and forest based land use technologies is one of the major limitations for the scaling-out of these technologies and thus for the recovery of degraded pasturelands in Central America. GAMMA is therefore developing Public Private Partnerships (PPP), which will be linked to the MAP as a means to greatly extend the scaling-out of the results obtained by this programme. For example, in Nicaragua an integrated approach to provide incentives for farmers by developing public (e.g., PRORURAL) and private partnerships (e.g., FDL, NESTLE, PARMALAT, BCIE, Millennium Challenge Corporation). These PPP will enter from the commodity/value chain side of the work; one of the challenges of the MAP is how to involve such PPP in the territorial issues that also must be addressed. GAMMA is currently working with Rainforest Alliance to develop sustainable livestock production certification standards for cattle farm products (e.g., beef, milk) produced with good farming practices. These standards will be used to negotiate markets with different stakeholders (e.g., Super-markets, McDonalds, Burger King).

GAMMA has a long history of novel research on the management and conservation of biodiversity in fragmented landscapes, especially those dominated by livestock production. Recent initiatives of GAMMA include a focus on water quality and quantity from pasturelands. The integration and contrast of environmental benefits with production (economic) benefits is the second subject area of increased focus for this programme. All of these experiences will serve the GAMMA group as inputs to contribute to an integrated approach for sustainable land management in livestock areas that combine the value chain and territorial management approaches.

Annex 1.2. Innovations

This project (2006 – 2010) originally had three components (coffee, horticulture and dry zones) but following a discussion with NORAD and the Norwegian embassy, when it was agreed that the project was too ambitious in its geographical and thematic scope, the dry zone component was incorporated into the coffee component. Innovations works in key territories in four countries: coffee/ dry zones in Jinotega and Segovias, Nicaragua plus El Paraiso in Honduras; horticulture in Trifinio (Honduras, Guatemala and El Salvador). The main purpose of Innovations is to develop local and national networks that will support a particular sector to develop economically and ecologically sustainable systems. It builds on the previous successful Integrated Pest Management – Agro-forestry project, maintaining a focus on ecological participatory research, development and training at many different levels but adding a corresponding focus on business development; i.e., on value chains.

The backbone of the project is creating the capacity among producer organizations to participate in value chains that create environmental and social benefits. The project already includes a territorial focus and the evaluation of some environmental parameters; e.g., in the actual Trifinio pilot zone, markets are being developed for vegetables without the use of pesticides to reduce water contamination and health problems. In the coffee component, all participating producer groups are or plan to participate in environmentally and socially responsible value-chains. The project has been working on the definition of the indicators for the measurement of the environmental and social impacts from these markets. Furthermore, the project is developing one of the first experiences in CATIE on measures to combat the consequences of climate change; i.e., adaptation of low altitude coffee zones that are threatened by this phenomena.

A focus on horticulture in Trifinio was chosen by Innovations because of a major environmental problem: i.e., the excessive use of pesticides in horticultural crops leading to contamination of water supplies in this key zone (for El Salvador in particular) as well as the chronic and acute toxicological harm to the farming families and rural communities in the area. Livestock and coffee are also important land uses in the Trifinio zone that can create environmental damage but have the potential to provide ecosystem services; they are also fundamental to the incomes and well being of the local population. In the MAP, opportunities exist to broaden the scope of the work in Trifinio to include these other sectors (at least coffee and livestock, and possibly forestry) as well as to add a more explicit territorial approach; in fact CATIE has carried out other ¨territorial¨ activities in the Trifinio area in the past including land use planning. Trifinio is also important for the Meso-American Biological Corridor since national (at least in El Salvador) E-W and N-S corridors intersect in Trifinio. Finally from a political point of view this is a key example of the attempts in Central America to achieve regional integration. The Inter-Governmental Trifinio Commission, which reports directly to the Vice-Presidents of the three countries, has indicated a very strong interest in receiving increased assistance from CATIE to achieve sustainable development in this tri-frontier zone; an agreement was recently signed with the Commission to this effect.

Other pilot zones of the Innovations project are also part of the Mesoamerican Biological Corridor system; i.e., the coffee frontier area between Segovias (a protected area on the Nicaraguan side) and El Paraiso (Honduras). In these territories the project plans to invest resources from the modified dry zone component to study the impacts and develop strategies for

adaptation to climate change respect sustainable coffee value chains, livelihoods and ecosystems. If resources are available to introduce a territorial approach (e.g., to permit an extension of the collaboration with Focuencas to this area) it would also be valuable to assess the impacts of climate change on water yield and quality, which are important considerations for all local interest groups (not just for the coffee sector). There are indications that producers may eliminate shaded coffee to plant other crops in low-lying areas, while they clear forest in higher areas to plant more coffee. Options to increase the productivity /income from forested lands (make them more competitive) should be considered as well as options to permit the continued cultivation of coffee in the areas where it is presently managed.

Annex 1.3. Central American Cacao Project (PCC)

This project will work (2008 – 2012) with at least 6000 families and their organizations in eight pilot zones in six countries (Belize, Guatemala, Honduras, Nicaragua, Costa Rica and Panama). Cacao territories covered by the PCC are occupied by very poor mestizo, afrocaribean and indigenous (Ngöbe-buglé, Naso-Teribe, Bribri, Cabécar, Mayangna, Miskito y Mayas Mopán y Kekchí) farmers. These territories are distributed along the Mesoamerican Biological Corridor, near and around numerous protected areas. The PCC intends to improve the livelihoods of at least these 6000 cocoa producing families. This will be achieved by strengthening their organizations, government (indigenous, municipal, national, regional) and educational centres (students and teachers in local primary schools and national universities) and by increasing sustainable production and the provision of ecosystems services from the cacao sector in Central America. The PCC will promote good agricultural and agro-forestry practices that enhance farm productivity and diversification (e.g., promote timber and fruit shade trees) as well as contributing to ecosystem services such as carbon capture (mitigation) and preserving biological diversity, water quality and soils. Thus the PCC will work at the family (plantation, farm), local (COA, municipal and indigenous territory) and national (universities, advise to political and technical leaders) scales. However the project also has an important regional focus: i.e., it pretends to link these local (or national) organizations in order to promote exchanges of results (e.g., at the country and regional levels) and to improve their collective bargaining power and ability to offer minimal quantities of certified products. A very strong Public Private Partnership component of this project has been negotiated; i.e., approximately $2MM in kind and in cash already pledged in addition to funding from the Ministry of Foreign Affairs of Norway.

Key areas for cacao production in each target country were identified during the 2007 feasibility study. This set of widely dispersed territories was chosen from a sectorial point of view (cacao) to facilitate scaling-up / scaling-out in order to achieve an impact at the national and even regional levels. Some of these territories do not coincide with the territories chosen by other existing MAP projects but they are within proposed trans-frontier priority territories (see 6.3 above) for both CATIE and IUCN, a key partner for the PCC, MAP and CATIE; e.g., Bocas del Toro (Panama) – Talamanca (Costa Rica) and the Department of Rio San Juan (southern Nicaragua), part of an important trans-frontier Costa Rica - Nicaragua conservation area. In the future, we propose to initiate PCC actions in some new cacao territories where other programme / MAP will be active: for example, in Matiguás, Nicaragua, one of key areas for GAMMA. However introducing new territorial approaches in all eight PCC territories, *via* direct collaboration with and the presence of other CATIE programme/ MAP projects, will not be possible with the foreseen level of resources.

The PCC cacao territories are situated in key areas for biological conservation and management (e.g., around national parks and reserves; in biological corridors) and cacao agro-forestry systems are widely recognized as being one of the best options (maybe the best) for the productive management of buffer and connecting (corridor) zones. Previous work, especially in the indigenous area of Talamanca Costa Rica, has demonstrated the high potential of cacao agroforestry systems to provide ecosystem services (e.g., see tables in the section of the PCC proposal ¨PCC in MAP¨). This potential needs to be developed, recognized, quantified and rewarded (i.e., payment for ecosystem services) in all cacao zones in order to promote the adoption and maintenance of economically as well as ecologically sustainable systems. This is an area of work where the interests of the cacao sector coincide with the territorial management approach and hence should be given priority attention; e.g., developing methodologies and models that combine the sectorial and territorial approaches, one of the fundamental aims of the MAP. The methods being developed by CATIE`s Cacao programme, for working with local organizations and communities, in particular with indigenous groups, also offer valuable inputs for the other MAP projects, CATIE Programmes and partners. The MAP will ensure that there is a regular exchange of experiences between them that will contribute to territorial as well as sectorial approaches.

Annex 1.4. Focuencas II

This CATIE/SIDA project (2004 – 2008) actually works in two sub-watersheds in each of two countries (*Valle de Angeles* and *Copan*, Honduras; *Aguas Calientes Somoto-San Lucas* and *Jucuapa* Matagalpa, Nicaragua).

The main purpose of the Focuencas II is to serve as a vehicle for the development, testing and institutionalization of locally integrated, sustainable and participatory forms of watershed management of relevance for the entire Central American region. The programme is operating at four different levels (landscape, national, regional and CATIE), each with its own specific objectives and targets. FOCUENCA's long-term vision is that "*Integrated management of watersheds contributes to sustainable use, protection and restoration of natural resources, particularly water; to sustainable rural development; and to reduction of vulnerability to floods, landslides and shortage of water in Central America*". The overall development objective of the programme for the current four-year period, is that: *Models for adaptive sustainable collaborative management of watersheds, applicable in the biophysical, socioeconomic and institutional conditions representative for Central America, have been designed and are being validated and applied by local and national institutions in Honduras and Nicaragua.*

The "model or laboratory" sub-watersheds are sites for the testing, learning and demonstration of strategies, methods and procedures for adaptive collaborative management of watersheds. These joint efforts of a diverse group of actors help to strengthen the capacity for action and decision-making of institutions responsible for the regulation, control, promotion and development of human resources in integrated management of watersheds in both countries Honduras and Nicaragua. An interaction and regional dialogue, among regional organizations including CATIE, on experiences and lessons from integrated management of watersheds, is starting to change the approach to integrated management of watersheds based on social action and learning as well as

on participatory action research; this work is carried out in collaboration with CCAD and several other partners (including IUCN and PRISMA).

Focuencas II is developing these strategies, methods and procedures for adaptive and collaborative management of watersheds at local sites in Honduras and Nicaragua. One of the main issues is how to create governance platforms where the roles, interests and responsibilities of local stakeholders and authorities converge to impact on the quality and quantity of water. A watershed can be defined as a limited natural area where surface and ground water flow are collected for human consumption, irrigation, etc. At the same time a watershed is an integrated system with its own biological, economical, social and cultural characteristics. From this point of view, watersheds are providing many ecosystem services that are of public or common interests. The starting point of a common interest in a governance platform will often be to maintain or improve the hydrological functions of these ecosystems while maintaining or improving the productive capacity of the different land use systems.

Some lessons learnt from the four micro and sub-watersheds, based on a social construction and learning processes, are related to:

- Effective participation of interested and affected local stakeholders, actors and local public authorities (municipalities) in analyzing their situation in order to find and implement solutions. In general this is a process of negotiation, among these stakeholders, within a formal platform (watershed committee, *consejo de cuenca*, *mesa sectorial de ambiente y producción,* etc.). These platforms have to be recognised, formalized and supported by all major stakeholders and interest groups. Platforms are established at community level, municipality and association of municipalities. Grassroot organisations, national organisations with local presence, universities, civil society, projects of the technical cooperation, private sector, etc. participate under the leadership of the local government.
- Joint planning and monitoring efforts are important to build a common vision of the future landscape and for the implementation of operating plans of the actors who are present in a watershed. This social construction permits an exchange of information, generates inter-institutional trust and avoids management inefficiencies; it also facilitates local monitoring of progress.
- A clear vision about which areas are to be managed within a watershed is a key issue. Critical water infiltration areas and environmentally vulnerable areas are of major concern. These areas need to be delimited and demarcated based on social and hydrological criteria. Main stakeholders in this relationship are the land owners of these areas and the water users (households, irrigators, etc.). A facilitation role of municipal and water administrators (*juntas de agua*) is important.
- Local financing mechanisms, to ensure the implementation of priority actions in watershed management, are amongst the enabling conditions. One strategy is the establishment of an environmental fund administered by the municipality and the watershed committees. Experiments with payments for ecosystem services, micro credits tied to implementing SLM, revolving funds, basket funding, contribution of local manpower, links to national funds, and social control systems have been developed
- Watershed management has to be started at a local level but scaling-up is needed to attend the wider issues of water bodies located between neighbouring states, relations of up

stream and down stream users, larger drinking water supply systems, energy production, costal systems, etc.

Focuencas II has also been a leader in CATIE in promoting the incorporation of sectorial programme (e.g., Coffee and Livestock) in zones managed with a territorial approach but much more needs to be done to develop the value chains, in ways consistent with sustainable landscape management. Likewise the potential of these agricultural sectors to participate in the national communication of the territorial and organizational approaches/methodologies developed by Focuencas is an opportunity that MAP could use. CATIE has improved its capacity in integrating disciplines within as well as outside the institution; for example, instead of emphasizing technological approaches alone, concepts and models for integrated collaborative management of watersheds and a more systemic approach, that can positively influence the social, economic and political processes in the watersheds, are now promoted.

Local and national stakeholders hope to see a follow up of Focuencas II at all four micro and sub-watersheds; scaling-out of the Focuencas II experience also should be a future priority. In this respect, there is a strong municipal demand in Matagalpa and Somoto to integrate additional sub-watersheds; likewise integrating the surrounding municipalities, considering water flows, is a priority for Valle de Angeles. Copan, as an association of four municipalities (*mancomunidad* MANCORSARIC), needs to consolidate institutional arrangements at the inter-municipal as well as at local levels. They also need to interact with neighboring Guatemalan municipalities to assess risk management related to flooding. Priority zones have identified at all four sites, based on a functional territorial approach focused on water infiltration zones and environmental risk areas related to water flows. The latter theme is of strong importance but strategies and methods still need to be developed, implemented and tested. All institutional arrangements are derived from negotiations among stakeholders. Regulation and incentive processes are of special interest, where lessons learnt can be extracted by local and national actors for scaling-up and scaling-out to the national level, and which have a high relevance for integrated watershed management policy design and incidence in curricula and training programmes of national universities as well as CATIE.

It has been suggested that the integrated watershed projects of CATIE devote more efforts to quantifying the hydrological impact of the different interventions that have been promoted. This could be a costly exercise (instrumenting watersheds). There is a need (in general; not just for Focuencas) to continue to work on practical and inexpensive integrated or proxy indicators of the impact of SLM in different ecological and development scenarios managed by the local stakeholders and actors; e.g., in four sub- watersheds currently attended by Focuencas II. Hence another cross cutting activity of the MAP should be the design and testing of such options (indicators) that will help municipalities and other local, as well as national authorities and/or interest groups, to monitor key environmental variables.

In the Focuencas II sub-watersheds there are demands to consolidate the current experiences at sub-watershed level: e.g., to consider a scaling-up of territorial relations among water users and human populations considering water related environmental risks (flooding, land slides, drought) on the one hand and the impact of rural actors on hydrological ecosystem services on the other hand. These regions are: (1) río Copan – río Motagua, Honduras - Guatemala; (2) río La Soledad, Valle de Angles – Tegucigalpa – rio Yeguare, Honduras; (3) río Aguas Calientes, Somoto, San

Lucas - Las Segovias, río Coco - Nicaragua - Honduras; (4) río Jucuapa, río Grande – Matagalpa, Nicaragua. Efforts at the local sub-watershed level should be consolidated and these regional relations should be analyzed and considered as experiences and lessons learnt to be transferred to the other MAP sites in order to integrate territories at a landscape level.

Annex 1.5. Environment for Development (EfD) for Central America (www.efdinitiative.org)

The Environment for Development initiative is a capacity building program in environmental economics focusing on research, policy advice, and teaching in China, Central America, Ethiopia, Kenya, South Africa, and Tanzania. There are six EfD centers hosted by universities or academic institutions in each respective country/region. The EfD is initiated and managed by the Environmental Economics Unit, University of Gothenburg, Sweden. The overall objective of the Environment for Development Initiative (EfD) is to support poverty alleviation and sustainable development through increased use of environmental economics' capacity in policy making processes.

More specifically, EfD aims to fill four gaps that at the present preclude sustainable poverty alleviation. The identified gaps are:

- A capacity gap – that there are not enough trained environmental economists.
- An analytical gap – that there is not enough applied research carried out on poverty and environmental management.
- A communication gap – that the existing academic knowledge is not communicated to policy makers and civil servants.
- An institutional gap – that in many countries there is no institutional platform to ensure that available resources reach domestic academic capacity in order to analyze pressing environmental and poverty concerns.

The EfD for Central America seeks to strengthen the regional research capacity in the quest for sustainable development. Greater economic value and improved social and environmental conditions are essential components of policy making. Our goal is to contribute to the design of effective and sustained policies that alleviate poverty and improve the management of natural resources, by strengthening the research capacity and the interaction between academia and policy makers in Central America. We want to improve the use and conservation of natural resources by implementing innovative economic policy instruments. Striking an adequate balance, fostering technology and policy adoptions that aim at ecosystem recovery and diminishing environmental deterioration while fomenting social and economic development, is a fundamental goal.

The EfD Program for Central America is an integral part of CATIE's Governance and Socio-economics of Environmental Goods and Services (GSEBSA) research programme. The collaboration between SEBSA, CATIE and EEU is governed by an EfD agreement. Financial support is provided by the Swedish International Development Cooperation Agency (Sida), and builds on Sida's Environmental Economics Capacity Building Program. Resources for the Future (RFF) in Washington DC, is an important partner of the EfD initiative. RFF's research fellows work closely with our counterparts and RFF's communications staff helps to disseminate the research products.

Annex 1.6. Latin American and Caribbean Environmental Economics Program (www.laceep.org)

Supported by the Canadian International Development Research Center (IDRC) and the Swedish International Development Agency (SIDA), LACEEP is a capacity building effort that provides research grants in environmental and resource economics to Latin American and Caribbean (LAC) researchers. It provides not only financial support but also advice and supervision by specifically appointed scientists, access to literature, publication outlets and opportunities for comparative research as well as organizing meetings. Another component of LACEEP is a series of courses on key topics in environmental economics, ranging from basic research and analytical tools to techniques for the valuation of environmental goods and services and environmental policy design. The main objective of the program is to create capacity in the field of environmental economics among Latin American and Caribbean academic and non-academic (NGO's, public institutes, organizations of the civil society) research and policy-making institutions. The ultimate goal is to improve the management of natural resources at all levels of the government, non-governmental organizations, and private firms, as well as to contribute to a better understanding of the causes and effects of environmental degradation.

LACEEP's research program focuses in general on applied, policy relevant research for Latin America and the Caribbean. The program is aimed at junior researchers who are citizens of any country in LAC. Applicants should have prior training in economics, preferably at the master level or higher, and should preferably be attached to an institution in the LAC region. LACEEP is building up a database of students, researchers and practitioners of environmental economics and related fields throughout Latin America and the Caribbean.

LACEEP uses carefully selected, internationally recognized researchers and professors to raise and expand the skills of existing researchers, teachers and policy-makers in the region through a series of capacity-building short courses and in-depth supervision of research projects. LACEEP offers a small research grant program on topics relevant to Latin America and the Caribbean. Each grant holder works closely with a scientifically recognized tutor appointed by LACEEP and will enjoy full access to databases in the field. LACEEP's research grants are awarded through biannual competitions: every year LACEEP provides up to 15 research grants of US$15.000 each (proposals are evaluated according to their quality and pertinence). The issues discussed should include formal economic analysis of environmental problems or policies; innovative research topics and methods are encouraged. A central part of the process takes place at LACEEP's workshops where the authors of the best proposals are invited to present and discuss their ideas.

ANNEX 2. NEW PROJECTS PROPOSED FOR THE MAP

Annex 2.1. Forest and Forest Management Project (FINNFOR)

The FINNFOR regional project is an integral part (component) of the MAP and is aligned with the purposes and strategies of this program. The main objective of the MAP-FINNFOR is:

To identify, analyse and remove the barriers to achieving sustainable production of forest goods and services in Mesoamerica through optimal management of the different components of landscapes, for the well-being of human society and for ecosystem sustainability

The purpose of the MAP-FINNFOR is:

Producer families, producer organizations, non government organizations, enterprises, academic institutions, local, national and regional government and development institutions related to the forestry sector in Mesoamerica have the relevant scientific and technical information, and improved technical and negotiation capabilities, alliances and networking, that provides the base for equitable as well as economically and environmentally sustainable production of forests goods and services through the related value chains.

CATIE/MAP proposes to achieve this purpose through four related forest sub-components:

1. Adaptation of timber harvesting and commercialisation policies for agroforestry and silvopastoral systems (AFTCOM)
2. Strengthening of smallholder timber production through the application of sustainable forest management practices (FORMACOM)
3. Removing barriers to forest plantation investments in Mesoamerica (REFCOM)
4. Integrated forest landscape management in Mesoamerica (INTEGRACOM)

There is also a **Management** sub-component to coordinate and administer the activities of FINNFOR in the priority areas and countries where this project will be implemented

The four sub-components take into account at least five common approaches and goals:

- Forest and related sector stakeholders developing and promoting the sustainable management of functional landscapes for conservation and development
- Decision makers, at local, national and regional levels, have the capacities, available and relevant information and tools, to promote a positive political, institutional and economic environment for the development of sustainable forest management
- Examples of forest management processes contributing to local development and equity in distribution of benefits, are increased, promoted, researched and disseminated by key institutions working with MAP in Mesoamerica
- Decision makers and technicians, at local, national and regional levels, have the capacities, available and relevant information and tools, to measure and promote the contribution of forest management to global change mitigation and adaptation
- Forestry technicians and managers in Mesoamerica, have the capabilities, available and relevant information and tools for good management and conservation of forest species genetic diversity.

A short description of the sub-components follows

2.1.1. Sub-Component: "Adaptation of timber harvesting and commercialization policies for agroforestry and silvopastoral systems" (AFTCOM)

Justification

Despite the potential for timber production in Agroforestry Systems (AFS), a lack of appropriate policies and a political framework for commercialisation of timber in these systems are disincentives for farmers to invest in managing trees on their farms.

In many Central America countries, forest policies (laws and regulations) require farmers who have an interest to produce timber in Silvopastoral Systems (SPS) and AFS, to follow the same criteria, procedures and policies established for timber harvesting and commercialisation from forest plantations and/or native forest. For, example, a recent Central American study conducted by CATIE's Degraded Pastures Project showed that cattle farmers have to develop a forest management plan, similar to that required for native forests, if they wish to harvest timber in pastures (Detlefsen *et al*, 2008): this results in high transaction costs for the commercialisation of timber from SPS and AFS (Navarro *et al*, 2006). Moreover because of this inappropriate political framework, illegal harvesting of timber in AFS has been fostered leading to unsustainable production and environmental problems, and low timber prices paid to the farmers.

Given the opportunity to contribute to satisfying increasing demand through legal timber production in AFS, AFTCOM will work with stakeholders from the forest, agricultural and environmental sector to develop and implement simplified policies and incentive schemes that will promote widespread adoption of AFS for sustainable timber production and commercialisation.

Objectives

The purpose of AFTCOM is "to strength the capacity of Central American Forestry Services to elaborate and implement simplified regulations that enhance sustainable harvesting and commercialisation of timber produced in Agroforestry Systems (with emphasis on Silvopastoral Systems) in order to contribute to diversifying the income of farmers and creating employment opportunities in the rural sector".

The specific objectives are to:

1. Develop a joint agenda between the forestry, agricultural, trade and environmental sectors in each country to implement policies and incentive schemes for sustainable timber production and commercialisation in AFS that are compatible with the generation of environmental benefits for rural communities and which decrease timber extraction pressure on native forest.

2. Assist farmers in strategic pilot areas to implement silvicultural technologies for sustainable timber production in AFS.

3. Implement a system for sustainable timber marketing and trading from AFS using a value chain approach in at least one pilot zone for each Mesoamerican country.

Outputs

1.1 Participatory approaches, to analyse current policies and incentive schemes for sustainable timber production from AFS in Mesoamerica, developed with stakeholders of the forest, agricultural, trade and environmental sectors.
1.2 Baseline developed on the laws, regulations, incentive and certification schemes that promote timber harvesting and commercialisation from AFS in seven countries.
1.3 Baseline data used in pilot zones to develop and implement simplified policies and regulations, as well as incentive schemes, for sustainable timber production and commercialization from AFS.
1.4 Simplified policies or regulations for sustainable production and commercialisation of timber from AFS promoted in strategic pilot areas through extension and training activities.
1.5 Preparation and negotiation of a large scale implementation proposal to advocate, at the farm level within the Mesoamerican region, sustainable AFS timber production and commercialization.

2.1 Baseline studies to select pilot zones for timber production in AFS in the seven countries of the region.
2.2 Sustainable timber production approaches for AFS developed in selected pilot zones in the seven countries of the region.
2.3 Professionals or technicians from the governments, NGOs or private enterprises trained in sustainable logging and silviculture for timber production from AFS.
2.4 Effective dissemination and uptake of information about sustainable timber production from AFS through a network of collaborators using simplified policies and regulations in at least one strategic pilot zone in each Mesoamerican country.

3.1 Baseline studies defined and developed respect appropriate timber marketing systems and trading channels that add value to timber products from AFS in pilot zones.
3.2 3.2 Farmers' organizations for timber marketing and trading from AFS in pilot zones developed or strengthened.
3.3 Professionals or technicians from the governments, NGOs or private enterprises trained in timber marketing and trading from AFS using a value chain approach in at least one pilot zone for each Mesoamerican country.
3.4 Multiplier strategy implemented to train extensionists through workshops or courses run by the trained facilitators, using the strategic pilot zones in seven Mesoamerican countries, respect value chain and wood trade from sustainable timber production in AFS.

Strategic lines for the implementation of AFTCOM

This Component is going be implemented by the FINNAFOR Project together with the National Forestry Services of each Central American Country, in close collaboration with the Central American Technical Forestry Committee (CTB) which is an advocate to CCAD (Central American Commission for Environment and Development).

AFTCOM is going to be divided in three broad strategic lines of work to achieve its outputs: i) legal and policy; ii) silvicultural tools for timber production in AFS (emphasis on SPS); iii) marketing, trading and farmers organization and competitiveness. Training is a transversal important line of this sub-component.

AFTCOM will also work with other relevant stakeholders in the environmental, agricultural and forestry sectors to design simplified policies for sustainable timber production in AFS; in collaboration with local institutions, these policies will be validated in strategic areas in Central America (pilot zones).

The development of tools and policies for sustainable timber production in AFS is going to be developed and implemented jointly with National Forestry Services. Thus the outputs may be used in other strategic areas as part of their rural forestry – agroforestry development models.

Participatory approaches to adapt and implement silvicultural tools for the management of trees in AFS, such as the generation of optimal tree cover threshold values for sustainable timber production that are compatible with the generation of environmental services (e.g., biodiversity, carbon and water) from these systems, is going to be one of the AFTCOM's main outputs.

Farmers in at least one strategic pilot zone of each Central American Country will be organised for the marketing and trading of timber from AFS. Together with the implementation of simplified policies such organization will contribute to a reduction in transaction costs for sustainable timber production in each pilot zone; these results are going to be diffused to other strategic zones in each country to create a multiplier effect.

AFTCOM is going to use participatory approaches to promote the involvement of the direct beneficiaries/ users of natural resources in the decision-making process. Multidisciplinary methods to will be used to analyse different hierarchy levels (AFS tree species and other plant components, family unit, pilot zone-community-landscape level).

Research' results and methodologies to achieve those results should be validated in order to transfer the experiences throughout the Central America Region.

Once it has been demonstrated in the field that simplified regulations enhance sustainable harvesting and commercialisation of timber produced in AFS, diffusion workshops, training courses and extension materials for technical assistance will be developed; all results will be published in the Central American AFS journals and updated in a FINNFOR Webpage.

2.1.2 Sub-Component: "Strengthening of smallholder timber production through the application of sustainable forest management practices" (FORMACOM)

Justification

Despite the progress in management of (sub) tropical natural forests in the region -by September 2008, more than 650,000 hectares have been FSC certified- well managed forests cover less than 3% of total forest area of the region and more than 75% of these well managed forests lie within

the Maya Biosphere Reserve in Guatemala. At the same time, a large proportion of the rural poor of Central America -above all in Honduras and Guatemala- live in or near non-managed natural forests and depend on these forests for many of their livelihood needs.

Climate change and changes in global trade relations affect both natural and human systems in Central America. Poor people will be affected most by these changes, unless their adaptive capacity can be strengthened. Sustainable Forest Management (SFM) is considered to be an important tool to strengthen adaptive capacity of forest dependent people and communities and, if properly implemented, can contribute to maintain the adaptive capacity of the natural systems under management.

In order to increase the area under forest management and increase participation of forest dependent people in such management, existing SFM practices need to be further adjusted to local conditions, and these adjusted practices need to be disseminated and their effects monitored and evaluated. In addition, a number of common obstacles for dissemination of SFM in Central America need to be addressed. Among these obstacles are: the low competitiveness of timber producers; limited access to stable land and forest use rights that favour SFM; inadequate land use planning; limited access to markets; little access to mechanisms to finance forest management investments; lack of an improved and simplified normative framework. All of these aspects are being addressed in the fourth sub-component of the FINNFOR project. In FORMACOM we propose to concentrate on the technical aspects of forest management. We propose to build on the broad experience of CATIE and its partners in this area (e.g., previous PROSIBONA, TRANSFORMA, CATIE-CONAP, Olafo projects), review this experience in the light of the major driving forces for land use change (climate change and international trade relations), apply these experiences in priority areas, and disseminate the results to other stakeholders in Central America.

Objectives

The purpose of FORMACOM is to form a research and extension network that facilitates viable and equitable production of forest goods and services in the context of globalization and the main drivers of climate change.

At the end of the project, we hope to have contributed to the following results:

- Within the priority areas, 50% of annual timber production will come from small and medium sized forest holders that apply SFM principles, providing jobs for over a 1,000 employees that comply with international labour agreements
- A stable supply of high quality timber benefits local and regional industries, making them more competitive relative to the timber industries in other countries.
- A network of research and extension organizations, that complement each other with their expertise and that are able to respond to the demand for services along the forest based value chains, has been formed.
- In priority areas, strengthened capacity of forest owners and managers to adapt to climate change

Outputs

Output 1.1
Existing management options, considering future environmental and economic changes, have been analysed
Output 1.2
Growth and yield models, that allow for different climate change scenarios, developed
Output 1.3
Existing management strategies strengthened considering the needs for adaptation to climate change, globalization as well as needs for strengthening of community capitals.
Output 1.4
Local leaders in forest management, entrepreneurship and negotiation skills trained

Strategic lines for the implementation of FORMACOM

The main strategy of this component is based on two pillars:

1. The analysis and documentation of existing forest management experiences and lessons learned, followed by the validation of the lessons learned in selected forest management areas and dissemination of the results through training materials, courses, workshops and demonstrations.
2. The revision of existing data bases on selected species and their important habitants in natural forests, to identify and fill information gaps, and use existing and new data to develop growth models as well as models that project future habitat changes due to climate change or other factors affecting land use and vegetation.

This sub-component is going be implemented in priority areas by the FINNFOR Project, together with Central American national forestry services, in close collaboration with the Central American Technical Forestry Committee (CTB), strategic research and development partners[24] as well as local multi-stakeholder discussion platforms (e.g., model forests, previously[25] established operational networks, watershed committees). The role of the project sub-component will, above all, be the provision, to national and local implementation agencies, of the knowledge and tools necessary for the management of the natural forests in the project areas and to monitor the changes in natural and human environments.

Participatory analysis and documentation of existing knowledge and management practices will be organized at the regional and local levels. Expert meetings and multistakeholder workshops will be the main instruments for the selection of case studies and the discussion of their results. Action research, lead by experts and implemented by Central American MSc and BSc students of CATIE and local universities, will contribute to the current understanding of SFM and its potential contribution to strengthen the adaptive capacity of local forests and their dependent

[24] For example: ESNACIFOR and Rain Forest Alliance in Honduras; NPV and ICTA in Guatemala; Hurracan in Nicaragua; FUNDECOR in Costa Rica.
[25] E.g., in the context of the MADELEÑA and TRANSFORMA projects, operational networks were set up involving private sector, governmental and non-governmental organizations as well as representatives of community organizations.

people. It will also fill in existing gaps in information. National forestry services, as well as other partner organizations will be crucial for the implementation of the lessons learnt, both in the field and in the revision of normative frameworks (see the TRANSCOM component).

A network of permanent sample plots, implemented by a network of research organizations, similar to that already existing in Costa Rica, will provide data on the dynamics in forest habitats under changing conditions, as well as under different management regimes. This information will also be the basis for student implemented modelling work that should answer basic growth and yield questions arising from SFM planning. Furthermore, this information will be cross-linked to the biodiversity conservation activities of the TRANS component of the project.

2.1.3. Sub- Component: "Removing barriers to forest plantation investments in Mesoamerica" (REFCOM)

Justification

Forest plantations fulfil an important role in the economy through the generation of income to investors and communities, but they also contribute to the conservation of biodiversity, to mitigation and adaptation to climate change and desertification, to the recovery of degraded areas and the regulation of water. In Mesoamerica, forest plantations can provide relatively high yields (forest products such as wood, pulp, firewood and other non timber products) as well as a series of environmental services.

The first attempts to promote forest plantations in Latin America were almost exclusively focused on reducing deforestation through tree planting incentives; priority was given to exotic species, ignoring markets, environment and productivity considerations. Some countries in Mesoamerica succeeded in promoting forest plantations while some others are still in a very early stage of promotion. At present, a generalized shortage of wood in the region exists or is foreseen. During the last ten years, a different promotional scheme has been emerging, based on payments for environmental services, using both exotic and native species, showing some concern for the genetic quality and productivity of the trees that are planted, but the driving forces of markets, especially at global level, are still ignored. On the other hand, globalization has created new business opportunities and new competitive stresses for forest production, especially at the industrial level.

At the national level, investment decisions are usually shaped by a number of factors that affect, directly and indirectly, the investor's strategy to maximize financial returns. Information on those factors and their impact are key aspects for any investment decision and clearly an evaluation of the factors affecting competitiveness and attractiveness of investments in the Mesoamerican forest sector is required. These factors, that affect foreign direct investment in forest production and industries, must be analyzed and understood so that the region can attract foreign financial, commercial and technical resources and use them to contribute to the development of rural areas. Attraction of foreign investments must be accompanied by strategies and actions to ensure environmental and social benefits, such as the promotion of Private-Private and Community-Private partnerships for forest investments, where CATIE can act as a facilitator.

In order to achieve this goal, it is necessary to design innovative institutional and financial tools that promote reforestation of deforested or degraded areas as well as the multifunctional management of forest plantations. These tools should also allow the insertion of forest plantations in the context of the numerous national, regional and international policies and mechanisms such as the Latin America and the Caribbean FLEG initiative of the World Bank or PERFOR at the regional level.

REFCOM will work with stakeholders from the forest sector of Central American countries to develop and implement innovative tools to promote the establishment of forestry plantations for sustainable timber production and commercialisation. REFCOM plans to focus on the methodological options to cultivate forests that provide different types of products at different timescales, while conserving biodiversity and improving soils. REFCOM will also build on the valuable experience of CATIE and the national Central American institutions to develop a sustainable model for smallholders (e.g. Fuelwood Project –Leña– and Madeleña -Multipurpose Tree Crop Project-), and to improve the possibilities for farmers to contribute to the restoration of natural ecosystems through analogue forestry plantations.

Objectives

The purpose of REFCOM is "the promotion of efficient systems to cultivate forests in a ecologically viable and economically profitable manner, keeping in mind the suitability of species, sites and silvicultural techniques, as well as the social and organizational aspects, for the production of products, goods and services for local and global markets".

The specific objectives are to:

1. Analyse and define priority zones and species for forest plantations and other types of cultivated forests in Mesoamerica.

2. Develop mechanisms for the production and management of priority forest species in forest plantations and other types of cultivated forests (planted forests, secondary forests, analogue forests, forest gardens) that contribute to the conservation of genetic diversity.

3. Analyse and design financial mechanisms compatible with economically and ecologically acceptable forest production, which conserves genetic diversity, organised at the small, medium and large scale in priority zones.

Outputs

1.1 Priority zones (for different forest products) have been identified based on ecological, site quality, socioeconomic and market considerations
1.2 Criteria for species selection have been defined
1.3 Species distribution maps have been developed for the priority zones
1.4 Local germoplasm, naturally adapted to the priority zones, compared with exotic germoplasm and exotic species

2.1 Silvicultural and management regimes designed taking into account efficiency and quality of the forest goods and services produced by cultivated forests
2.2 Methods for monitoring and evaluating growth and yield in cultivated forests have been applied, especially in priority zones
2.3 Spatial and mixed species analogues to surrounding forest ecosystems have been enhanced and are accessible to partners in priority zones

3.1 Credit mechanisms suitable for forest production, with a special focus on cash flows in forest plantations and cultivated forests, have been designed.

Strategic lines for the Implementation of REFCOM

This sub-component will be implemented by the FINNFOR Project together with the National Forestry Services, in priority areas of Central American countries, in collaboration with the Central American Technical Forestry Committee (CTB), strategic research and development partners as well as local multi-stakeholder discussion platforms (i.e., model forests, previously established operational networks, watershed committees).

The main strategic lines for the implementation of this sub-component are:

a. Analysis of the situation of forest plantations and other cultivated forests in selected priority areas of Central America using criteria to be developed by a coordination group which includes national forest institutions and university representatives.
b. Development of innovative models of cultivated forests that contemplate the sustainable use of genetic diversity in strategic forest areas.
c. Analysis of financial mechanisms for the establishment and management of forest plantations.
d. Creation of a seed fund for selected communities to promote the establishment of forest plantations.

2.1.4 Component: ""Integrated forest landscape management in Mesoamerica" (INTEGRACOM)

Justification

Integrated landscape management is an approach promoted by CATIE to achieve optimal management of landscape components in pursuit of the well-being of human society and for ecosystem sustainability. The MAP FINNFOR project follows this philosophy, but focuses more specifically on forest and agroforest systems management. These systems are represented in FINNFOR by three sub-components: FORMACOM (natural forests), REFCOM (tree plantations and secondary forests) and AFTCOM (agroforestry systems).

The main objective of this project is the identification, analysis and removal of barriers to achieving sustainable production of forest goods and services in Mesoamerica. In forests and agroforestry systems these barriers are frequently shared issues that need to be managed both from a system-specific approach (through project sub-components directly) and from an

integrated perspective (through a transversal component). Among the main barriers are: the lack of competitiveness of forest investments, the poor organizational capacity of stakeholders and the inability of political and market institutions to balance the needs for forest goods and ecosystems services.

On the other hand, the sustainable use of genetic diversity, the consideration of territorial management and connectivity among ecosystems, and information management, are complementary topics that are also linked to FINNAFORs three sub-components and that need to be managed in a transversal way. Thus this fourth sub-component – TRANSCOM – has been created in order to address the issues that need to be implemented in FINNFOR in an integral manner. This sub-component avoids duplication of efforts and resources that otherwise would need be invested in each sub-component separately. The only exception is the case of AFTCOM, whose central focus is on the revision of legal and policy issues in AFS.

Objectives

The purpose of TRANSCOM is to integrate actions respect shared issues among REFCOM, AFTCOM and FORMACOM that will contribute to an integrated forest and agroforestry systems territorial management perspective of this MAP FINNFOR project.

The specific objectives are to:

1. Improve competitiveness of forestry investments, organizational capacity of stakeholders and the ability of political and market institutions to allocate resources for the development of forest goods and ecosystem services
2. Increase sustainable use of genetic diversity in strategic forest and agroforestry ecosystems in the Mesoamerican Biological Corridor
3. Strengthen territorial management and connectivity for the sustainable use of strategic forest and agroforestry ecosystems in the Mesoamerican Biological Corridor, with direct participation of local, national and regional alliances
4. Provide a centralized information management system for MAP stakeholders (forest goods and environmental services producers, governments, local, national and regional alliances, and project coordination and technical teams)

Outputs

1.1 A regional macro-economic analysis of the forest sector provides information about its contribution to the regional economy and environmental benefits

1.2 Managerial and organizational capacities of forest producers are increased.

1.3 Efficient verification system and adequate incentives improve competitiveness of forest investments and strengthen public forest-related institutions

1.4 Access of forest producers to traditional and non-traditional forest products markets is achieved with the highest net price possible

2.1 Knowledge about the genetic diversity and reproductive biology of tree species in strategic forest and agroforestry ecosystems is increased

2.2 Introduction of genetically diverse planting material is enhanced in production systems

3.1 Local, national and regional alliances for territorial management are consolidated and adapted to priority areas and play a practical role in MAP

3.2 Standard developed and validated for the evaluation of the contribution of forest and agroforestry production systems to functional connectivity and other ecological processes

3.3 Potential climate change impacts on native forests, forest and agroforestry production systems, and endangered or economically/ ecologically significant tree species, are evaluated and management responses formulated

3.4 Proposals prepared for application mechanisms of REDD within the countries

4.1 Databases are developed with the most actualized information about relevant themes

4.2 Web site designed and providing information to MAP stakeholders

4.3 All spatially-related information layers, generated from priority areas under MAP, are gathered in a centralized Geographical Information System (GIS) to produce maps and to support project monitoring

This sub-component will be implemented by the FINNFOR Project with the National Forestry Services of those Central American Countries, in collaboration with the Central American Technical Forestry Committee (CTB), strategic research and development partners as well as local multistakeholder discussion platforms (e.g., model forests, previously established operational networks, watershed committees).

The role of this project sub-component will be, above all, be to provide national and local implementation agencies with the knowledge and tools necessary for the management of natural forests in the project areas and to be able to monitor changes in the natural and human environments.

ANNEX 3. PERSONS AND INSTITUTIONS CONTACTED[26]

Meetings in GUATEMALA

National Technical Office (NTO) – Guatemala
-MSc. Jorge Jiménez, CATIE Representative and CATIE Outreach Director
-MSc. Julio López Payés, Project Coordinator

The Nature Conservancy (TNC)
-Estuardo Secaira, Advisor for Science and Management for Conservation

Livestock Federation of Guatemala:
-Dr. Juan Manuel Ruiz, Raxruhá Livestock Association
-Sr. Guillermo Rivera, President
-Sr. Leonel Gómez, Manager

Institute for Agricultural Sciences and Technology (ICTA)
-Sr. Mario Moscoso, Director General
-Sr. Álvaro Orellana, Technical Coordinator of Projects

Natural Resources, Environment and Agricultural Institute (IARNA), Rafael Landívar University (URL)
-MSc. Juventino Gálvez, Director
-MSc. Pedro Pineda, Environmental Statistics Researcher
-Ing. Hernán Perla, Project Researcher VLIR-URL-IARNA
-Ing. Jerónimo Pérez Irungaray, Researcher, Strategic Environmental Information Unit

Coordination Center for the Prevention of Natural Disasters in Central America (CEPREDENAC)
-Sr. David Anthony Smith Wiltshire, Executive Secretary

Meetings in EL SALVADOR

NTO – El Salvador
-Modesto Juárez, CATIE Representative

National Center for Agricultural and Forest Technology (CENTA)
-Ing. Miguel Martínez, Technology Transfer Manager
-Ing. Fredis Hernán Lara, Planning Manager
-Ing René Francisco Núñez, Project Technician, Planning Office

Forest, Watershed and Irrigation General Direction
-Ing.Guillermo Mayorga, Director

[26] 2007 meetings respect priorities / opportunities for the formulation of an agro-environmental programme (discussion of the 1st proposal PAACA, now called MAP). In 2008 workshops were also held in 6 countries.

Trifinio Plan: Trinational Commission
-Lic. Julián Muñóz, Executive Secretary
-Mr. Eduardo Rodríguez Herrera, Territorial Planning Executive

Salvadorian Programme for Development and Environmental Research (PRISMA)
-Hernan Rosa, Director

Central American Commission for the Environment and Development (CCAD)
-Marco González, Secretary

Meetings in HONDURAS
NTO – Honduras / Focuencas
-Dr. Hans Kammenbauer, Project Leader of Focuencas II (CATIE/ASDI) and CATIE Representative
-Sr. José Manuel González, Coordinator for La Soledad Watershed, Valle de Angeles, Honduras (Focuencas II)
-Sr. Juan Manuel Medina, Technical Advisor, NTO Honduras

Agroforestry Board – Honduras (IICA –Honduras)
-Luis Torres, International Cooperation Group for the Agroforestry Sector

Ministry of Agriculture and Livestock (SAG)
-Héctor Hernández, Minister Agriculture and Livestock

Central American Bank for Economic Integration (BCIE)
-José G. Flores, CAMBio Project Coordinator
-Jorge Luis Galindo, Policy Specialist, CAMBio Project
-Patricia Ynestroza, MIPYMEs Specialist, CAMBio Project
-Oscar Murga, CAMBio Project

Direction of Agricultural Research, Science and Technology, Ministry of Agriculture and Livestock (DICTA-SAG)
-Sr. Rosalio Rosales, Sub-Director General, DICTA-SAG
-Ing. Miguel Nolasco, Research Director, DICTA-SAG

Global Water Partnership
-Fabiola Tábora, Regional Executive Secretary

Forest Agenda
-Juan Blas Zapata, Executive Director

Strategic Planning and Management Unit, Ministry of Agriculture and Livestock (UPEG-SAG).
-Rogelio Ortega, Sub Director, UPEG-SAG

Meetings in NICARAGUA
NTO – Nicaragua
- Estela Alemán, CATIE Representative

Technical Support Group, NTO - Nicaragua (GAT) (CATIE project staff working in Nicaragua)
-Jeremy Haggar, Elias Ramirez, Marlon López, Elia Kuan, Veronica Gottret, Nestor Castellón

Ministry of Environment and Natural Resources (MARENA)
-Sr. Denis Fuentes, Planning Director

Ministry of Agriculture and Forestry (MAGFOR)
-Ariel Bucardo, Minister of Agriculture and Forestry
-Luis Osorio, Adviser to the Minister of MAGFOR

Swedish Embassy in Nicaragua, International Development Agency (Sida)
-Marija Brdaski, Regional Adviser, Natural Resources and the Environment
-Anna González, Programs Officer

Embassy of Finland, Managua, Nicaragua/
Elina Sana , Adviser, Regional Development Central America

Nitlapán
-Arturo Gigsby, Director
-Elías Ramírez, National Coordinator, GEF Silvopastoral Project

Royal Norwegian Embassy in Nicaragua
-Anne Flatin, First Secretary
-Torleif Kveim, Advisor
-Jorge Ríos, Project Supervisor in Nicaragua

CATIE Norway Innovations Project
-Jeremy Haggar, Project Coordinator
-Verónica Gottret, Agrobusiness Expert

Meeting with the Interagency Consultatative Committee (ICC) for the Regional Agro-environmental and Health Strategy (ERAS) (CATIE, 11 y 12 de junio, 2006)
Alan González, Regional Advisor for Mesoamerica, Global Mechanism, United Nations, IFAD
Alberto Salas, Coordinator Biodiversity and Sustainable Use, IUCN – Mesoamerica
Carlos Manuel Chacón, Land Use / Private Conservation Specialist, TNC
John Beavers, Director Central America, TNC
Jorge Iván Restrepo, Director IRBIO
Kathia González Hernández, Consultant, FAO/SCAC
Manuel Jiménez Umaña, Agrarian Policy Expert, Secretary, CORECA-CAC
Manuel Serrano, Follow-up and Evaluation Consultant, ACICAFOC
Miguel Gómez, Director RUTA
Milagro Saborío Rodríguez, Sustainable Rural Development Specialist, IICA
Mónica Castillo, Planning Specialist, Secretaría Ejecutiva de CCAD
Raúl Solórzano, Regional Coordinator, FNPP/FAO

ANNEX 4. RELATIONSHIP OF THE MAP TO CATIE`S OUTREACH AND EDUCATIONAL PROGRAMMES

Annex 4.1. Outreach: role of the CATIE`s National Technical Offices in the MAP

CATIE`s NTO should be the institutional platform in each country to promote and facilitate CATIE`s services as well as to channel information to and from national organizations: many of CATIE`s partners have commented that they could benefit much more from CATIE results and methodologies if projects provided regular updates. The MAP provides the opportunity to transform the role of CATIE's NTO from technical implementation and administration to mobilization of national partners, development of networks and platforms to influence policy, triggering and catalyzing processes, programmes, projects and activities related with sustainable rural development, communication, strategic planning and dissemination of CATIE results and methods to national bodies including Ministries, National Research and Development Institutes, Universities and NGO.

However the impact of such a renovated role will depend not only on improved core funding but also on better communication of the CATIE Programmes with the NTO and timely availability of information in forms that facilitate its use by decision makers. Hence success in this respect will depend, respectively, on CATIE changing its institutional culture and on maximizing the use of modern electronic tools to connect different units, including the NTO and programmes; e.g., Web, SIG, data bases, expert systems and other modeling tools.

Some of the same tools can also be used to channel information back from the countries and NTOs to the programmes and to other units in HQ. The CPU proposed for the MAP also obviously would have a key role in information transfer both within the institution and with other organizations. Thus the NTOs should act as antennas for the MAP and CATIE; e.g., to ensure that the MAP activities address national priorities and that CATIE HQ (progaramme) promptly receives the necessary information to take advantage of opportunities that sectorial, inter sectorial and other new initiatives offer.

Another strategic role that the NTOs will play with the support of MAP is to ensure an effective use of CATIE`s products and services in the formulation and assessment of polices and regulations, particularly at the national level. CATIE, through the combined work of the OTNs and programmes, should become recognized as a strategic partner at the national level.

Funds should be budgeted within the MAP to cover the costs of NTO`s participation and support: this could include the costs of participation in / organization of local steering committees (e.g. reestablish a national consultative committee in each country); technical, planning and reporting meetings; and communication with key national stakeholders. Some MAP funding also should be reserved for the NTO`s so that they can cover the costs of CATIE TG staff and logistics when technical input is needed for new activities to develop themes covered by the MAP's programme; e.g., seed money to prepare proposals, feasibility studies, strategic systematization and synthesis reports on priority themes for policy needs and for the communication of results (case studies, workshops, project experience, synthesis of student thesis, etc).

These designated or competitive funds, to be managed by NTOs, could also be used to finance specific actions, to be carried out with or by national or local organizations, which contribute to the implementation of the environmental conventions in each country (particularly CBD, UNFCCC and UNCCD) as well as regional agreements and strategies developed for these countries by CCAD and CAC. All these funds for CATIE and MAP partners will be allocated under strict matching-funds agreements establishing a contribution of the partners at least equal to the funds provided through MAP.

It is important to highlight that, as in other MAP components, the MAP funds are not going to replace the current levels of funding provided by CATIE to the NTOs. MAP funds will be used to support incremental activities in the mentioned areas. Every year the NTOs will explicitly include in their Annual Workplans the products and activities to be supported by MAP and they will report regularly about their progress, as a way to ensure the necessary tracking of the use of MAP resources in this area.

Thus in various ways the MAP could make significant contributions to re-orientating the focus of CATIE's NTOs and particularly to promoting collaboration between NTOs and CATIE (programmes) and between NTOs and national partners. This has already started with the strong participation of the NTOs in the consultation process in each country that was a key aspect of the preparation of this proposal. The importance of the participation of the NTOs and partners during the preparation of new projects/ activities has been recognized not only as the basis for their collaboration in the implementation of the same but also as a key contribution to creating an institutional culture where interdisciplinary collaboration and interdepartmental processes and team work are the norm.

Annex 4.2. Education: role of CATIE`s Postgraduate Programme in the MAP

Importance of students as research assistants in projects. Postgraduate students from both CATIE and other universities can both make major contributions and gain major benefits from carrying out their thesis research on topics of interest to the MAP, including the documentation of the methodologies that are developed. For this reason it is proposed to include MSc grants in the MAP`s budgets. Undergraduate students (local and national) can also sometimes play a similar role but care must be taken not to overload MAP project staff with a large number of students that limit the time that these staff have for other activities such as institutional anchoring and communication.

Training of professionals from national organizations. During the consultation process to obtain input for this proposal from key national and regional partners, a request and recommendation was received that CATIE seeks ways to facilitate the participation of national staff in strategic courses usually only offered at headquarters. The positive effects of such participation, in terms of developing mutual understanding and hence institutional relationships, as well as through upgrading the knowledge of professionals in influential positions, was commented on in several of these meetings. For this reason it is proposed that a small amount of funding be reserved for partial grants for participation in CATIE's strategic courses; the selection criteria and mechanisms to make these funds available to potential and actual partner organizations and/or on a open competitive basis will have to be developed and agreed with the project's executive committee, NTOs and national advisory councils.

Postgraduate preparation of staff from strategic national partners (p.e.. Nitlapan, National Universities, PRORURAL, etc.). In some cases, CATIE has selected strategic institutions in member countries with whom a long term relationship for project implementation and other activities has been developed (recent examples are Nitlapan in Nicaragua and CIPAV in Colombia and municipalities in Honduras and Nicaragua). Amongst joint activities, one of the most important, in view of the potential long term impact, has been or is the preparation of the staff of these organizations through strategic training but also in some cases at the MSc and PhD levels. It is proposed to use the MAP to extend this very positive experience in institutional strengthening to other organizations in all six target countries, including government organizations. In some cases, the allocation of complete postgraduate grants, for applied research topics identified by the MAP team, would be a desirable option but partial grants may also be offered in order to use limited funding to benefit a large number of needy cases.

Students disseminating information. The objective of this activity is that students (CATIE and others) participate in the communication of the results from their own thesis, generally through publications, workshops, seminars or short courses in the key territories where they carried out their research (and possibly in other ways and other events). This would add value for both students (component of their education) and for the MAP (feedback of results to participants). One mechanism that CATIE has used successfully to achieve this aim is to contract students as local consultants for short periods immediately after they complete research or their thesis defense and before they return to their own country and/or work zone. CATIE should also aim to have the results of the theses communicated to decision makers through the preparation of policy briefs and other means.

MAP support for cross-cutting themes like sociology, soils: specialties required by both the programme as well as the postgraduate school (researcher – professor posts). In view of the proposed size and scope of the MAP, staffing will have to take into account the various disciplines that could be required and could be supported as national or international positions. CATIE postgraduate education and training programmes depend on the projects to provide not only the time of advisors and professors to present courses but also for constantly updated input from the projects, which is one of the main attractions of these CATIE programmes. In particular, in the case of the MAP, an analysis has to be made of the needs for professionals in cross cutting issues, including a focus on gender issues.

Feedback of the MAP results into postgraduate education and training events (part of institutional learning). As mentioned in the previous point, the MAP will be a significant resource for material that will be presented in CATIE`s postgraduate and short course training courses: e.g., SLM technologies, value chain and landscape approaches. Likewise these educational events will offer an important pathway for the immediate communication (scaling-out) of the MAP results as well as a long term impact achieved through these contributions to human resource development in the region. One of CATIE`s main strengthens (maybe its greatest strength!) is the combination of the functions of Education, Research and Outreach; the MAP will have major role in all of them and will achieve impact through all three.

Facilitating links to national Universities collaborating or receiving assistance/inputs from the MAP. Some of the national partners/ clients of the MAP will be national universities with whom collaboration could be facilitated through the CATIE postgraduate school. This could include the

identification of potential postgraduate students and research assistants from each country but also the participation of national university professors in networking, research and training events at landscape (pilot zone) or national levels. National universities are another key channel for the communication of the MAP SLM technologies as well as development methodologies. In coordination with the postgraduate school, NTOs and national advisory councils, efforts will be made to identify other universities interested in these MAP products including institutions that are not in Meso-America; i.e., universities in South America as well as developed countries.

Management of grants for students who are integrated in the MAP. CATIE's postgraduate school provides a service to projects and programmes such as the MAP, which partially compensates for the professional services that project/ programme staff provide to the Postgraduate School. This section of CATIE manages the infrastructure and administration for training events at headquarters and hence again can play an important role in ensuring that the MAP can disseminate results in an effective and efficient way. The CATIE postgraduate school also plays an important role in directing and assisting students with potential grant sources as well as managing their funding (stipends) and other services. The development of matching funds through some kind of "debt-for-training swap" is an interesting option to explore through the MAP and other funding institutions; the programme potentially could match contributions from the countries to create "a training fund" from quotas in arrears (debt) that they owe for CATIE membership. In return, the MAP will contribute to the strengthening of human capital of public (as well as some non governmental) organizations (e.g., PRORURAL).

ANNEX 5. EXAMPLES OF POTENTIAL KEY ACTIVITIES AND OUTPUTS BY LEVELS

Annex 5.1. Examples of potential key activities and outputs at the farm, farmers cooperative and association (COAs) level[27]

- Improved market information on agricultural (including tree) products facilitates decision making at the farm level
- Agricultural insurance schemes, that integrate climatic parameters, proposed
- Technologies and germplasm, adapted to foreseen climatic changes and consequences (e.g., changes in pest, disease and fire risks), disseminated
- Farm level planning methodologies for SLM developed, tested and disseminated
- 'Methodologies to evaluate the impact of plot and farm level land use on biodiversity management and conservation tested
- Soil and water conservation technologies, adapted to different Mesoamerican eco-regional zones, disseminated *via* MAP (and other projects/ partners)
- Participatory research, development and training methodologies (e.g., continue the development and promotion of farmer field school approaches) to develop and disseminate technologies that improve competitiveness as well as reduce environmental and economic risk
- Diversification options documented, synthesized and offered *via* data bases, internet and other published and electronic medium (e.g., promising species and systems inventories)
- Improved communication strategies between producers, their organizations, their service suppliers and the private sector developed and promoted
- Effective and attractive technical assistance and training strategies and mechanisms, that benefit both producers and local service providers, suggested and tested
- Mechanisms to link CATIE to all the actors at the farm level designed and tested
- Systematization of agricultural / environmental pilot zone experiences in Mesoamerica (management, technologies, traditional knowledge, etc.)
- A network of exemplary sites / trials / systems/ farms for research and development, focused on the agricultural environmental inter-phase, facilitated
- Development and testing of practical certification schemes, formats and monitoring variables (farm level), for use by COAs, supported and promoted
- Contributions to create the enabling conditions for the development of eco-friendly small and medium enterprises and related value chains
- Development of methods to facilitate links of COAS to the private sector (to value chains) at the local, national and international levels
- Development and facilitation of methods to promote innovation networks for specific value chains
- Exchanges of project staff, NGOs, COAs and/or local authorities; networking amongst local value chain initiatives for scaling-up and scaling-out facilitated

[27] Many of the activities and outcomes corresponding to the farm and landscape level will be the responsibility of projects that contribute to and benefit from the MAP. Detailed planning of project activities is not covered by this proposal for the MAP; value added activities and outcomes particular to the MAP are the focus of this presentation.

- Evaluation and training methods developed to determine /demonstrate the real costs and benefits of different certification schemes / market options
- Methods, tools and materials to strengthen COAS developed; e.g., diagnosis and training approaches to improve product quality control as well as financial and business management

Annex 5.2. Examples of potential key activities and outputs at the landscape level

- Facilitation and development of participatory, equitable and effective governance mechanisms, processes, dialogue and institutions that generate concerted decisions among different stakeholders (e.g., watershed, biological corridors and model forest committees)
- Leadership and alliance building for effective landscape management strengthened (more contributions to social capital as well as to human capital)
- Changes in local (e.g., municipal) agricultural and natural renewable resource policies / regulations analyzed and recommended; e.g., the implementation of exemplary Municipal Development Plans, in particular the chapters on agriculture, environment and related sectors, facilitated and assisted
- Design and implementation of effective financial mechanisms to undertake the actions needed for landscape restoration (including Small Grants Restoration Fund; Municipal Environmental Fund) (see 6.9.1)
- Exchanges of project staff, NGOs, and/or local authorities; networking amongst landscape scale initiatives for scaling-up and scaling-out facilitated
- Simple monitoring and evaluation mechanisms, tools (including decision support systems) and indicators developed and implemented together with local stakeholders to promote, use and monitor SLM, PES and ecosystem services at the local/municipal scale
- Local level models/ planning approaches adopted; e.g., methods to evaluate possible risks and responses respect “Adaptation to Climate Change”; planning and management of local biological corridors reinforced

Annex 5.3. Examples of potential key activities and outputs at the national level

- Institutional capacity building for integrated management of agricultural-environmental inter-phases to better implement ERAS at the national level
- Assist national institutions to produce, access, synthesize and disseminate information in ways that facilitate its use in public and private decision making in the agricultural and environmental sectors, as well as an inter-sectorial programmes, including policy briefs, workshops and other events
- General communication to build national awareness of the importance of the international environmental conventions
- Promotion of national networks of research, educational and technical assistance organizations, including participants from the private sector
- Increased coordination with national institutions and international development agencies, including participation in sectorial and inter-sectorial programmes (e.g., the Cacao cluster and PRORURAL in Nicaragua).
- National level models/ planning approaches; e.g., methods to evaluate possible risks / responses for “Adaptation to Climate Change” (biodiversity / pests- diseases/ watershed responses/ crop mapping/….)

- Contributions to create the enabling conditions for the development of eco-friendly small and medium enterprises and related value chains
- Impacts on national policies and regulations for agriculture and natural resources including suggesting incentives for eco-friendly production as well as sanctions to compensate for environmental costs, illegal production and trade
- Significantly increased collaboration with Governments as a result of support provided for the formulation of national agricultural and environmental policy
- Methods, tolls and indicators developed, including a quantification and valuation of the real costs and benefits, to promote/use SLM, PES and different certification schemes
- Promotion and facilitation of sectorial and inter-sectorial programmes to implement national SLM plans
- Development of territorial management schemes and processes, based on the integration and synthesis of technical and conceptual elements from diverse disciplines (e.g., agricultural, environmental, economic, social), that take into account the possible consequences of free trade agreements, climate change and globalization in general
- Evaluations (social, biological, economic) of the implications of large scale agricultural activities and plans including bio-fuel projects
- Collaboration with national universities to enhance their curricula on agro-environmental themes (also relevant at the regional level; e.g. promoting interchanges)

Annex 5.4. Examples of potential key activities and outputs at the regional level

- Contribute to the implementation of the Regional Agro-environmental Strategy (ERAS)
- Results and tools developed by MAP are used regionally by financial and private organizations (e.g., BCIE and Nestle) to implement incentive and certification schemes that reward good farming practices (agricultural and forest products)
- Significantly increased collaboration with CCAD, CAC, IUCN, FAO, RUTA, IICA and other regional organizations leading to more efficient use of resources
- Policy and decision makers use results and tools developed by MAP to formulate regional policies and to implement agricultural and environmental programmes; e.g., commercial positioning of the Mesoamerican region seeking value added; implementation of conventions at regional scales; regional measures to anticipate (early warning systems) and facilitate adaptation to climate change
- Support to networks for coffee, cacao, model forests, etc.
- Exchanges / collaboration between Government Departments facilitated (e.g., of the “focal points” for ERAS)
- Follow-up and support provided to MBC (Mesoamerican Biological Corridor)
- Support to regional agreements for the development of consistent geographical indicator schemes and indicators (Denominations of Origin, etc.)
- Regional strategy for “Climate Change and Variability” developed with CCAD
- Regional data bases: e.g., coffee sector (Atlas etc.); biodiversity (IRBIO); maps of PES schemes
- Network of pilot zones / partners, for agro-ecological research and development, and education permits exchange of concepts, methodologies, results, etc
- A network of higher education organizations on agro-environmental themes.

Annex 5.5. Examples of potential key activities and outputs at the CATIE level

- Involvement of graduate and national students in CATIE projects strengthened
- Greater incorporation of lessons learnt into CATIE's and national universities educational and training programmes
- CATIE's position and recognition as the regional agro-environmental institution, and as the hub of an agro-environmental platform/network of national, regional and international organizations, strengthened
- CATIE, in collaboration with partners, has an increased capacity to synthesize and disseminate knowledge through published and other media, the organization of regional and international conferences, workshops and other events, distance and continued education / electronic media (e.g., compilation of all the experiences in the region with PES)
- Diversification of CATIE's funding opportunities
- Regional platform established, that attracts human and other resources from both the public and private sectors, sustains the MAP
- CATIE capacity to achieve policy impacts at regional, national and local levels improved
- Improved alignment-harmonization and accountability of CATIE's programmes with other regional and national programmes/institutions
- Internal integration and coordination of CATIE reinforced (programme-programme; programme-NTO; Postgraduate school-Programmes; project-project; etc.)
- CATIE increases its offer of methodologies, tools and sites that facilitate research, development and education on the agricultural environmental inter-phase
- Education and training in CATIE strengthened, including national and international academic partners, offering the best (in Latin America) agricultural environmental programme
- CATIE`s outreach programme backstops a network of model territories managed in collaborative ways under local leadership
- Local authorities, technicians and scientists, as well as national authorities, significantly increase the use of information generated, obtained or synthesized by CATIE (CATIE communication activities taken to a new higher level)
- CATIE develops, uses and promotes improved planning, monitoring and evaluation processes that facilitate and reward inter-sectorial processes
- CATIE staff have opportunities and incentives to increase their knowledge of interdisciplinary approaches, in particular respect the agricultural environmental inter-phase (human resource capital of CATIE improved)
- CATIE develops its capacity as a learning organization
- CATIE provides a platform for ¨schools of thought¨ that develop and disseminate new interdisciplinary concepts and approaches to effectively address challenges and opportunities

ANNEX 6. EXAMPLES OF POTENTIAL PARTNERS FOR THE MAP AND WAYS TO PROMOTE PARTICIPATION.

Annex 6.1. Participation of local, national and regional partners in the MAP

Some of the mechanisms to ensure integration / real participation of potential national and regional partners of the MAP have been mentioned when referring to different aspects of implementation in the main text. However in view of the central role that these organizations should assume in the MAP, to ensure ownership, anchoring, scaling-up and scaling-out, the following check list is provided to help determine their actual and future levels of participation in:

1. The preparation of the MAP proposal (conceptual and implementation) and of the concept notes / proposals for new projects (components) of the MAP.
2. The preparation of strategic and medium-term plans; also to what degree were existing national and regional planning documents (of Governments, SICA, NGOs, etc.) consulted in order to prepare these CATIE / MAP plans.
3. The preparation of the annual work plan for a MAP project and/or in the integration of these project plans to produce the overall MAP annual plan.
4. The direct implementation of parts of a MAP project (c.f. PCC project; at least eight COAs will have this role) or of a MAP project / activity (e.g., financed through funding channeled through the MAP; see section 6.9).
5. The external advisory committee of the MAP [i.e., CCI of ERAS] and /or a steering committee of a MAP project (e.g. PCC national and regional committees) that will discuss evaluations and annual reports as well as planning, priorities and opportunities.
6. Networks promoted, facilitated or supported (already existing) by the MAP or by MAP projects.
7. Collaborative proposals submitted to alternative funding services (e.g., to Fontagro).
8. Pilot zones where different organizations coincide (e.g., CATIE-IUCN in Trifinio, in Lachua Guatemala and in the Caribbean Costa Rica-Panamá border)
9. Implementing training and educational programmes (principally university level).
10. Publications (particularly manuals), electronic courses, audio-visual materials, presentations and other contributions to facilitate dissemination *via* their training programmes.

In all these cases the relationship should be two way to ensure mutual support, assimilation of new strategies, development of methodologies, etc. In other words, CATIE should study the partner organizations to determine how the MAP can contribute to their priorities, plans and projects, rather than just seek to attract them to contribute to the MAP's priorities, plans and projects. Care has to be taken to avoid overlaps but working on common topics in the same territories can lead to synergies: e.g., new concepts, methodologies and technologies. CATIE will build on its long experience in how to implement regional projects, using pilot zones / key territories, in support of national and regional partners. Partnerships with regional organizations will be promoted at the review / planning levels. In the case of CCAD and IUCN, CATIE proposes that they participate both in the MAP external advisory committee and *via* regular bilateral / multilateral meetings to support / implement an activity proposed by such partners; e.g., the regional climate change strategy that CCAD is preparing.

Annex 6.2 Potential partners for the MAP[28]

- Donors. MFA-Norway, Sida-Sweden and MFA-Finland are key potential supporters of MAP; UNCCD-GM-IFAD, GEF, AECI and INIA-Spain, also have been informed about this proposal
- International NGO with presence in Central America (e.g., IUCN, Rainforest Alliance, TNC, CI, World Neighbours)
- Regional political bodies (e.g., CCAD, CAC, COMISCA, CEPREDENAC)
- Financial organizations (e.g., Rabobank, BCIE, IFC, WB, IDB)
- Public Private Partnerships (PPP) (e.g., Nestle, Mars, dairy industry in Guatemala, Honduras and Nicaragua)
- Implementation agencies (e.g., UNDP, GM, RUTA, IICA)
- International research organizations (e.g., CIFOR, CIRAD, CIAT, NINA, USDA, INIA [Spain])
- European and North American Universities (e.g., University of Life Sciences, Norway; NTNU, Norway; SLU Sweden; University of Wales Bangor; University of Idaho, USA)
- Meso-American governments (via CATIE`s NTOs)
- Regional educational institutions (e.g., INCAE, EARTH, ZAMORANO)
- Regional NGOs (e.g., PRISMA)
- Regional farmer and indigenous organizations (e.g., ACICAFOC)
- National NGOs (e.g., INBIO)
- National farmers unions
- National universities
- National rural development programs (e.g., PRORURAL)
- Local governments (municipalities and groups of municipalities)
- Local NGO
- Small and medium rural enterprises in the agricultural and forest sectors
- Local farmers associations and cooperatives (COAs)
- Other development agencies and projects (e.g., ORGUT and FONDEAGRO in Nicaragua)
- Local community development committees (e.g., Municipal water councils)
- Technical colleges and schools (e.g., CETA, Nicaragua)

[28] Listing from global to local; order does not indicate priority and a limited number of examples are given for illustration only. Once the MAP is established it will be necessary to seek the collaboration and agreement of many different partners for each specific (or kind of) action/ project.