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***STAKEHOLDER MEETING***  
**October 30 – 31, 2002**

**Agenda Item 3.c. Challenge Programs—Regular Process**

Session III: Making the Most of the Coast: A proposal to Reverse Degradation of Coastal Resources and Enhance Livelihoods and Forests as Resources for the Poor: The Rainforest Challenge

**Background/Process:**

At AGM01, the CGIAR decided to immediately initiate the regular Challenge Program (CP) process by calling for ideas. Of the 41 CP ideas received, 13 were recommended by the interim Science Council (iSC) and endorsed by the CGIAR for pre-proposal development. The attached pre-proposals, “Making the Most of the Coast: A proposal to Reverse Degradation of Coastal Resources and Enhance Livelihoods” and “Forests as Resources for the Poor: The Rainforest Challenge,” are two of four proposals that the iSC considered meritorious and would further consider for review after meeting certain requirements. The pre-proposals will be presented in Parallel Session III. The session will provide the proponents an opportunity to receive comments and suggestions from CGIAR stakeholders.

**Document:** 1. Making the Most of the Coast: A proposal to Reverse Degradation of Coastal Resources and Enhance Livelihoods  
2. Forests as Resources for the Poor: The Rainforest Challenge

**Comments:**



# ***Making the Most of the Coast***

**A pre-proposal for a Challenge Program to reverse  
degradation of coastal resources and enhance livelihoods**

## **Summary**

**31 August 2002**

## **Background**

The value of the coastal zone - the dynamic interface between the land and sea – cannot be overstated. It provides the natural resource base for much of the economic development required to support the 50% of the world's population who live there. However, despite our great dependence on the coastal zone, we have generally failed to manage it in a sustainable, productive way. The result is that many of the earth's coastal resources are in peril. The key problems are habitat degradation, 'careless' use of resources, and pollution.

The destruction and alteration of habitats is considered to be the greatest of all threats to coastal biodiversity. Sadly, this threat is being realized: at least half the world's mangroves and coastal wetlands have been lost. Much of this damage has been due to the 'side effects' of agriculture and forestry – runoff of nutrients, harmful chemicals and sediments. But coastal resources themselves have also been used inappropriately. This is particularly true for fisheries, where overfishing and use of destructive methods have led to dramatic declines in coastal fish stocks. These assaults on the aquatic ecosystems that supply animal protein and livelihoods for the developing world have been made worse by a wide spectrum of land- and sea-based pollution, which further degrades the quality of habitats and renders fish products unsafe for human consumption.

Many organizations have mobilized to address these problems, e.g. the UNEP Regional Seas Programmes which were later strengthened by Chapter 17, Agenda 21 of the United Nations Conference on Environment and Development. However, the prominence of coastal and fisheries issues at the recent World Summit on Sustainable Development (WSSD) only goes to underscore that these resources are still in need of better management. The 10-point plan of action at WSSD called for the problems of over-fishing, unsustainable forestry practices and land-based marine pollution to be addressed. WSSD also highlighted the need for sustainable development of coastal resources and small island developing states, and integrated river basin management.

Although it is widely recognized that integrated coastal management (ICM) is needed to provide lasting solutions to the problems facing the coastal zone, many institutions are failing in this task due to inadequate legal and policy support; lack of technical 'know-how' on the part of managers; and poor co-ordination among sectoral agencies. Unsustainable development and reduced productivity, resulting in poverty and low wellbeing of coastal people, is all too often the outcome.

Science can help overcome these problems by providing governing institutions with the information they need to guard against degradation of habitats, 'careless' use of resources and pollution, and to develop and implement policies to address multiple use conflicts. This is the genesis of our Challenge Program.

### **The Challenge Program Itself**

To ensure that this Challenge Program addresses the needs of coastal managers, we held two rounds of consultations with ~90 agencies, including NARS, CGIAR centers, ASIs, NGOs and international/regional organizations. As a result of this process, we received clear guidance that the Challenge Program should focus on two themes and six Research Projects. These are:

#### ***Theme 1: Reversing degradation of coastal resources***

1. Understanding material transfers from watersheds, and reducing 'downstream' effects of agriculture and forestry on coastal aquatic ecosystems.

2. Addressing non-optimal use of resources through valuation and “environmental payments”.
3. Identifying and promoting ways to rehabilitate critical coastal habitats.

***Theme 2: Enhancing livelihoods for coastal people***

1. Understanding the factors determining livelihoods for poor coastal people.
2. Restoring production from capture fisheries.
3. Developing technologies for alternative or supplementary livelihoods for coastal people.

A broad and experienced group of agencies has expressed interest in designing and implementing these Research Projects in Southeast Asia and the Pacific. This partnership consists of five CGIAR Centers, eight regional/international organizations, three scientific organizations, The Nature Conservancy, and nine countries.

Three features of the partnership position well help to provide and harmonize science from watersheds to receiving waters and make a vital contribution to integrated coastal management. These are: i) ready access to appropriate research sites; ii) strong links to national decision making bodies; and iii) multiple contact points for building national and local capability.

The Challenge Program will pay special attention to delivering the results of the research to governing institutions, and the full range of people with an interest in ‘making the most of the coast’. The international public goods stemming from the Program will be ‘broadcast’ using technology packages, handbooks, guidelines, manuals, newsletters, scientific journals, existing databases and the media. In addition, the Program will create three other ways to transfer the results to those who need them: we will establish a network for coastal zone management, strengthen regional ICM training centers, and build a website with a “feedback” page so that end-users of the research can provide comment on the effectiveness of the interventions that we develop, suggest further issues for research, etc.

The partnership is prepared to make a strong commitment to both the development of the full proposal, and implementation of the Challenge Program itself. Preliminary estimates of the additional funding that will be required to implement the Program are in the vicinity of \$10 m per annum. Research Projects 1, 3, 5 and 6 are large and would require at least \$2 m p.a. for 10 years. Research projects 2 and 4 are likely to need around \$1 m p.a., but for a shorter duration. In addition there will be the costs of operating the independent governance structure required to implement the Program effectively, consisting of a Board, Steering Committee, Co-ordination Unit and Technical Working Groups. At this early stage, one donor is supportive of full development of the proposal, and another has indicated that funds would be available for components of the research if the Program is approved by the Interim Science Council.

Plans for the development of the full proposal include workshops for the Technical Working Groups to design the Research Projects in detail, and for finalization of the governance arrangements and business plan. ICLARM-The World Fish Center will co-ordinate the development of the full proposal on behalf of the partnership.



# ***Making the Most of the Coast***

**A pre-proposal for a Challenge Program to reverse  
degradation of coastal resources and enhance livelihoods**

**Submitted to the Interim Science Council of the Consultative Group  
on International Agricultural Research  
by ICLARM - The World Fish Center  
on behalf of the partnership**

**31 August 2002**

## **The Great Value of Coasts**

The value of the coastal zone - the dynamic interface between the land and sea – cannot be overstated. The coastal region provides the natural resource base for economic development, including maritime trade, fisheries, agriculture and tourism, and millions of livelihoods depend on sustainable use of these resources. Half of the world's population lives within 200 km of the coast (Cohen et al. 1997). For most small island developing states, the entire population inhabits this zone. Worldwide, the trend for people to move to the coast is expected to continue (Curran et al. 2002).

The coastal habitats provide the planet with vital 'free' goods and services, including fish production, regulation of earth's climate, the genesis of rainfall, and a place to receive and treat wastes, although this latter function is seldom managed well. In addition, ecosystems based on mangroves and coral reefs help to protect residential, agricultural and industrial areas against coastal erosion, flooding and natural calamities. Although the goods produced from the coast are valuable enough, for example, the world's marine capture fisheries were worth US\$ 76 billion in 1998 (FAO 2000), the services and protective functions are far more valuable than the intrinsic resources. They are estimated to have an annual global worth of US\$ 12.5 trillion a year (Costanza et al. 1997).

The coastal zone of East (E) Asia illustrates the values of the land-sea fringe areas well: it is home to 12 of the world's 25 largest container ports; and produces around 30 million tons of fish per year from wild stocks (FAO 1998a, ICLARM 1999), and 40% of world's aquaculture products (FAO 1998b, ICLARM 1999). A similar picture emerges for South East (SE) Asia, where more than 250 million people live within 60 km of the coast (ICLARM 1999) and 16 million people are directly involved in small-scale fisheries (Menasveta 1998). This region is also the epi-center of marine biodiversity, and contains 30% of the world's coral reefs and mangroves (Chou 1997, UNEP 1998). The estimated annual economic net benefit of healthy coral reef areas alone for tourism and fisheries ranges from US\$ 23,100 to US\$ 270,000 per km<sup>2</sup> in SE Asia (Burke et al. 2002).

## **Problems Facing the Coasts**

Despite mankind's great dependence on the coastal zone, we have generally failed to manage it in the most sustainably productive way. On the contrary, many of the world's coastal resources and environments are in peril. The key problems confronting the coastal zone are: 1) habitat degradation, 2) 'careless' use of resources, and 3) pollution.

### ***Habitat degradation***

Human activities that continue to cause widespread destruction and alteration of important habitats in the coastal zone include: deforestation; land clearing for agriculture; reclamation of inter-tidal areas; destruction of mangrove forests for fuel and to build aquaculture ponds for shrimps; damming of rivers (which disrupts flooding regimes); altered patterns of sediment movement due to foreshore development and flood control structures; extraction of corals and sand for construction materials or to create navigation channels; and destructive fishing methods (Chou et al. 1994, Gabric and Bell 1994, Rawlings et al. 1998, Talaue-McManus 2000). Taken together, these activities have resulted in the death, erosion or smothering of important fish habitats, such as seagrasses and mangroves. They have also damaged areas that support adult fish and, in the case of altered flooding regimes, have changed the conditions required for spawning of some estuarine species.

The destruction and alteration of habitats is considered to be the greatest of all threats to biodiversity, and the most widespread human impact on the coastal zone (GESAMP 2001). Sadly, the threat to biodiversity is being realized: at least half the world's mangroves and

coastal wetlands have been lost (GESAMP 2001). We cannot escape the conclusion that human activities are impairing the functional integrity of coastal ecosystems, and reducing the natural goods and services we depend on. Much of this damage has occurred over the last 30 years in SE Asia, where 70% of mangroves (UNEP 1998) and more than 20% of seagrasses (Fortes 1994) have been destroyed, and where nearly 90% of coral reefs are threatened to varying degrees (Burke et al. 2002).

### *'Careless' use of resources*

On land, both agriculture and timber harvesting have often occurred at the expense of other ecosystems. Examples include improperly regulated logging of tropical forests which has resulted in removal of topsoil and led to sedimentation of fish habitats in the receiving waters 'downstream', and heavy use of freshwater in flooded rice farming to control weeds which has altered inputs to estuaries and created a vector for transporting excess nutrients to coasts.

Poorly planned use of resources is perhaps most apparent, however, in the case of fisheries, where overfishing due to perverse incentives stemming from ill-defined ownership rights has led to dramatic declines in coastal fish stocks<sup>1</sup>. In the Gulf of Thailand, for example, the biomass of valuable demersal species is now only 10% of original unfished levels. A 50% reduction in fishing effort, and the passage of many years, is required to rehabilitate these stocks to optimum productive levels (Silvestre and Pauly 1997, Pauly et al. 1998, 2000). Overfishing has had a major negative impact on the income of fishers and food security: economic losses in the Philippines alone are estimated at US\$ 150 million per annum (Silvestre and Pauly 1997).

The effects of overfishing are often made worse by the use of non-selective fishing methods. For example, trawling usually results in substantial 'by-catch' of undersized valuable fish or unwanted species, which do not survive when returned to the sea. Worldwide, 27 million tons of fish are killed and discarded in this way, representing more than half of all marine fish landed annually for direct human consumption (Alverson et al. 1994, Baran 2001). Trawling can also destroy or modify plant and animal communities on the seabed (Poiner et al. 1998), removing important shelter for juvenile fish and reducing biodiversity. On coral reefs, the use of explosives and sodium cyanide solution to harvest fish destroys the coral and causes major economic losses, estimated to be US\$ 3.8 billion over 20 years in Indonesia (Pet Soede et al. 2000).

### *Pollution*

Globally, the quality of coastal waters continues to decline, mainly due to the discharge of land-based pollutants (Goldberg 1995, Gabric and Bell 1994, Chia and Kirkman 2000). In East Asia, 30 billion tons of sewage is generated each year, more than half of which is untreated. Sewage pollution has severe effects on human health through gastrointestinal diseases. It also results in economic losses by: 1) ruining significant areas for tourism and recreation through poor water quality and the fertilization of epiphytic algae which overgrow important fish habitats and reduce biodiversity, and 2) increasing the incidence of toxic algal blooms which cause mass mortality of fish and shellfish and render them unsafe for human consumption. Excess nutrients from agriculture and forestry also promote the growth of epiphytic algae and increase the risk of toxic algal blooms (with the consequences described above). These problems are compounded by the accumulation of solid wastes, chemicals, pesticides and heavy metals in coastal waters from agriculture, mining, shipping and industry (Rawlings et al. 1998).

### *Combined effects*

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<sup>1</sup> 'Fish stocks' refers to finfish, shellfish (crustaceans and molluscs) and cephalopods (squid, cuttlefish and octopus)

The three key problems - habitat degradation, 'careless' use of resources and pollution - facing the coast often act in concert. For example, reclamation of foreshore land and increased sedimentation reduce the extent of fish nursery areas, and chemical pollution lowers the water quality of the remaining habitat. The combined assaults on the coast have lowered productivity, resulting in loss of livelihoods, poverty and poor health of the communities that depend on the resources (Bryant et al. 1998, Talau-McManus 2000). The strong dependence of coastal people on aquatic resources is a compelling argument for improved management, and leads to the inescapable conclusion that the well-being of the coastal poor is intricately linked with the status of estuarine and inshore ecosystems and the fish stocks they support.

### **Coastal Management Initiatives**

The problems of the coastal zone are now widely recognized: the Coastal Zone Asia Pacific Conference in Bangkok in May 2002 identified 484 projects dealing with issues confronting coastal ecosystems. These projects operate from global to local scales (see [www.nioz.nl/loicz/welcome.html](http://www.nioz.nl/loicz/welcome.html); [www.pemsea.org](http://www.pemsea.org); [www.unep.ch/seas/rshome.html](http://www.unep.ch/seas/rshome.html); and [www.usaid-ph.gov/crm.html](http://www.usaid-ph.gov/crm.html) for examples). The widespread awareness of the problems facing coasts is perhaps illustrated best by the action of the United Nations Environmental Programme (UNEP) in initiating 14 Regional Seas Programmes in line with implementation of United Nations Conference on Environment and Development (UNCED) Agenda 21, Chapter 17 on ocean governance. The World Summit on Sustainable Development (WSSD) 10-point plan for action also calls for the problems of over-fishing, unsustainable forestry practices and land-based marine pollution to be addressed, and highlights the need for sustainable development of coastal resources and small island developing states, and integrated river basin management.

Despite the numerous international, regional and national initiatives, many coastal threats remain (see Appendix 1). In general, this has been due to the inability of governing institutions to identify the multiple problems and to provide an integrated solution, particularly at the local level. The principal causes of institutional failure are: 1) inadequate legal and policy support; 2) lack of technical 'know-how' on the part of managers; and 3) poor co-ordination among sectoral agencies (Chua 1996, 1998), often exacerbated by lack of political will to make the necessary reforms. The cycle that has led to unsustainable coastal development and reduced productivity, resulting in poverty of coastal people, is summarized in Figure 1.

Improving the well-being of poor people who rely on coastal resources will depend on empowering the governing institutions with the information they need to: i) guard against degradation of habitats, 'careless' use of resources and pollution, and ii) develop and implement policies to integrate the needs and efforts of the different sectors. Such "Integrated Coastal Management" (ICM) does not replace sectoral management: it harmonizes the roles of different national and local government agencies. ICM has now been widely accepted as the way forward – it is also endorsed by international bodies like the Intergovernmental Panel on Climate Change and the Inter-governmental Oceanographic Commission, and by international conventions like the UNCED.

ICM is not an unattainable ideal; it does work. Xiamen, China is a good example. There, the Partnership in Environmental Management for the Seas of East Asia (PEMSEA) has assisted the city government to implement ICM, resulting in an integrated zoning scheme for use of land and coastal resources (Chua 1998). Key outcomes of this initiative are an improvement in water quality and environmental management system ISO 14000 certification for activities on Gulangyu Island. A vision that many agencies are now sharing is that ICM is most likely to spread from site to site because the gains in one place will be evident to the neighbors. The challenge at hand is to catalyze this process by increasing the number of ICM sites.

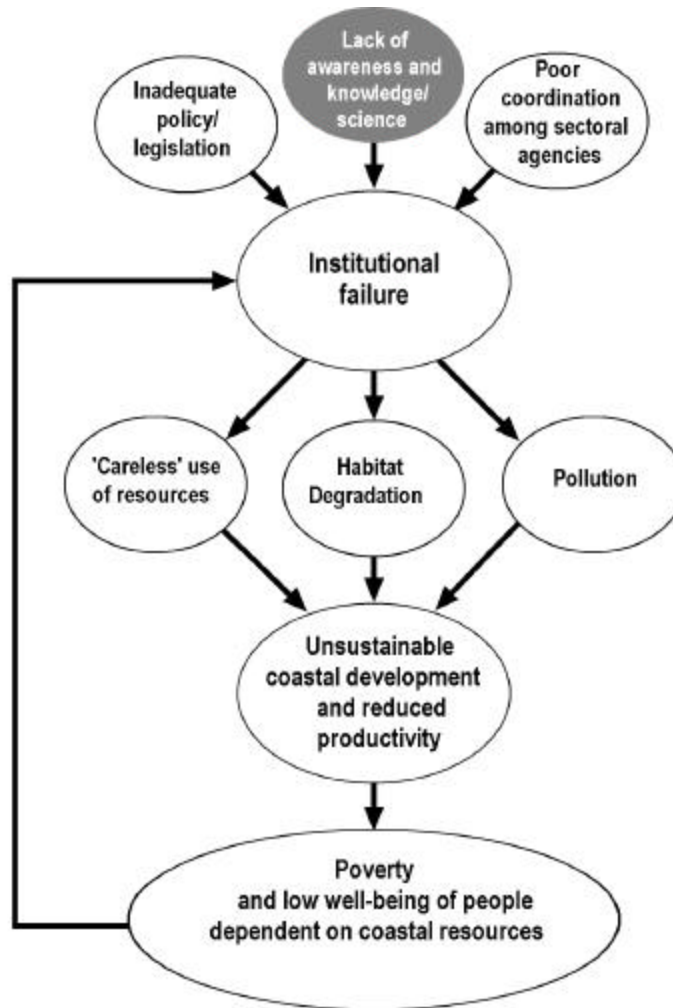


Figure 1. The causes and effects of problems in the coastal zone (shading denotes the primary focus of the Challenge Program).

### The Vital Role of Science for Integrated Coastal Management

Some of the key reasons why the well thought-out concept of ICM has yet to bear fruit in many places are inadequate information about the cause and effect of processes and developments in the coastal zone, and lack of feasible and affordable interventions. Coastal managers are, however, increasingly clear about their needs, and the science that they would like to see done to develop and test options to solve the problems. The specific challenge for the scientific community, therefore, is to do the research requested by the people and institutions involved in coastal management to provide them with the knowledge they need for solving the current problems.

This is the basis for this Challenge Program. We hasten to point out, however, that the list of problems to be addressed in Appendix 1 is too large for any one research program. Our approach to deciding which issues to tackle has been to ask the managers what they consider to be the most pressing problems, and then identify which ones are likely to be addressed best by the CGIAR Centers and partners.

## **How the Research Agenda was Determined**

To ensure that the pre-proposal for the Challenge Program meets the needs of coastal managers, we invited more than 60 representatives from NARS, CGIAR centers, ASIs, NGOs and international/regional organizations to a planning workshop at ICLARM-The World Fish Center from 3-4 June 2002.

Participants were asked to identify priority areas for research, bearing in mind that projects should: 1) investigate issues identified by managers that are not currently being addressed (or which are addressed at a limited scale) by other coastal initiatives; 2) focus on improving opportunities to earn income to alleviate poverty, increase the supply of food, and improve the condition of the environment, and 3) combine the resources of CGIAR Centers and their partners in ways that would not otherwise be possible.

As a result of these initial consultations, we received clear guidance that the Challenge Program should focus on two themes:

1. Reversing degradation of coastal resources: finding ways to reduce transfers of the chemicals, nutrients and sediments from agriculture and forestry in catchments to coastal waters; rehabilitation of fish habitats damaged and destroyed by these processes, and valuation of all links in aquatic production systems, were the main concerns of the stakeholders here.

2. Enhancing livelihoods of coastal people: determining the factors that underpin livelihoods; identifying technologies and policies to improve the existing means of earning income and obtaining food from coastal resources; and ways to create alternative and supplementary livelihoods, were the principal issues within this theme.

The workshop participants then identified a series of “Research Projects” where the Challenge Program partners have a comparative advantage to deliver much-needed research within these two themes.

A draft pre-proposal based on the outputs of the workshop was then circulated to a broader group of ~90 agencies (listed in Appendix 2) with a strong interest in the management of the coastal habitats for comment. The agencies were asked to identify which projects were most likely to meet their needs for information, and to indicate whether they were interested in contributing to the research. As a result of the 40 or so responses that we received to the draft pre-proposal during the second round of consultation, six “Research Projects” were chosen as the logical basis for the Challenge Program. The core problem underlying the need for information, the main research activities, and the key outputs and expected impacts for the Research Projects in each Theme are summarized below.

### **Theme 1: Reversing degradation of coastal resources**

#### ***Research Project 1: Understanding material transfers from watersheds, and reducing ‘downstream’ effects of agriculture and forestry on coastal aquatic ecosystems***

**Core problem:** Current farming and forestry practices, and the construction of infrastructure to support them, result in important losses of soil, nutrients and chemical inputs from target sites. This not only undermines the potential for future production from terrestrial plants, it causes profound and often damaging changes to the quality of coastal receiving waters and fish habitats. The challenge is to improve productivity by: i) understanding the mechanisms that deliver materials from catchments to coasts, ii) identifying and promoting ‘environmentally friendly’ farming and forestry practices based on reduced chemical inputs and retention of soil and excess nutrients in catchments, and iii) enshrining these gains in the

development of policies and institutional arrangements that recognize and harmonize all activities supporting rural livelihoods throughout watersheds, including coastal areas.

#### *Main Activities*

- Review the knowledge on mechanisms for transfer of water, soil, nutrients, herbicides and pesticides from catchments to the sea, including groundwater, and the ‘downstream’ effects of these inputs on coastal ecosystems.
- Quantification of the transfer of water, nutrients and other materials into the coastal zone.
- Evaluation of the biological, physical, economic and social effects of inputs from catchments on coastal ecosystems, using GIS to identify geographical hotspots where coastal ecosystems are most severely impacted or vulnerable.
- Developing more environmentally friendly ways of maintaining or increasing productivity from forestry and agriculture that reduce the transfer of soil, nutrients and chemicals to the coast.
- Testing the effects of reduced transfer of soils, nutrients and chemicals stemming from the research above, on the aquatic resources and habitats.
- Evaluation of the impacts of existing policies and institutional arrangements on water management, land use and zoning at local, national and regional levels.
- Preparation of suitable policy briefs, and identification of institutional frameworks, to rectify shortfalls in existing policies preventing implementation of the beneficial results of research, including documentation of ‘best policy practices’ under different institutional conditions.
- Monitoring and evaluation of the uptake of proven technology, using a set of suitable indicators.

#### *Key outputs*

- A model of material transfers from terrestrial environments to the coast, including bio-physical and socio-economic components.
- Technology package of new management options for forestry and agriculture to reduce transfer of materials or leaching of inputs from land-based activities to coasts, e.g. the “safety net” for mobile nutrients under development by ICRAF.
- Database of existing policies related to water use, land use and zoning.
- Impact evaluation reports describing the effectiveness, constraints and limitations of existing policies and institutional arrangements in mitigating the ‘downstream’ effects of agriculture and forestry.
- Briefs describing the policy reforms and institutional changes needed to integrate best practice for all forms of production in catchments.

#### *Expected impacts*

- New ways of managing forests and farms to reduce loss of soil, nutrients and chemicals to the coastal zone, leading to recovery of damaged fish habitats and improved productivity from coastal fisheries.
- Improved awareness of policy makers and other users about ‘downstream’ impacts of land-based activities on coastal ecosystems.
- Improved institutional arrangements for better regulation of material transfers from uplands to coasts resulting in ‘healthier’ coastal ecosystems capable of supporting greater numbers of people.

## ***Research Project 2: Addressing non-optimal use of resources through valuation and “environmental payments”***

***Core problem:*** Unless we understand the relative contributions of the various resources that contribute to the productivity of coastal habitats, sub-optimal decisions will be made about how they are used. For example, the economic value of some mangrove forests as nursery areas yielding large numbers of juvenile fish to supply offshore fisheries may be much greater than their value for timber or fuel. If so, custodians of mangroves should be provided with economic incentives greater than the value of timber and fuel to manage them as fish nurseries. The problem is that the relative contribution of various terrestrial and coastal inputs to the maintenance of inshore ecosystems and fisheries production is not well known.

### ***Main Activities***

- Identification of resource flows among components contributing to productive coastal ecosystems, including the use of GIS to capture the spatial distribution of economic uses of resources.
- Quantification of the value of each component.
- Development of policy recommendations for more equitable distribution of the economic benefits of productive coastal ecosystems among owners of the contributing components.

### ***Key outputs***

- Assessments of the relative importance of the various natural resources supporting productive coastal ecosystems.
- Policies for equitable distribution of benefits to resource owners, including mechanisms such as levies on the ultimate harvesters, to compensate owners of vital resources who are not direct beneficiaries.

### ***Expected impacts***

- Greater awareness of resources supporting the production systems.
- More equitable distribution of socio-economic benefits accruing from the use of coastal resources.
- Greater likelihood that all essential components of productive ecosystems will be safeguarded.
- Improved awareness of policy makers and other users about the ‘downstream’ impacts of land-based activities on coastal ecosystems.

## ***Research Project 3: Identifying and promoting ways to rehabilitate critical coastal habitats***

***Core problem:*** Agricultural and forestry practices, and a variety of coastal developments, have degraded or destroyed the habitats on which fish depend for food and shelter. Restoration of fisheries will ultimately depend on identifying which areas are favored as nursery habitats by fish, and increasing the amount of shelter and food in such places. In many cases, this will involve active measures to replace lost areas of habitat, and repair damaged ones. To do this effectively, we need to ensure that the problems that caused the damage to fish habitats in the first place have been addressed. Research Project 1 is expected to provide this information so that the rehabilitation methods developed here can be applied effectively.

### *Main Activities*

- Completion of the mapping of nursery habitats and coral reefs for national databases, using remote sensing and GIS, to quantify their extent and establish baselines for monitoring recovery.
- Assessment of the most effective methods for rehabilitating coral reefs, and application of these methods at eco-tourism sites and previously productive fishing areas in conjunction with local communities.
- Application of mangrove planting methods to restore abandoned shrimp ponds, in association with the people who will benefit from this measure.
- Identifying the physical and water quality requirements for recolonization of seagrasses.
- Investigating the sequential use of mangroves, sea grasses and coral reefs by fish and restoring this continuum where such links are important.

### *Key outputs*

- Improved national resource database capacity.
- National databases on the extent and location of critical fish habitats, such as mangroves, seagrasses and coral reefs.
- Methods for re-establishing, and increasing the extent of, coral reefs, mangroves and seagrasses.
- Increased awareness of the value of fish nursery habitats.

### *Expected impacts*

- Enhanced fisheries productivity due to restoration of critical coastal habitats.
- Greater numbers of people deriving livelihoods from more productive fisheries.

## **Theme 2: Enhancing livelihoods for coastal people**

### ***Research Project 4: Understanding the factors determining livelihoods for poor coastal people***

***Core problem:*** Improving the well-being of people in the coastal zone will involve asking some sectors to forego activities (e.g. excessive and destructive fishing) that jeopardize the ability of others to earn a living, and then creating alternative livelihoods. Research Projects 5 and 6 below outline the measures that will restructure the use of resources in the coastal zone so that they can eventually support more people. However, none of these measures will be effective unless there is a thorough understanding of the demographic trends, consumption patterns, market forces, cultural norms and access to essential infrastructure that shape alternative and supplementary livelihoods to fishing.

### *Main Activities*

- Preparation of socio-economic profiles for coastal/fishing communities and livelihood analysis of people living there.
- Analysis of the factors limiting and promoting livelihoods in all coastal sectors, including fisheries and aquaculture.

### *Key outputs*

- Socio-economic profiles of coastal/fishing communities and analyses of the means by which they limit or promote livelihood opportunities, especially those based on aquatic resources.

- Knowledge of livelihoods of people living in coastal areas, with an emphasis on poor people and those dependent on aquatic resources.

#### *Expected impacts*

- Development of sustainable livelihood options (through Research Projects 5 and 6) that fit well into the socio-economic conditions typical of coastal communities.

#### ***Research Project 5: Restoring production from capture fisheries***

***Core problem*** : Increasing human populations and reduced productivity of wild fisheries (through overfishing and habitat degradation) mean that a lower proportion of the coastal population derives livelihoods from wild stocks of fish. This need not be the case. Unlike other production systems, where it has been necessary to turn from ‘hunting and gathering’ to agriculture and animal husbandry, many of the coastal waters of the world are still best managed as ‘wild fisheries’, and have the potential to produce much greater sustainable harvests if they can be restored to former levels. The problem is to identify and implement the measures necessary to rebuild fish stocks to more productive levels, so that they can eventually support more people, with the least social dislocation. The solution to this problem has two main dimensions: i) understanding the biology of stocks and the effects of fishing to identify the interventions needed to allow recovery, and ii) developing policies, governance and institutional arrangements to restore stocks to more productive levels. This project is linked closely to Research Project 6, which aims to provide alternative livelihoods for fishers displaced from their normal vocation while stocks recover, and Research Project 3, which focuses on restoring essential fish habitats. This project is expected to provide information currently lacking in most ICM projects, and will help nations meet their commitment to ‘Restoration of Fisheries by 2015’ made at WSSD.

#### *Main Activities*

- Genetic analyses to identify the number of self-replenishing ‘population units’ within fish stocks so that all people depending on a ‘population unit’ can be identified and encouraged to share the responsibility and benefits of the measures required to increase its productivity.
- Stock assessments to determine the levels of effort that need to be removed from fisheries to allow them to recover to more productive levels.
- Surveys and tapping of local knowledge to identify the spawning and nursery areas of important species so that these essential areas can be managed appropriately.
- Development of options for reducing fishing capacity, and distributing the remaining effort equitably among sectors. Marine protected areas (MPAs) are seen as a potential tool in this regard. However, thorough research is needed to identify the types of situations where MPAs are likely to work best (e.g. self-recruiting populations), the size and number of areas needed, and the timeframes for recovery of different species.
- Restocking with cultured juveniles to “fast-track” the recovery of severely depleted fisheries (as in the case of many coral reef species).
- Development of fishery management measures to ensure/promote sustainable levels of fishing.
- Development of policies and governance systems to remove excess fishing capacity to allow stocks to recover, and permit re-entry of more fishers once stocks have recovered (on a sustainable basis).
- Identification of options for institutional arrangements that will promote effective management of shared stocks at all levels (from coral reef species with distributions spanning a few km to transboundary fisheries).

- Training in the need to match management arrangements with the distribution of the resource (population unit).

Note that several other interventions will be required for improved fisheries management, e.g., development of fishing methods that do not damage the ecosystem, reduction of the by-catch of undersized and unwanted fish, improved handling of catches to reduce spoilage; and better post-harvest processing to add greater value to catches. These aspects are under active investigation by other organizations and will not form part of the Challenge Program.

#### *Key outputs*

- A biological basis for effective management of fisheries based on stock delineation and knowledge of the essential supporting habitats.
- Assessments of the reduction of fishing effort needed to restore capture fisheries to optimum productive levels.
- Options for reducing fishing effort in an equitable, biologically sound way, including an evaluation of the role of MPAs.
- Responsible methods for expediting the recovery of wild stocks through the release of cultured juveniles.
- Policies for the removal of excess fishing capacity resulting in the least social dislocation.
- Governance systems and institutional arrangements for the effective management of stocks during the restoration period, and thereafter.

#### *Expected impacts*

- Increased understanding about the potential for capture fisheries to provide greater yields, and the steps that need to be followed to deliver these gains.
- Reduced catches and loss of livelihoods from capture fisheries in the short term until recovery occurs, offset by greater sustained yields and job opportunities in the long term due to the increased productivity derived from more robust stocks.

#### ***Research Project 6: Developing technologies for alternative or supplementary livelihoods for coastal people***

***Core problem:*** The reduction in fishing effort required to rebuild capture fisheries to more productive levels is likely to cause severe social dislocation unless alternative or supplementary livelihoods are available. One of the challenges facing coastal managers is to provide such alternatives, preferably in closely allied sectors such as aquaculture and coastal eco-tourism, where the skills of fishers have some application. This project will be guided by the results of Research Project 4, to ensure that it delivers viable livelihood options based on coastal resources or integrated 'land-sea' activities.

#### *Main Activities*

- Development of a range of environmentally friendly methods for profitable aquaculture, including: i) small-scale enterprises suitable for villagers focusing on high-value species low in the food chain (e.g. seaweeds, pearl oysters, sponges, marine aquarium fish, sea cucumbers, giant clams and hard and soft corals); ii) strategic research to produce a herbivorous marine fish to meet projected demands for a food when increasing pressures for freshwater limit the supply of low-cost fish from freshwater aquaculture – this will depend on crop-based diets, and may involve “ranching” systems where the fish feed on “nuisance” seaweeds promoted by excessive nutrients in coastal waters; and iii) polyculture to reduce disease risks and

improve water quality emanating from coastal ponds. All these forms of aquaculture will be developed in ways that minimize impacts on capture fisheries.

- Diversifying ‘rice-fish’ production systems using saline-tolerant rice varieties to increase the area available for aquaculture and to integrate it with other production.
- Determining “carrying capacity” of coastal areas for aquaculture-based livelihoods, both in terms of competition for access from other users, and the productive limits of the ecosystem due to inputs from a variety of other sources.
- Ecological risk assessments for the new forms of aquaculture.
- Integration of environmentally friendly aquaculture enterprises with eco-tourism of coral reefs to demonstrate sustainable use of resources and provide added-value commodities, e.g. shell jewelry.

#### *Key outputs*

- Sustainable methods for producing a variety of commodities from coastal waters, including new food products such as herbivorous fish, and high-value items for the pharmaceutical trade, such as sponges.
- Assessments of the potential carrying capacity of representative coastal areas for a range of aquaculture enterprises.
- A more diverse array of eco-tourism ventures for coral reefs.

#### *Expected impacts*

- Creation of a broad range of options for alternative or supplemental livelihoods, based on coastal resources, for poor people particularly displaced fishers.
- Better access to animal protein through an increased supply of fish for food.

### **Geographical Focus**

Two broad, adjacent regions stand out as being most in need of the research proposed above. The first is SE and E Asia, where the high rainfall and large coastal populations have resulted in severe degradation of inshore habitats and over-exploitation of fisheries, resulting in poverty or low well-being for many people. The second is the Pacific, where a high proportion of the population is heavily dependent on coastal resources for their livelihoods. For these reasons, the geographical focus of the Challenge Program will be SE and E Asia, and the Pacific. Research Projects 1-3 will be implemented in SE and E Asia, and Research Projects 4-6 will be done in both SE and E Asia and the Pacific.

### **The Nature of the Partnership**

As a result of the two rounds of consultations, a broad and potentially robust group of agencies has expressed interest in designing the full proposal and implementing a Challenge Program to address the core problems outlined above in SE and E Asia and the Pacific. This partnership consists of five CG Centers, five regional organizations in SE and E Asia, two regional organizations in the Pacific, the UNEP World Conservation Monitoring Center, three scientific organizations well placed to operate in SE and E Asia and/or the Pacific, The Nature Conservancy and nine countries in SE and E Asia (Table 1). At this early stage, we have not solicited contributions from the small island developing states (SIDS) because they have scarce human and financial resources. However, via the demonstration sites established in the region by SPREP, there will be ample opportunity to increase national capabilities of SIDS in coastal zone management during the Program.

The partnership is in a unique position to provide and integrate information from a range of production systems from watersheds to coastal receiving waters. The beneficial synergies do not stop there, however. IWMI’s participation in the partnership will enable us to understand the major vectors responsible for transferring detrimental materials from river basins to deltas.

Thus there is every reason to expect that we will be able to overcome the sectoral approach to research that has prevented managers receiving the information they need, and thereby make a major contribution to the ideal of integrated coastal management.

Three other features of the partnership promise to be particularly potent. The first is that there is ready access to sites for research: the offer to use demonstration sites established by the major regional programs underway by the UNEP-GEF Project in the South China Sea and the Gulf of Thailand, by PEMSEA in SE and E Asia, and by SPREP in the Pacific, will enable us to complement existing initiatives and reduce the time and cost normally involved in implementing research activities. The second is the strong link to the influential national focal points and national planning committees (via UNEP, PEMSEA and SPREP) that will ultimately be responsible for recommending changes in policy and institutional arrangements to governments. The third is that the large number of countries in SE and E Asia that wish to take an active part in the Program will provide multiple contact points for building national and local capability through interactions with scientists from the CG Centers and ASIs.

Although the Challenge Program has made a decision not to address all the issues facing coasts, e.g. pollution stemming from cities and shipping, we believe that the “weight” of the research we will do, and the arrangements for passing the results to influential groups of managers will create a pervasive and effective model for solving the other problems as well.

### **Organization of the Challenge Program**

The proposed governance arrangements for the Program center around the establishment of an Independent Board, a Steering Committee, a Co-ordination Unit and Technical working Groups.

The Independent Board will serve as the ultimate decision making body and be accountable to the CGIAR. Major functions will also include raising awareness and mobilizing resources for the Program. The Board will be comprised of representatives from international, regional and national institutions dedicated to better management of the coastal zone; local communities; governments; the private sector; donors; scientific/academic institutions and civil society groups. Arrangements for selection of Board members and the appointment of the Chair are outlined in the attached “Plan for Developing the Full Proposal”.

The Steering Committee will review the annual workplan and budget; ensure the scientific quality of research outputs; monitor the use of resources; establish guidelines for integrating research activities; mediate conflicts between partners; and provide ‘oversight’ review, monitoring and evaluation of progress and impacts against goals and objectives. Sub-committees will be established to integrate research work across issues and sites, and assess results and modify plans for future research if necessary. The Steering Committee will consist of representatives of the ‘core’ partner institutions (e.g. CGIAR centers, international/regional bodies, NARS, donors, etc), and the leaders of the Technical Working Groups (see below).

The Co-ordinating Unit will handle the day-to-day operations of the Program, and function as both a technical and administrative secretariat for the Steering Committee. The Coordinating Unit will be hosted at ICLARM Headquarters in Penang, Malaysia. A Director will be appointed to head the unit and will report to the Steering Committee. The Director will be supported by a small team of technical and administrative staff.

Six Technical Working Groups will be established to design and implement each Research Project. Apart from including the best scientists from the partnership, the Technical Working Groups will also have representatives from regional/national coastal management committees. Arrangements for the formation of the Technical Working Groups are outlined in the “Plan for Developing the Full Proposal”.

Table 1. List of potential partners for the Challenge Program, the Research Projects that they plan to be involved in and the contribution that they have committed to at this stage of the process (see Appendix 2 for definition of acronyms).

Partner	Area/Sites	Projects	Contributions
<b>CGIAR Centers</b>			
CIFOR	<ul style="list-style-type: none"> <li>Sumatra &amp; Sulawesi, Indonesia; Mindanao, Philippines</li> </ul>	1	<ul style="list-style-type: none"> <li>1 month IRS to develop full proposal, JPO from 2003 for forest-water interactions</li> </ul>
ICRAF	<ul style="list-style-type: none"> <li>Sumatra &amp; Sulawesi, Indonesia; Mindanao, Philippines</li> </ul>	1	<ul style="list-style-type: none"> <li>1 month IRS to develop full proposal, \$0.5 m p.a. on existing relevant watershed research in Sumatra (together with CIFOR)</li> </ul>
IRRI	<ul style="list-style-type: none"> <li>Vietnam delta saline rice project site</li> </ul>	1, 6	<ul style="list-style-type: none"> <li>“Very active participation in development of full proposal”</li> </ul>
IWMI	<ul style="list-style-type: none"> <li>Benchmark basins, particularly the Mekong</li> </ul>	1	<ul style="list-style-type: none"> <li>1 month staff time to develop full proposal, strong commitment for implementation, collaboration with Water and Food CP “benchmark sites”</li> </ul>
ICLARM	<ul style="list-style-type: none"> <li>SE Asia and the Pacific</li> </ul>	1 - 6	<ul style="list-style-type: none"> <li>2 months IRS to develop full proposal, 3 IRS @ 33%, and access to sites in Pacific for implementation</li> </ul>
<b>Regional Agencies</b>			
UNEP/SCS	<ul style="list-style-type: none"> <li>SE &amp; E Asia</li> </ul>	1, 5, 6	<ul style="list-style-type: none"> <li>1 month staff time to develop full proposal, use of demonstration sites in 9 countries for implementation</li> </ul>
PEMSEA	<ul style="list-style-type: none"> <li>SE &amp; E Asia</li> </ul>	3, 5, 6	<ul style="list-style-type: none"> <li>Cooperative activities at their demonstration sites</li> </ul>
FAO – ROAP	<ul style="list-style-type: none"> <li>Asia and the Pacific</li> </ul>	4, 5, 6	<ul style="list-style-type: none"> <li>Participate in development of full proposal, disseminate results of program</li> </ul>
NACA	<ul style="list-style-type: none"> <li>Asia and the Pacific</li> </ul>	4, 6	<ul style="list-style-type: none"> <li>1 month staff time to development of full proposal, contributions (with STREAM) by way of funding/partnerships to implementation</li> </ul>
SEAFDEC	<ul style="list-style-type: none"> <li>SE Asia</li> </ul>	4, 5, 6	<ul style="list-style-type: none"> <li>Equivalent of 2 fulltime scientists for implementation</li> </ul>
SPREP	<ul style="list-style-type: none"> <li>Pacific</li> </ul>	3, 4, 5, 6	<ul style="list-style-type: none"> <li>2 staff @ 20% for full project development, 1 staff @ 50% for implementation, access to demonstration sites in 14 countries under GEF International Waters Project.</li> </ul>
SPC	<ul style="list-style-type: none"> <li>Pacific</li> </ul>	5, 6	<ul style="list-style-type: none"> <li>1 month staff time to develop full proposal</li> </ul>
UNEP-WCMC	<ul style="list-style-type: none"> <li>Global</li> </ul>	1, 3, 5	<ul style="list-style-type: none"> <li>1 month staff time to develop full proposal. Part-time staff contribution to implementation</li> </ul>
<b>Scientific Institutions</b>			
AIMS	<ul style="list-style-type: none"> <li>SE Asia and</li> </ul>	1, 3	<ul style="list-style-type: none"> <li>1 month staff time to develop full</li> </ul>

		Pacific		proposal, 2.5 scientists on basis of 1:1 matching funding for implementation
DHI	• SE and E Asia		1, 2, 6	• Access to model of South China Sea (under agreed conditions). Modeling impacts of aquaculture
VIMS/CDC-Thailand	• SE Asia (Thailand)		1, 2, 4	• Contribution in terms of staff time and access to study sites. Assistance with development of Network
<b>NGOs</b>				
TNC	• Indonesia and Pacific		1, 5, 6	• \$10,000 for development of full proposal, contributions to research on marine protected areas and aquaculture livelihoods

Table 1 cont'd.

Partner	Area/S ites	Projects	Contributions	
<b>Countries</b>				
<b>Philippines</b>				
• University of the Philippines Marine Science Institute	• San Miguel Bay, Lagonoy Gulf, Lingayen Gulf		3, 5, 6	• To be discussed
• Bureau of Agricultural Research	• Palawan & Central Visayas		1 – 6	• \$10,000 towards development of full proposal
• University of the Philippines in the Visayas	• To be identified		6	• To be discussed
<b>Indonesia</b>				
• Institute of Mangrove Research	• Sumatra, Kalimantan and Sulawesi,		3	• Access to study sites, contribution of equipment/staff
• Indonesian Seagrass Committee - LIPI	• To be identified		3	• Expressions of interest only
<b>Vietnam</b>				
• Institute of Oceanography, Nha Trang	• Nha Trang Bay		5	• Access to MPA site, MPA project database
• Haiphong Institute of Oceanography	• Mekong and Red River		1, 3	• Access to study sites, staff expertise
• Research Institute for Marine Fisheries	• To be identified		1, 3, 5	• Expressions of interest only
• Center for Environmental Survey	• Mekong and Red River catchments		1	• Access to study sites, equipment for field surveys and facilities for project implementation
<b>China</b>				
• State Environmental Protection Administration	• To be identified		1-6	• Inputs from network of organizations
• Chinese Academy of Science	• Pearl River estuary, Beihai and Hainan Islands		1, 2, 3	• Contributions in terms of staff time, access to study sites
<b>Singapore</b>				
• National University of Singapore	• To be identified		3, 5	• 1 month staff time to develop full proposal, use of Tropical Marine Science Institute facilities

Cambodia				
• Department of Fisheries	• To be identified	1, 4, 5, 6	• Expressions of interest only	
• Ministry of Environment	• To be identified	3	• Access to data and staff time towards development of proposal	
Thailand				
• Kasertsart University	• To be identified	3, 6	• Staff time and facilities are available as counterpart	
• Ministry of Science & Technology	• To be identified	1, 2, 3, 4	• Expressions of interest only	
Malaysia				
• Ministry of Science and Technology	• To be identified	1, 2, 4	• Expressions of interest only	
• Universiti Putra Malaysia	• To be identified	5	• Staff time to develop policies	

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### Dissemination of Information

As one of the major impediments to wise management of the coastal zone has been a lack of knowledge, the Coastal Challenge Program will pay special attention to disseminating the results of the research - the benefits will be diminished unless the key messages about the actions required to make a difference “on the ground” find their way to coastal communities, resource managers and policy makers. Additional target groups for the dissemination campaign will be organizations working on other problems in the coastal zone, e.g. industrial pollution, and the scientific community at large. We will also place special emphasis on ensuring that there are regular face-to-face meetings of the Technical Working Groups and scientists for all six Research Projects.

The methods used to disseminate the international public goods stemming from the Challenge Program will include:

- Technology packages, handbooks, guidelines, manuals, and popular media.
- A dedicated website linked to the sites of all project partners.
- Existing databases, FishBase ([www.fishbase.org](http://www.fishbase.org)), ReefBase ([www.reefbase.org](http://www.reefbase.org)) and TrawlBase ([www.cgiar.org/iclarm/rawl](http://www.cgiar.org/iclarm/rawl)), which have sections highlighting threats to coastal resources, and the research and management measures needed to restore them.
- Annual program meetings and reviews.
- Scientific journals and newsletters.

In addition, we will use three other ways to transfer the results of the Program to those who need them, and to receive feedback about the effectiveness of interventions and possible ways to improve the research. These are:

Establishment of a Network for Coastal Zone Management to provide the opportunity for all coastal management initiatives to learn from each others’ experience, and to maximize the reach of the research done by the Challenge Program. The need for such a network, based on electronic communication, newsletters, regular meetings and consultations, was identified at the Coastal Zone Asia Pacific Conference in Bangkok, Thailand, in May 2002.

Strengthening of Regional Training Centers to provide course developers to service requests for training in integrated coastal management based on a ‘needs analysis’, and to act as a repositories of training materials, including those produced by organizations outside the partnership. Such activities are already underway by PEMSEA and ICLARM – The World Fish Center in SE and E Asia.

A Mechanism for Feedback built into the website for the Program so that end-users of the research at all levels can provide comment on the effectiveness of interventions that we develop, make suggestions for further research, etc. In addition, the annual meeting and review will invite comment from managers, policy makers and other stakeholders about the impact of the research, and solicit suggestions about ways to adapt the Research Projects to ensure that they remain relevant.

### **Program costs and financing**

This needs to be considered at two levels: development of the full proposal and implementation of the Program itself. The partnership has made a strong commitment to attend the workshops, and contribute to the detailed design of the Research Projects, required to develop the full proposal: sixteen agencies have pledged staff time for this purpose and another two organizations (the Philippines' Bureau of Agricultural Research and The Nature Conservancy) have agreed to contribute \$10,000 each to this part of the process (see Table 1).

The partners are also willing to make substantial contributions to the costs of implementing the Program including, for example, the collective equivalent of around 10 fulltime scientific staff and use of many existing field and laboratory facilities (see Table 1 for more details). While it is still far too early to provide a good estimate of the additional funding that will be required to implement the Program, we believe that this will be in the vicinity of \$10 m per annum. Research Projects 1, 3, 5 and 6 are large and would require at least \$2 m p.a. for 10 years. Research Projects 2 and 4 are likely to need around \$1 m p.a., but for a shorter duration. In addition there will be the costs of operating the Board, Steering Committee, Co-ordination Unit and Technical Working Groups, which could be as much as \$0.5 m p.a.

The draft pre-proposal was circulated to ~20 donors to solicit their initial interest in supporting the implementation of the Program. The responses received were supportive of the concept of Challenge Programs in general, however, some of them said that they were not in a position to support particular initiative until the Interim Science Council identified which Challenge Programs would be given priority. DfID and NZAID were the most supportive. DfID stated that "we will be happy to consider funding specific elements when the Science Council approves it" and NZAID said that it was interested in integrating the Pacific Island issues and work at specific sites into a Challenge Program on coastal areas, and would consider the use of its current support for related activities in the Pacific for the planning stages of the full Challenge Program.

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Appendix 1. List of the main problems in the coastal zone identified by some major coastal management initiatives.

<b>Habitat degradation</b>	<b>Non-optimal use of resources</b>	<b>Pollution</b>	<b>Other issues</b>
<ul style="list-style-type: none"> <li>• Degradation of coastal ecosystems (coral reefs, mangroves and seagrasses)</li> <li>• Effects of destructive fishing and aquaculture practices on the environment</li> <li>• Habitat conversion into other economic uses</li> <li>• Sedimentation and siltation</li> <li>• Increasing coastal erosion, flooding and shoreline instability</li> <li>• Changes to hydrology and the flow of sediments</li> </ul>	<ul style="list-style-type: none"> <li>• Overfishing of coastal fish stocks</li> <li>• Over-exploitation of other coastal resources</li> <li>• By-catch and discards from commercial fisheries</li> <li>• Inefficient use of agricultural inputs</li> <li>• Non-optimal use of land and water resources</li> </ul>	<ul style="list-style-type: none"> <li>• Land-based sources of pollution</li> <li>• Oil and chemical pollution</li> <li>• Effects of sewage on human health and the environment</li> <li>• Agricultural nutrient loading</li> <li>• Industrial wastes</li> <li>• Solid wastes</li> <li>• Ship-based sources of pollution</li> <li>• Eutrophication / over-fertilization</li> </ul>	<ul style="list-style-type: none"> <li>• Resource and land-use conflicts</li> <li>• Competition for water and coastal space</li> <li>• Inequitable distribution of benefits</li> <li>• Increasing risk from introduced or invasive species</li> <li>• Trade in endangered species</li> <li>• Sea level rise/climate change</li> <li>• Impoverishment of coastal communities</li> <li>• Removal of wild species for aquaculture</li> </ul>

Sources: Clark 1994; Inter-American Bank 1999; Talaue-McManus 2000; GESAMP 2001; PEMSEA 2001

Appendix 2. List of agencies that received a copy of the Challenge Program pre-proposal.  
Shading denotes agencies that made comments on the original concept note or pre-proposal, or attended the planning workshop.

#### **CGIAR Centers:**

- Center for International Forestry Research (CIFOR)
- International Center for Research in Agroforestry (ICRAF)
- International Rice Research Institute (IRRI)
- International Water Management Institute (IWMI)
- International Maize and Wheat Improvement Center (CIMMYT)

#### **Regional/International Organizations**

- Bay of Bengal Programme (BOBP), India
- CORDIO-East Africa
- Food and Agriculture Organization, Regional Office for Asia and the Pacific (FAO-ROAP)
- Land-Ocean Interactions in the Coastal Zone (LOICZ), Netherlands
- Millennium Ecosystem Assessment, Malaysia
- Network of Aquaculture Centres in Asia-Pacific (NACA), Thailand
- GEF/UNDP/IMO Regional Programme on Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), Philippines
- Secretariat of the Pacific Community (SPC)
- SEAMEO Regional Centre for Graduate Study and Research in Agriculture (SEARCA), Philippines
- Southeast Asia START Regional Centre, Thailand
- Southeast Asian Fisheries Development Center (SEAFDEC), Aquaculture Department, Philippines
- South Pacific Regional Environment Programme (SPREP)
- TRAIN-SEA-COAST Programme, United Nations, USA
- UNEP/GEF SCS Project Co-ordinating Unit, Thailand
- UNEP-World Conservation Monitoring Centre (UNEP-WCMC), United Kingdom
- Western Indian Ocean Marine Sciences Association
- Wetland International Asia Pacific, Indonesia Programme
- World Resources Institute, USA

#### **Scientific/Academic Institutions:**

- Agricultural University of Norway, Centre for International Environment and Development Studies, Norway
- Asian Fisheries Society (AFS)
- Australian Institute of Marine Science (AIMS), Australia
- CRC-Reef, Townsville, Queensland, Australia
- Danish Hydraulic Institute (DHI), Denmark
- Exeter University, Integrated Marine Management, United Kingdom
- Institut de Recherche pour le Developpment (IRD), Department of Living Resources, France
- National Institute of Water & Atmospheric Research (NIWA), New Zealand
- University of Newcastle-upon-Tyne, United Kingdom
- University of Rhode Island (URI), Rhode Island, USA
- Virginia Institute of Marine Science (VIMS), Virginia, USA

#### **Non-governmental Organizations (NGOs):**

- International Marinelife Alliance (IMA)
- The Nature Conservancy (TNC)
- World Wildlife Fund (WWF)

## Countries:

### Cambodia

- Cabinet of Council of Ministers
- Department of Fisheries, Ministry of Agriculture, Forestry and Fisheries
- Department of Nature Conservation and Protection, Ministry of Environment
- Department of Pollution Control, Ministry of Environment

### China

- Office for Marine Environmental Protection, State Environmental Protection Administration (SEPA)
- South China Sea Institute of Oceanology, Chinese Academy of Sciences
- South China Institute of Environmental Sciences
- Guangxi Mangrove Research Centre
- South China Institute of Environmental Sciences
- Zhongshan University, Institute of Environmental Sciences

### Indonesia

- Institute of Mangrove Research & Development (IMRED)
- Small Islands Affairs, Ministry of Marine Affairs and Fisheries (MAFF)
- Center for Research and Development in Oceanology, Indonesian Institute of Sciences – LIPI
- Project management office of COREMAP, Indonesian Institute of Sciences
- Deputy Minister VI for Environmental Conservation
- Ministry of Environment, Marine and Coastal Ecosystem Affairs
- Directorate General Fisheries (Capture Fisheries)

### Malaysia

- Department of Fisheries (DOF)
- Ministry of Science, Technology and the Environment, Conservation and Environmental Management
- Ministry of Science, Technology and the Environment, Department of Environment (DOE)
- University Putra Malaysia (UPM), Faculty of Science and Environmental Studies
- Universiti Malaysia Sabah (UMS), Borneo Marine Research Institute
- Universiti Sains Malaysia(USM), Centre for Marine and Coastal Studies

### Philippines

- Bureau of Agricultural Research (BAR), Department of Agriculture (DA)
- Bureau of Fisheries and Aquatic Resources, Department Agriculture (DA)
- Department of Environment and Natural Resources (DENR)
- Environmental Management Bureau (EMB), Department of Environment and Natural Resources (DENR)
- Philippine Council for Aquatic and Marine Research and Development (PCAMRD)
- Protected Areas and Wildlife Bureau, Department of Environment and Natural Resources (DENR)
- Silliman University - Angelo King Center for Research and Environmental Management (SUAKREM)
- University of the Philippines in the Visayas (UPV)
- University of the Philippines - Marine Science Institute (UP-MSI)

### Singapore

- National University of Singapore (NUS), Faculty of Science

### Thailand

- Coastal Resources Institute (CORIN), Prince of Songkla University
- Chulalongkorn University, Marine Science Department
- Environmental Policy and Planning, Ministry of Science, Technology and Environment
- Mangrove and Wetlands Management, Royal Forest Department
- Marine Pollution Sub-division, Pollution Control Department, Ministry of Science, Technology and Environment

- Ramkhamhaeng University, Department of Biology, Faculty of Science
- Kasetsart University Faculty of Fisheries
- Kasetsart University, Faculty of Forestry
- Mahidol University, Faculty of Environment & Resource Studies
- Upper Gulf Marine Fisheries Development Center, Department of Fisheries.

#### VietNam

- Hanoi University of Education, Center for Environmental Research and Education (CERE)
- Haiphong Institute of Oceanology
- Institute of Oceanography, Nha Trang
- Institute of Fisheries Economics and Planning, Ministry of Fisheries
- Forest Science Institute of Vietnam
- Research Institute for Marine Fisheries (RIMF)
- Ministry of Science, Technology and the Environment (MOSTE)
- Vietnam National University, Hanoi



*Making the Most of the Coast*

**Plan for Developing the Full Proposal  
for a Challenge Program**

31 August 2002

## **Development Plan**

The preparation of the full proposal will involve completing the consultation process initiated during the pre-proposal stage. Seven activities are required to develop the full proposal. A brief description of each activity is set out below.

### **Activity 1 – Formation of the Technical Working Groups**

The process of identifying and selecting members for each of the six Technical Working Groups will begin immediately after the submission of the pre-proposal. The agencies that expressed interest in contributing to development of full proposal will be invited to nominate appropriate scientists for membership of the technical working group(s) for the Research Project(s) of interest to them. Regional management agencies will also be invited to nominate members for each technical working group to ensure that the scientific hypotheses, and the proposed sites and arrangements for testing them, directly address the needs of resource managers and users. Each Technical Working Group will have at least two natural resource managers. Members will be asked to attend in their capacity as resource persons, not as 'official' representatives of their organizations, and to nominate a leader for the group.

### **Activity 2 - Workshops for the Technical Working Groups**

The members of each Technical Working Group will be asked to attend a workshop to develop the research agenda, budget and timeframe for their Research Project, including the aims, methods, sites, outputs, costings, logistics, etc. The workshops will be held simultaneously at ICLARM – The World Fish Center, and include opening and summary plenary sessions to maximize the cross-fertilization of ideas.

### **Activity 3 - Preparation of a consolidated research agenda**

The research agenda from each Technical Working Group will then be combined to form a cohesive research plan for the Program. This will incorporate a Logical Framework Analysis (Logframe) to summarize the purpose, expected outputs, indicators of success and assumptions for each Research Project. The consolidation of the research agenda will be done by a 'synthesis' group composed of the chairpersons of each Technical Working Group and representatives from key regional organizations and prospective donors.

### **Activity 4 - Workshop to final governance arrangements**

Senior representatives from the key partner agencies and key stakeholders will be invited to a workshop to finalize the proposed system for independent governance of the Program. The workshop will determine the roles and responsibilities of the various components of the proposed governance structure, decide how to select members of the Board and Steering Committee, and, based on the estimated costs of the research agenda, develop the business plan and identify funding mechanisms. This workshop will be held at ICLARM – The World Fish Center.

### **Activity 5 - Preparation of the draft full proposal**

The draft full proposal will be prepared by a consultant, supervised by ICLARM – The World Fish Center, and will combine the outputs from Activities 1 – 4 above. It will include: background and justification, identification of research required to address the needs of managers/users, research programs and outputs, partnerships arrangements, delivery mechanisms, potential outcomes, program cost and financing arrangements.

### **Activity 6 - Circulation of the draft full proposal**

The full draft proposal will then be circulated to partners and stakeholders for comments.

### Activity 7 - Finalization of the full proposal

The final full proposal will incorporate comments made on the draft and will be produced by ICLARM – The World Fish Center in consultation with key partners.

The proposed schedule for the seven activities is set out below.

Activity	2002		2003						
	S	O	N	D	J	F	M	A	
1. Formation of technical working groups	■		■						
2. Workshops for technical working groups				■					
3. Preparation of a consolidated research agenda					■				
4. Workshop for the management group					■				
5. Preparation of the draft full proposal						■			
6. Circulation of the draft full proposal						■		■	
7. Finalization of the full proposal								■	

### Preparation cost and financing

The cost of developing a full proposal is estimated to be \$ 250,000. We anticipate that 80% of the budget will need to come from a CGIAR grant of \$ 200,000, and the remaining 20% from donors and key partners. Two partners have already committed US \$20,000. Another 16 partners have also pledged 'in-kind' contributions in terms of staff time to attend workshops, and to write sections of the full proposal. We do not envisage any difficulties in raising the additional \$30,000 needed for development of the full proposal if we are successful in progressing to the next stage. A summary of the estimated budget (US\$) required for development of the full proposal, and expected sources of funds, is set out below.

Budget Item	CGIAR Grant	Other Contributions	Total
1. Workshop for Technical Working Groups: 48 participants @ \$ 1,500	50,000	22,000	72,000
2. Workshop to finalize governance arrangements: 15 participants @ \$ 1,500	15,000	7,500	22,500
3. Consultants: external facilitators for workshops and specialists to prepare the full proposal	70,000	20,500	90,500
4. Contingencies	20,000		20,000
5. Indirect costs	45,000		45,000
<b>Total</b>	<b>200,000</b>	<b>50,000</b>	<b>250,000</b>



## Pre-Proposal

# FORESTS AS RESOURCES FOR THE POOR: THE RAINFOREST CHALLENGE

**The Challenge** arises from two persistent, interlinked problems of overwhelming importance: rural poverty in the tropics and the continuing loss of unique forest ecosystems. The problems are dauntingly complex: the search for solutions must be linked to attain a workable mix of conservation and development at large spatial scales.

**The Opportunity** is to enhance the production systems and expand the diversity of livelihood options available to poor people in forest landscapes while maintaining environmental functions and conserving biodiversity.

**Background.** Most of the more than 500 million people who live within the humid tropical forest biome depend directly on a mixture of agriculture and forest resources for their livelihoods. A great majority are poor and vulnerable, and lack any effective political voice. They live in contexts where their natural resource base is rapidly deteriorating, either because of their own actions or, more frequently, as the result of the activities of powerful groups. The poor clearly need policies, markets, technologies, and infrastructure that help them improve their incomes and well-being. Unfortunately, many of the elements that can improve rural livelihoods in the humid tropics also tend to accelerate forest destruction.

Tropical forest biodiversity provides great benefits at both the global and local levels. But each year, about ten million hectares of natural forest habitat in the humid tropics are lost or degraded. Until now the efforts aimed at this problem have had limited effect. *Meeting the needs of poor rural people in a manner that allows society to conserve more biodiversity is undoubtedly one of humanity's most pressing challenges.*

Protected areas contain less than 10% of the world's tropical forest and governments are unlikely to expand them significantly. While protected areas clearly have a major role to play in any conservation strategy, considerable attention must be given to what happens to biodiversity in the 90% of tropical forests that are outside protected areas.<sup>1</sup>

**The need for a fresh approach.** Countless studies have documented the deficiencies of previous efforts to conserve biodiversity and improve livelihoods<sup>2</sup>, and the need to adopt new approaches to natural resource problems. The new generation of integrated resource management efforts has the advantage of decades of lessons from previous experiences, including not only the disappointing record of Integrated Conservation and Development Projects (**Annex 1**), but also Integrated Rural Development (IRD) and the successes and limitations of the CGIAR's own eco-regional initiatives.

In large part because of these lessons from generally disappointing experience, the World Bank, the Convention on Biological Diversity (CBD), and the Global Environmental Facility (GEF) have recently adopted policies that strongly commit them to new approaches to environmental problems. The CBD now is formally committed to implementing an ecosystem approach and the GEF has established its Operational Program 12 on ecosystem management to fund projects that use such an approach. Both the CBD and the GEF now attach greater attention to the 'enabling conditions' that are conducive to biodiversity conservation. The World Commission on Forests and Sustainable

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<sup>1</sup> Cunningham, A.B., Scherr, S.J. and McNeely, J. 2002. Matrix matters: Biodiversity Research for Rural Landscape Mosaics. Recommendations for a Joint CIFOR-ICRAF program. These authors based their recommendations on widespread consultation with leaders in the conservation community.

<sup>2</sup> McShane, T. and Wells, M.P. (in press) Getting Biodiversity Projects to Work: Towards More Effective Conservation and Development. New York: Columbia University Press.

Development advocates planning “*for the use and protection of whole landscapes, not the forest in isolation.*”

Within the CGIAR itself, the Centre Director’s Committee Task Force on Integrated Natural Resource Management (INRM) has made seminal contributions on these issues and identified promising solutions.<sup>3</sup> The Task Force reviewed much of the work on integrated approaches and concluded that the enormous amount of experience that has been gained now makes it possible to implement effective integrated and adaptive approaches that can overcome many of the short-comings of previous efforts. The Task Force’s contributions have greatly influenced the partners involved in the proposed Rainforest Challenge Program (CP) and much of the rationale for, and the science underlying, the present proposal can be found in its publications.<sup>4</sup>

WWF and IUCN, two of the world’s leading conservation organisations, have recently made strong commitments to restoration and the management of degraded or fragmented landscapes as a key element of their strategies to conserve biodiversity. This represents a major policy shift for organisations that have traditionally focussed on strictly protected parks and reserves.

**Towards a new way of doing business.** The partners involved in the proposed Rainforest CP have developed compelling *process principles and hypotheses* about why the first generation of integrated efforts gave such disappointing results and what now is needed to demonstrate success on a large scale. The CP seeks to implement integrated and adaptive approaches in representative locations based on those principles and hypotheses. We believe a *bold approach is necessary which will require, simultaneously:*

- *Multiple scales of analysis and action*
- *New organisational forms and incentive systems for implementing partners*
- *Drastic measures to empower weaker stakeholders*
- *New understanding of landscape processes and systems resilience*
- *Confrontation of the reality that win-win for livelihoods and the environment may be rare*
- *Development of a strong agricultural base for economically-sustainable forest landscape mosaics*
- *Creative means of compensating the poor for opportunities lost through biodiversity conservation*
- *Careful consideration of how social and political change influences the success of different interventions and management practices*
- *Practical methods of harnessing landscape restoration for poverty reduction*
- *Active learning by all partners*

The CP has harnessed the energies of a unique set of partners, that brings together two of the world’s pre-eminent international environmental NGOs (IUCN and WWF), and their developing country affiliates, a number of international research centres with expertise in the humid tropics, and a variety of government agencies, NGOs, farmer/forest organizations, and universities from developing countries. Together these institutions bring to bear a strong capacity for field level implementation, strategic research, policy dialogue, and effective communications; the main elements that will ensure that this CP achieves substantial impact. Working together, these partners are quite capable of designing and implementing a user-driven learning process that can meet this major challenge.

<sup>3</sup> The Task Force was established in response to the recommendations of a CGIAR external review led by Maurice Strong.

<sup>4</sup> The Task Force has widely disseminated its results through reports to the CGIAR, a *Conservation Ecology* Special Issue and a synthesis book (Sayer, J.A and Campbell, B.M. 2003 (in press). *Local Livelihoods and the Global Environment – Towards a Science for Sustainability*, Cambridge University Press).

## 1 The Research and Development Program

### 1.1 Program Goals and Objectives

**Goal:** To enhance the productivity, sustainability, and diversity of landscape mosaics<sup>5</sup> in the humid tropics that meets the needs of the rural poor whilst maintaining the flow of environmental goods and services, and conserving forest biodiversity.

#### Objectives

- *To generate knowledge, develop technologies, and validate strategies that empower poor people to better negotiate, secure access to, and use forest resources.*
- *To bridge the gap between science and policy in the formulation and implementation of land use programs in pursuit of Agenda 21 commitments and Millennium Development Targets.*
- *To reconcile local and global needs as they pertain to environmental services.*

### 1.2 The Core Hypotheses

*Taken together, and in concert with the process principles (Section 1.3), these eight over-arching hypotheses give this CP its innovative character. Each hypothesis and principle is important in its own right in suggesting appropriate technologies, processes or policies. Of even greater importance are the interactions amongst a suite of such technologies, processes and policies.*

***H1. Landscape Synergy Hypothesis.*** *Landscape diversification can enhance environmental functions and biodiversity, while accommodating gains from specialization of production at the plot level.*

This hypothesis covers one of the eight ‘Grand Challenges in Environmental Sciences’, related to developing and testing techniques for managing landscapes for biodiversity, environmental functions and the immediate needs of people.<sup>6</sup> The extent and distribution of different forest types within *multifunctional landscapes*, and how they and the associated agricultural parcels are managed, will affect biodiversity and environmental services. There are special scientific challenges associated with the management of such landscapes.<sup>7</sup> Economic logic and empirical evidence suggests that most production systems will move towards higher degrees of specialization at the plot level. Forest conservation and development strategies must be based on this reality.

***H2. Multi-scale Intervention Hypothesis*** *The combination and sequence of interventions at various scales and their interactions across scales profoundly influence productivity, sustainability, and biodiversity at the landscape level.*

One major limitation of previous conservation and development initiatives was that they limited their activities to the local level, without devoting resources to influence key non-local issues or even recognizing the role of gross imbalances in wealth and political power at the national level in shaping local outcomes. Recent reviews hypothesize that multiple scales of analysis and intervention are required in order to influence development trajectories.<sup>8</sup> Each type of natural resource may have a typical scale at which it can be meaningfully managed, depending on the patterns of lateral flow relative to the local stocks of the resource. This scale depends not only on the resource, but also on the situation. Furthermore, there are major scientific challenges in understanding and influencing the

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<sup>5</sup> A landscape is a contiguous area, intermediate in size between a single community and an ecoregion, with a specific set of ecological, cultural and socio-economic characteristics.

<sup>6</sup> National Research Council. 2001. *Grand Challenges in Environmental Science*. National Academy Press, Washington (based on ideas solicited from thousands of scientists worldwide to identify high-priority environmental science projects in areas of opportunity that could yield significant new findings)

<sup>7</sup> van Noordwijk, M., T. P. Tomich, and B. Verbist. 2001. Negotiation support models for integrated natural resource management in tropical forest margins. *Conservation Ecology* 5(2): 21. [online] URL:

<http://www.consecol.org/vol5/iss2/art21>

<sup>8</sup> van Noordwijk, M., T. P. Tomich, and B. Verbist. *Ibid.*

social and political processes across multiple scales that will be needed to achieve an equitable balance of desired outcomes. In addition, what may be appropriate at one scale may not be appropriate at another. The optimum combination and sequence of interventions at various scales is unknown, and the sequence that is feasible politically will differ from place to place.

**H3. Local Rights Hypothesis.** *Clear property rights and secure tenure for poor people are necessary preconditions for negotiations to successfully and equitably balance local and global needs.*

Many analysts claim that empowering local communities or other local stakeholders will lead to more effective development *and* conservation.<sup>9</sup> One hypothesis is that clear secure local property rights and resource access for the rural poor are necessary for equitable outcomes that address their needs. In particular, empowerment that comes from these property rights creates the incentives and conditions for local people to participate in negotiations regarding tradeoffs. These views are anathema to others, as illustrated by the resurgent ‘protection paradigm’ in conservation.<sup>10</sup> Another of the grand challenges in environmental science involves identifying the performance attributes of the full range of institutions governing resources, from local to global levels.<sup>11</sup> The proposed network of benchmark sites and action research will provide an excellent means to test this and related hypotheses.

**H4. Trade-offs Hypothesis.** *Science can be harnessed to provide active support to social processes of inclusive and transparent negotiations over tradeoffs in land use choices to achieve greater equity among stakeholders and better environmental outcomes.*

Tradeoffs amongst the objectives of various stakeholders in multi-functional landscapes are the rule rather than the exception. It needs to be recognized that there are winners and losers. The belief in win-win situations that has dominated the literature must be challenged.<sup>12</sup> Much work clearly needs to be done to identify and test promising new approaches for multi-stakeholder negotiations and *conflict management*. The implications of negotiations for disadvantaged groups of people are seldom critically examined.<sup>13</sup> We suggest that negotiations that are explicit about the conditions affecting disadvantaged groups and that emphasize politically-informed behaviour and selective alliance-building promise better outcomes for disadvantaged groups. The Challenge Programme will identify, validate, and disseminate negotiation principles that will achieve greater equity among stakeholders.

**H5. Environmental Payments Hypothesis.** *In order to satisfy basic livelihood needs, the only feasible land use options open to many local people will result in the clearance or degradation of forest. To change that will often require interventions such as environmental service payments.*

The global values of intact tropical forests are ‘indisputable’ - it is estimated that each year's loss of natural habitat from practices such as logging and farming costs around \$250 billion in each subsequent year.<sup>14</sup> However, there are no simple steps to maintain these environmental services. In many circumstances, real, tangible compensation will be required for the poor households/communities to give up certain types of activities in order to conserve biodiversity or maintain environmental functions. IUCN has initiated discussions with financial institutions to broker deals between investors and local communities that are involved in landscape restoration. The project team will utilize such opportunities to explore how innovative financing mechanisms (e.g. payments,

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<sup>9</sup> Wily, L. 1999. Moving forward in African community forestry: Trading power, not use rights. *Society and Natural Resources* 12: 49-61.

<sup>10</sup> Wilshusen et al., 2002. Reinventing a square wheel: critique of a resurgent ‘protection paradigm’ in international biodiversity conservation. *Society and Natural Resources* 15: 17-40

<sup>11</sup> National Research Council. 2001. *ibid*.

<sup>12</sup> Angelsen, A. and Wunder, S. 2001. Exploring the poverty - forest link: key concepts, issues and research implications. Paper in preparation, CIFOR, Bogor. Lee, D. and Barrett, C., 2001. Tradeoffs or Synergies? Agricultural Intensification, Economic Development and the Environment. CAB-International, Wallingford, esp. Chapters 11, 12, 13.

<sup>13</sup> D. Edmunds, E. Wollenberg. 2001. A Strategic Approach to Multistakeholder Negotiations. *Development and Change* 32, 231 - 253.

<sup>14</sup> Balmford, A. et al. Economic reasons for conserving wild nature. *Science*, 297, 950 - 953, (2002).

tradable rights) for biodiversity conservation, carbon storage, and other ecosystem services can contribute to equitable and sustainable livelihood and production systems.

**H6. Production Resilience Hypothesis.** *Landscape diversification enhances resilience to multiple and interacting stresses (e.g. climate change, major economic shocks, fires, disease).*

Likely rapid simultaneous changes in social and environmental systems could have massive impacts on biodiversity and the poor. A number of the core research questions recently identified by the Sustainability Forum concern the resilience or adaptive capacity of socio-ecological systems.<sup>15</sup> We need to identify what determines the vulnerability of production systems and landscape mosaics in particular contexts, and how to enhance their resilience.

**H7. Social Transformation Hypothesis.** *Because of aggregate progress to reduce poverty, reliance on land and forest resources to meet basic human needs will peak in the next generation and then gradually decline across the tropics.*

Demographic transition and structural transformation are important conditioning factors for the feasibility of specific options to reconcile forest conservation and development.<sup>16</sup> In particular, we hypothesize that labour market conditions – whether the rural labour force is expanding or contracting and whether rural wages are rising or falling – have a major impact on the feasibility of different strategies and production systems. Knowing where the larger economic system is in relation to transformation will be crucial in proposing a suite of possible interventions at any particular site.

**H8. Asset Creation through Restoration Hypothesis.** *Landscape restoration is a key opportunity to expand production and fight poverty without accelerating deforestation.*

Sustainable productivity growth and resource use are central to this hypothesis. Although the countries concerned have vastly different social, political and economic circumstances, the tropical forest biome has many common biophysical features and patterns. There also is a shared legacy of neglect of smallholder production systems. Taken together, these features produce a distinctive combination of opportunities for sustainable productivity growth and challenges for natural resource management. Landscape-scale restoration of degraded areas holds particular opportunities as a poverty alleviation strategy, but because promising technologies may favour forest conversion, this should be combined with an effective strategy for forest protection.

### 1.3 The Process Principles – an approach to implementation

While there is much talk of integrated approaches (or sustainability science, ecosystem approaches etc.), the examples of appropriate action and success on the ground are few and far between. A core component of the CP will be to articulate and validate a minimum set of basic *implementation process principles* that are crucial to achieving better synergy between conservation and development activities in the humid tropics. The pro-forma principles listed below are drawn from a careful review of recent literature, conclusions of the main inter-governmental processes and the previous experiences of the Rainforest CP's partners. They are normative statements about what should be done differently compared with what has been done in the past (Annex 1). Although details of opportunities and implementation will differ from site to site, **Annex 2** offers an example from the partners' experience to provide a tangible illustration of how we expect the CP can work in practice.

The CP will operate through a nested set of partnerships similar to those described regarding the Krui case described in Annex 2 that bring together local groups with leading organisations in nature conservation, tropical agriculture and natural resource management at the local, national and global

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<sup>15</sup> Kates et al., 2001. Sustainability Science. *Science* 292: 641-642.

<sup>16</sup> Tomich, T.P., Kilby, P., and Johnston, B.F., 1995. Transforming Agrarian Economies: Opportunities Seized, Opportunities Missed. Cornell University Press, Ithaca, NY.

levels. A network of *benchmark* sites (initially 6-12) will be developed (**Annex 3**), where approaches to integrating conservation and development will be tested at the scale of landscape mosaics. These insights will be shared with a larger (and expanding) set of *associated* sites to accelerate learning and impact.

### **Principle 1. Local relevance**

Indigenous land use systems and practices, customary institutions, and (for better or worse) existing policies will be the point of departure for this collaborative effort. Local and national participation – and benefits – are key ingredients for success. Previous approaches have not given sufficient attention to local priorities, interests, and time frameworks. Effective efforts must take into account the needs of both local and non-local stakeholders. Income generating activities on *non-forested* parts of the landscape mosaic often will be among local peoples' most pressing needs. Sustainable growth in agriculture and the broader rural economy must be central to this process.

### **Principle 2. New forms of organization and partnership<sup>17</sup>**

New types of relationships among resource managers (farmers, foresters, fishers etc), policy makers, environmentalists, researchers, extension workers, and other relevant groups are required. Incentive systems for scientists will have to recognize the new roles required of them as facilitators and members of interdisciplinary teams with flexible, client-driven agendas. New kinds of organisations will need to evolve: *organizations that are better able to learn and adapt*. In the CP a *steering group of key stakeholders* will work with scientists to explore different development scenarios for the area. *Professional facilitation* will be used to guide this process. *Shared visions* will be built using participatory systems modeling. User-friendly *information management* systems will be developed with, for example, biophysical and socio-economic data overlaid on digital elevation models, and with attention paid to informal knowledge. Researchers and local stakeholders will negotiate *indicators of system performance*, covering both environmental and livelihood changes. Both scientists and resource managers will *learn by action*.

### **Principle 3. Multi-disciplinary teams**

We propose to address the problems by linking the competencies of different scientific disciplines with those of local resource managers and decision-makers in a large-scale adaptive management framework. This framework process will provide the context for the deployment of component research expertise from within the core competence of the CGIAR centers, NARS and ARIs.<sup>18</sup> Thus at each benchmark site there would be the flexibility and resources to bring in the scientific expertise needed for participatory diagnosis of emerging problems (e.g. particular pests and diseases) and participatory development of technologies (e.g. new plant varieties better adapted to changing local conditions).

### **Principle 4. Active learning and science-based management**

A growing literature suggests that under conditions of uncertainty and multiple interests, where information flow is limited, and where extension is inappropriate, collaborative processes of learning help people to adapt and find solutions to their problems.<sup>19</sup> All management interventions will be treated as experiments and research will focus on measuring/predicting the outcomes of real management interventions. Performance indicators and feedback will drive the process of adaptation. Scenario development will identify options and highlight the need to negotiate trade-offs. Scientists

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<sup>17</sup> Ashby, J. A. 2001. Integrating research on food and the environment: an exit strategy from the rational fool syndrome in agricultural science. *Conservation Ecology* 5(2): 20. [online] URL: <http://www.consecol.org/vol5/iss2/art20>

<sup>18</sup> NARS – National agricultural and forestry research systems; ARIs – Advanced research institutes

<sup>19</sup> Third World Academy of Sciences. 2002. *Lessons Learned from the International Workshop on Science, Technology and Sustainability: Harnessing Institutional Synergies*. Trieste: Third World Academy of Sciences and Initiative on Science and Technology for Sustainability. URL: <http://sustainabilityscience.org>

will add value through bringing awareness of how similar problems are being addressed elsewhere, and will contribute to developing the basket of possible interventions. Active learning will be at a number of levels – at the level of a site, at various scales; and at the level of the global network.<sup>20</sup>

#### **Principle 5. Multi-scale approach with landscape focus**

Mosaics of forest and agricultural land will be subject to protection, management and restoration, in order to achieve an acceptable balance between local and global benefits. Analysis and intervention will be conducted at multiple levels. (For an example of how this can work, see Annex 2.)

#### **Principle 6. Comparative insights**

This challenge will be met by focusing on 6-12 benchmark sites of global biodiversity importance with significant populations of poor people and cultivating a new type of collaborative relationship between the scientists and the resource managers. All sites will have different problems and characteristics but these basic principles will underpin the approach at all sites. This should quickly generate not only products that are useful for the specific sites but also options that can be rapidly replicated in new locations, and hence constitute global public goods.

#### **Principle 7. Scaling up**

Many impediments to scaling up have to be overcome in the design and initial stages of project development. Crucial is the selection of key partners on the various impact pathways, at a range of scales, as is proposed in this CP.<sup>21</sup> The enthusiastic response to the Rainforest Challenge concept has produced a list of candidate sites (Annex 3) and potential partners (Annex 4) that well exceeds capacity of the CP, at least initially. However, this also presents the possibility of developing innovative ‘boundaryless’ relationships with associate sites and through communities of practice that can accelerate mutual learning and scaling up of impacts.

#### **Principle 8. Global significance**

To ensure that the CP focuses on issues of global significance, and hence achieves its potential for wide impact, the ongoing inter-governmental processes (the environmental conventions signed at the Rio Earth Summit, the United Nations Forum on Forests, global poverty reduction agreements) will be monitored as a source of demand for research themes.

### **1.4 Outputs and Activities**

**Validated performance indicators.** At each benchmark site stakeholders will design and adapt a minimum set of performance indicators that will be monitored to ensure active learning within and across sites. These performance indicators, which will be derived from baseline studies and ongoing measurements, are fundamental to integrated assessment of tradeoffs. Many of the necessary indicators, protocols, methods, and datasets are available from publications of the ASB systemwide programme (<http://www.asb.cgiar.org>) and this Challenge Programme will build on ASB’s 8 years of operational experience.

**Scenarios of the future.** Stakeholders will prepare visions of development trajectories, and identify the needs and constraints to achieve them. Scientists will use simulation models and qualitative techniques to explore future scenarios with stakeholders.

<sup>20</sup> CIFOR is currently studying the role and success of global and regional forest-related networks. This knowledge will be used to structure the proposed network.

<sup>21</sup> Lovell, C., A. Mandondo, and P. Moriarty. 2002. The question of scale in integrated natural resource management. *Conservation Ecology* 5(2): 25. [online] URL: <http://www.consecol.org/vol5/iss2/art25>.

**Strategies to balance conservation and development.** Scientifically-validated and socially-tested strategies for balancing conservation, development, and natural resource management objectives will be articulated.

**Improved management systems for forest-agriculture mosaics.** Improved conservation and development options will be identified through participatory testing, adaptation, and evaluation of landuse practices, production technologies, institutional innovations, and policy instruments. As an illustration of the range of options, this will include, for example, mechanisms to compensate local people for foregone opportunities, attractive opportunities for poor rural households to increase their income and food security, means of managing forests for greater benefits.

**Participatory methods/approaches and negotiation support tools.** Action research at benchmark sites will identify and test workable mechanisms for efficient and effective participation of multiple groups of stakeholders that have differing (often conflicting) interests in environmental and developmental outcomes. Vision-based planning methods will be tested and validated. Innovative negotiation support tools will be developed for use by a range of stakeholders to tackle the challenges of adaptive environmental management, with particular emphasis on biophysical indicators, social interaction, and political processes at the landscape/watershed scale. Participatory assessment mechanisms using performance indicators will be investigated.

**Organisational innovations.** Models and options for the reconfiguration of relationships between research providers (NARS, ARIs, NGOs and CGIAR centres), extensionists, resource managers (farmers, foresters, fishers etc) and civil society to improve capacity to manage natural resources in an integrated and adaptive manner will be evaluated and promoted. Ongoing process documentation and evaluation will improve organizational efficiency within the program, thereby avoiding heavy transaction costs and capturing strategic insights relevant to other CPs.

**Local and national consensus and capacity.** Sustainable capacity to assess, negotiate, and manage forest conservation-development tradeoffs will be built through South-South exchange, international collaboration and training, better access to information through modern technologies, and other investments for local communities, policymakers, civil society organizations, NARS, and national environmental and nature conservation organizations.

**Dissemination pathways for pantropic impact.** Strategic understanding of mechanisms that can accelerate the adoption (and further adaptation) of improved development options in concert with effective, locally-responsive conservation strategies will be sought.

## **1.5 Sites – linking with partners**

The initial focus of learning and action will be the Tropical and Subtropical Moist Broadleaf Forest Biome. The forest-agricultural landscapes of the Amazon, West and Central Africa, montane Mainland Southeast Asia and Sumatra, Borneo, and Mindanao in Insular Southeast Asia are some of the major areas in the biome. The benchmark sites will be areas where large numbers of poor people's livelihoods depend significantly on the restoration or maintenance of forests as part of a multi-functional forest-agricultural landscape. IUCN and WWF are engaged in a major program on Forest Landscape Restoration and this will be implemented in ways that complement the Challenge Program. In particular WWF is engaged in a Target Driven Program to raise funds to implement Forest Landscape Restoration at 20 critical biodiversity sites. Several of these will be Challenge Programme benchmark sites and there is great potential for synergy. Most of the CP sites will fall within the 38 forest ecoregions that are the focus of WWF's global forest work. A number of partners involved in this CP, including both Embrapa and CIAT, also have been active in development of the Amazon Initiative. The Amazonian benchmark sites of the Rainforest CP will be selected to complement the work of the Amazon Initiative.

## 1.6 Powerful partnerships

Each of the four lead institutions in the CP operates at the hub of a powerful network. **IUCN** has 800 NGO and 70 State members, many of them actively involved in tropical forest conservation. Its membership, commissions and theme programs establish it as the world's principal non-governmental forum for building consensus on conservation and development issues. **WWF** is the world's largest conservation foundation with an annual budget of over \$400 million, national fundraising affiliates in 30 countries and programs in most tropical countries. It is well connected with the corporate sector. At present it is operating 360 tropical forest conservation projects in the field. It also has a powerful public awareness and advocacy capacity. Both IUCN and WWF are active and influential in all the international environmental conventions and processes.

**CIFOR**'s main operational partners are forestry research and policy institutes. Its clients are forestry departments and the numerous NGOs and development assistance projects dealing with poverty, and social and community forestry. Its focus is on sustainable forest management and it has major influence on the industrial forestry sector.

**ICRAF**'s network is centred more on agricultural research institutes and farmers' organisations – it is very influential on the agricultural side of the forest margins. ICRAF is the host institution of the Alternatives to Slash-and-Burn Systemwide Program (**ASB**). ASB is a multi-level, global consortium with participation of over 50 organisations, including 6 national systems (NARS) and 6 other national agencies; more than 11 local and national NGOs; 11 universities in developing countries; 6 international agricultural research centers (including CIFOR, CIAT, IITA, and ICRAF); and a growing number of ARIs. ASB's mission is to identify options to raise productivity and income of rural households without increasing deforestation or undermining essential environmental services. The CGIAR's (2000) 'First Review of Systemwide Programs with an Ecoregional Approach' concluded that ASB '...has gone further than the others in relating its research sites to the whole area over which the problem occurs, and in scaling up to the global level in its findings on tradeoffs.'

The four organisations span the full spectrum of capacities required to address the present crisis of reconciling global biodiversity and local livelihood interests. The macro-economic and policy research strengths of CIFOR and ICRAF are complemented by the policy advocacy capacities of WWF and IUCN. The strong links with on-the-ground conservation programs of IUCN and WWF are matched by ICRAF and CIFOR's strong links with the national research institutes and NGOs conducting action research.

The consortium will be able to draw upon existing working collaboration between WWF and IUCN and international organisations with strong local development capacity such as CARE, plus a multitude of local NGOs operating local development projects. CIFOR and ICRAF bring strong existing partnerships with a number of advanced research organisations such as the Smithsonian Tropical Research Institute, the Tropenbos Foundation, Resilience Alliance and numerous universities and governmental research institutes in the developed world.

The lead partners have existing agreements enabling them to work in the developing countries that are the focus of the CP. The majority of the staff of all four organisations are located in developing countries.

Effective operational collaboration between large complex organisations can create excessive transaction costs and can result in little more than expressions of good intent from the upper echelons of head offices. A strength of the CP is that the locus of collaboration will be the field sites where the problems are located. The needs and capacities at each benchmark site will drive the precise composition of the operational consortia. We recognise that the incremental value of adding new partners to each local team must be greater than the incremental cost of doing so. Teams at each benchmark site will be as lean and focussed as possible and will be strongly driven by local needs.

The challenge is not to maximise the number of partners but rather to optimise the mix of partners to cover key aspects of the problems and key dissemination pathways.

**Other potential partners** (see **Annex 4** for a detailed list)

- *The Amazon Initiative, led by Embrapa and CIAT*
- *The Congo Basin Partnership*
- *Rewarding the Upland Poor for Environmental Services (RUPES) project, South-East Asia*
- *CARE*
- *Over 30 other advanced research institutions, international organizations, and consortia*
- *National systems and/or their national nature conservation counterparts in at least 6 countries (Brazil, Cameroon, Indonesia, Peru, Philippines, Thailand)*
- *At least 18 local and national NGOs and other national agencies and universities have confirmed interest. Consultations have been initiated with another 16 institutions in developing countries, with confirmation pending additional local and national consultations for development of the full proposal. Overall, these span 13 developing countries (Bolivia, Brazil, Cameroon, Guyana, Indonesia, Kenya, Madagascar, Peru, Philippines, Tanzania, Thailand, Uganda, Vietnam).*
- *At least two other Future Harvest centres (CIAT, IITA)*

## **2 Relevance to CGIAR goals and potential for impact**

### **2.1 The Challenges – relevance to the CGIAR**

This CP has been designed to bridge three major gaps that lie at the heart of the CGIAR's goal of sustainable agricultural development based on environmentally sound management of natural resources. *Bridging the gap between efforts of conservation and development organizations*, both internationally and within developing countries, is the defining feature of this proposal. This gap has narrowed, and the emerging prospects for breakthroughs from joint efforts combining expertise in conservation with expertise in tropical agriculture and natural resource management is the core concept underlying the CP. Initially the CP will address conservation-development problems over a range of humid tropical ecosystems, but it will generate lessons that are broadly applicable to natural resource management in the tropics.

*Another gap to bridge is between science and policy*, specifically the need for scientific information on environment-development relationships that is useable and relevant to policymaking and to testing of superior conservation and development strategies. For example, little is known about the links among globally-important biodiversity, local production sustainability, and livelihoods of poor people. Moreover, there is little experience and understanding of workable interventions, which typically require development of integrated technological, institutional and policy innovations. This program will add significantly to knowledge of such links and interventions and will feed this information into adaptive management and policymaking processes. This CP will also contribute to better understanding by civil society of these problems and opportunities.

*Capacity building and collaboration are needed to bridge the gap between 'North' and 'South', both in the incidence of costs and benefits, but also in capacity to participate in the search for solutions.* The benefits of forest conservation are global and often do not reach the poorest of the poor, but costs of conservation are concentrated in the tropics. Capacity of many developing country organizations to participate in development of workable interventions is constrained by relatively poor access to information and funding. There is great demand among stakeholders in the tropics for capacity building that will enable them to rise to the challenges they now face in balancing environment and development objectives.

This is a *global environmental challenge* to sustainably use biodiversity, which is an issue of growing concern to people everywhere. Structure and function of these humid forests are similar across the tropics, but there is spectacular variation in species composition, even across small distances. In a

class by themselves as the richest terrestrial vegetation by far, conversion of these forests leads to the greatest species loss per unit area of any land cover change. Figures are extremely controversial, but recent estimates indicate an average loss of  $5.8 \pm 1.4$  million hectares of humid tropical forest per year, with a further  $2.3 \pm 0.7$  million hectares of forest visibly degraded.<sup>22</sup>

This equally is a *global human development challenge*, addressed at the poverty, insecurity, lack of political voice, and limited livelihood options experienced by poor people in the developing world. Approximately 500 million people live within the tropical forest biome. Most are poor households directly dependent on forest resources and agriculture for their livelihoods. Other poor households suffer indirectly from waste of these resources and environmental degradation. Many actors – government agencies and private companies, large as well as small-scale farmers, rich as well as poor – convert forests to other uses; the rich and powerful are among the main beneficiaries of policies that waste forest resources. Policy and institutional reform to improve management and equitable access to natural resources is a necessary step with high potential social payoffs.

*This challenge cuts across all the major thrusts of the CGIAR* – increasing productivity and sustainability, saving biodiversity, improving policies, and strengthening national partners. However, the challenge also goes beyond the capacity and expertise of the CGIAR and its conventional partners. Thus it is an *organizational challenge* that must be built on new, mutually-beneficial partnerships and on active learning to enhance efficiency of collaborative links. The CPs have the potential to have high transaction costs. Through careful use of the subsidiarity principle, web-based communication, recognition of tacit knowledge and of the importance of facilitators, we believe that the benefits of a complex partnership will far outweigh the costs.

TAC (2001) recommended that the CGIAR should concentrate on NRM research that contributes to productivity enhancement and sustainability of natural resources for production of crop, livestock, forest and fish outputs that have impacts on poverty reduction and food security, giving appropriate consideration to inter-generational equity of benefits.<sup>23</sup> This CP will respond to this recommendation. The central thrust of this CP is on society's capacity to guide development trajectories of landscape mosaics in the humid tropics. These mosaics incorporate various production activities, and include protected areas. Collinson (2001) suggests a new configuration of organisations and a new *modus operandi* to get effective applied research.<sup>24</sup> For example, he suggests locally deployed farming systems teams using participatory techniques, as an effective interface to improve both the relevance of applied research programs by NARS and CGIAR centres, and the mobilisation of their products. This CP goes well beyond these ideas. The component research relevant to particular problems (to be conducted by NARS, ARIs and CGIAR centres) will be set in the context of multi-functional landscapes and the multiple stakeholders (at various levels) that influence development trajectories.

## 2.2 Potential for impact

At the Rio Earth Summit in 1992 Governments committed themselves to a number of binding environmental agreements and to design a work program for the implementation of a set of voluntary Forest Principles. Ten years on the Convention of Biological Diversity has a strong program of work on forest biodiversity and the over 300 proposals for action have been negotiated through the Intergovernmental Panel on Forests (IPF) and Intergovernmental Forum on Forests (IFF). Unfortunately, there has been little attempt to translate this general consensus into action. More recent international commitments that provide a sharper focus on the immediate challenge of poverty alleviation, notably the Millennium Development Goals, also recognise the importance of environmental sustainability and indeed the specific indicators used to track progress towards the

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<sup>22</sup> Achard, F. et al. 2002 Determination of deforestation rates of the world's humid tropical forests. *Science* 297, 999.

<sup>23</sup> Technical Advisory Committee 2001. NRM Research in the CGIAR: A Framework for Program Design and Evaluation. TAC Secretariat, Consultative Group On International Agricultural Research, Food and Agriculture Organization of the United Nations.

<sup>24</sup> Collinson, M. 2001. Institutional and professional obstacles to a more effective research process for smallholder agriculture. *Agricultural Systems*. 69: 27-36.

goals underscore the importance of forest resources and the protection of biological diversity within the poverty agenda.

This CP offers an opportunity to assist governments and civil society to break the implementation hiatus by offering real and well-understood examples of how international sustainable development commitments can be translated into action to produce tangible, positive impact on poor people's livelihoods.

WWF and IUCN, and to a lesser degree CIFOR and ICRAF, are highly experienced advocates within all of the key international environmental dialogues. The forthcoming five years will present **immediate opportunities** to disseminate experience from the CP sites to Parties of these conventions and fora, and therefore to set in motion the widespread adoption and uptake of ideas that can be implemented throughout the humid tropics and beyond. For example the 7<sup>th</sup> meeting of the Conference of the Parties (COP) of the CBD (2004) will consider progress on the implementation of the ecosystem approach while the 8<sup>th</sup> COP will focus primarily on ecosystem restoration for human and environmental benefits.

Specific *impacts* that we plan to achieve over the longer term include:

- *Adoption by governments and civil society of approaches pioneered in the Rainforest Challenge sites for reconciling poverty alleviation and biodiversity conservation.*
- *The revision of land-use legislation, policies and incentive schemes to promote environmentally sustainable, pro-poor programs.*
- *Enhanced production and income-earning opportunities for the rural poor based on sustainable use of biological resources and management of forests, soils, and water.*
- *Significantly easier access for the rural poor to new emerging markets for local, national and global environmental services.*
- *Tangible improvements in governance as it pertains to natural resources with the active and meaningful participation of local civil society.*
- *Traditionally disadvantaged stakeholders empowered to assess, negotiate, and manage forest conservation-development tradeoffs and complementarities, building on their own knowledge and practices, and blending them with new ideas.*

### 2.3 Global public goods (GPGs)

This CP will deliver significant global public goods in the form of **new knowledge**, especially concerning core processes of landscape use and management, linkages among biodiversity, sustainability, and profitability, approaches for making significant impacts on development trajectories, approaches for ensuring local action on global agreements, and meta-data for key eco-regions. Such knowledge will make key intellectual contributions in several areas important to achieving the CGIAR goals of poverty alleviation, food security and environmental sustainability. Through partnership, site analysis and intervention can be in-depth, while knowledge of global importance can be drawn from the network of benchmark sites and associated sites. For greatest impact and to cover the local-global continuum, a range of flexible partnerships of the types proposed here is fundamental to success.

The CP will also contribute to the development of fair and easily accessible markets and other compensation schemes for GPGs such as **carbon storage** and **biodiversity conservation**. The CP will address the pressing need for local stakeholders to better understand and manage the risk involved with emerging compensation mechanisms and to discriminate as to where the real opportunities lie. The CP will also help governments and other decision makers better identify which compensation mechanisms, such as tradable rights, environmental service payments, etc, are more likely to succeed and under what conditions.

## 2.4 Mechanisms for delivery and dissemination of outputs

The key dissemination pathways will be centred on global players in the development and conservation movement, national policy makers and their advisors, the elements of civil society that influence these national policy makers, the national research and extension system, local players in the conservation and development arena, and local communities themselves. One of the process principles we will examine concerns scaling up.

The very extensive country programs and membership networks of IUCN/WWF provide a unique opportunity for rapid dissemination and uptake. WWF expects the learning from the CP to have a major influence on its field projects and communications programs. IUCN's network of government agency members, NGO members, commissions, and scientists could adopt and further disseminate the lessons of the CP.

The CP would also benefit from the very considerable communications capacity of these two organisations in popularising the lessons learnt for a general audience. IUCN and WWF have already engaged a communications specialist to work on this theme. A range of media and dissemination pathways will be used, tailored to local, national, regional, and global target groups, including the private sector, international organisations, and global fora. The communications channels of the international and national research centres also will be important vehicles for disseminating information on innovative outcomes.

Many of the lessons learnt from this CP would be highly relevant to the work programs of the major international environmental conventions and processes, providing much-needed impetus to translate existing commitments into tangible action on the ground, most notably with respect to the ecosystem approach. WWF (including the WWF-World Bank forest alliance) and IUCN already invest heavily in influencing the Conferences of the Parties to the environmental conventions and the UNFF<sup>25</sup> and CIFOR, ICRAF and IUCN are all members of the Collaborative Partnership on Forests, giving them direct, high-level access to decision-makers in multilateral and intergovernmental organisations.

Participatory research and development, through an enabling framework of institutions and working relationships (including action research), will create the opportunities for farmers and communities themselves to experiment and select options from the basket of possibilities. The extensive networks of NARS who will work in this CP will all be potential beneficiaries of the lessons from the CP. As already noted, the response during development of the Rainforest Challenge concept and pre-proposal has yielded many more candidate sites that can be accommodated initially among the 6-12 *benchmark* sites that are envisioned. Aside from the task of developing and applying the criteria (Annex 3) for benchmark site selection, we also have the opportunity to explore innovative arrangements for *associate* sites to leverage information exchange, learning, and delivery and dissemination of outputs. The map of candidate sites in Annex 3 suggests a variety of possibilities for regional clusters of associate sites and CP benchmark sites. However, this (unforeseen) opportunity has not yet been discussed with potential partners and it is likely a variety of modalities will be identified and considered during development of a full proposal for a Challenge Programme.

## 2.5 Complementarities and synergies with other CPs

Some other proposed CPs (Agrobiodiversity, Coastal Zones, Desertification, and Food and Water) have adopted the principles of the Integrated Natural Resource Management (INRM) community, as this represents 'a new way of doing business.'<sup>26</sup> The Agrobiodiversity CP proposal may have the most

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<sup>25</sup> The United Nations Forum on Forests (UNFF) – will meet annually over the next four years to review strategic global forest issues. Almost every significant forest country participates.

<sup>26</sup> Sayer, J. A. and B. Campbell. 2001. Research to integrate productivity enhancement, environmental protection, and human development. *Conservation Ecology* 15(2): 32. [online] URL: <http://www.consecol.org/vol15/iss2/art32>; INRM is also very similar to the 'ecosystem approach' mentioned in some of the Challenge Programs.

in common with the Rainforest Challenge conceptually, but it covers the whole spectrum of ecological zones from humid to semi-arid and focuses on management of biodiversity on farm and in agricultural landscapes. The Rainforest Challenge is the only CP concept that focuses on forest-agriculture mosaics in the tropical forest biome, including conservation of elements of that natural system. As with Agrobiodiversity, there are some specific overlaps (and hence complementarities and possibilities for collaboration) with the mitigation activities put forward in the Climate Change CP.

Once underway, it will be important to ensure that lessons learnt in the various CPs are shared. Some other CPs also have adopted a landscape approach, but this is a relatively new concept, currently used by very few CGIAR centers. It has been an integral part of ASB's approach, and CIFOR's work in Bulungan, Indonesia, and Southern Zimbabwe. WWF and IUCN have adopted landscape restoration as one of their major foci. The Resilience Alliance is at the cutting edge of landscape science. We would propose to establish a community of practice on landscape approaches so that lessons learnt can be shared rapidly with partners and other CPs.

### **3 Governance and Development of the Pre-Proposal**

#### **3.1 Governance**

The proposed CP will be constituted as an independent, multilevel, international consortium. We use two principles in proposing these governance structures: firstly, that of *subsidiarity* in which there is a hierarchy of structures so as to maximize efficiency, ensure transparency and reduce transaction costs, and secondly, a *structure that engenders demand-led client-focused research*. There will initially be a Board of Trustees (BOT), an Executive Management Team, and Steering Committees at each benchmark site.

**Board of Trustees (BoT).** The terms of reference for the BoT will include: setting overall policy for the CP; ensuring that the CP is demand-led; appointing a Secretary to the Executive Management Team; appointing national partners to the Executive Management Team; reviewing the annual programs of work and budget; and, holding fiduciary responsibility for the federating/core funds.

BoT members will be appointed in their individual capacities. *BoT members will not be able to take part in the research*, thus separating policy and executive functions. BoT members will be expected to have the trust and respect of partners and stakeholders in the South. They will be notables in their fields and areas of experience. They should be the clients of our research findings, our lobbying efforts and our advocacy. There will be 10 members, with at least half from Southern countries, these being drawn in roughly equal proportions from the three continents of Africa, Asia, and South America. BoT members will reflect a mixture of client groups (e.g. farmer/forest organisations, southern NGOs, international NGOs, local government, national government, extension organizations). The BoT will meet at least once per year and the meetings will rotate amongst sites.

**Executive Management Team.** This will consist of eight members, representing: CIFOR, ICRAF (ASB), IUCN, WWF and four key southern implementing partners. Representatives will be appointed for three-year terms, with the possibility of one extension. Where there are two or more countries involved in a region, the position for that region will be rotated amongst the countries. A full-time Secretary (Co-ordinator) will be appointed to this team. Terms of reference for the team will include: implementing the policies and program of work and budget approved by the Board; providing cross-site co-ordination and ensuring complementarity and synergies are achieved amongst different sites and themes; managing crosscutting themes and working groups; mobilising resources; managing CP accounts; preparing reports to donors, the BoT and stakeholders; and, providing the secretariat for the BoT. As the CP grows, structures for managing cross cutting themes (e.g., working groups assessing key hypotheses) may need to be put in place.

**Site committees.** Each benchmark site will have a steering committee governing its activities. These committees will be configured to fit in with local organisational settings. The terms of reference for

these committees would include: developing a demand-driven research agenda for each site; ensuring effective information management; management of data bases; negotiating of performance indicators at each site; obtaining broad and representative participation of different interest groups; ensuring that measures to negotiate trade-offs and resolve conflicting interests amongst stakeholders at the site are in place; managing the core resources allocated to the site and supervising the implementation of the research agenda.

**Allocation of funding.** CP funds will be allocated by the BoT on the basis of recommendations by the Executive Management Team. A competitive grant system will be used to allocate those funds that are centrally administered to benchmark sites and themes.

### 3.2 Generation of the concept and the pre-proposal

**Concept.** This CP concept represents the convergence of several distinct initiatives. It crystallized in November 2001, when IUCN and WWF contacted two CGIAR centres (CIFOR and ICRAF) with a proposal for collaboration. The impetus for that contact arises from a major new WWF/IUCN initiative on Forest Landscape Restoration, which is one of three targets of WWF's Forests for Life Program and is prominent among the 'key results areas' approved by IUCN's General Assembly in late 2000. Earlier in November 2001, the Global Steering Group of ASB decided to investigate prospects for enhancing strategic partnerships and impact through a CP. The Global Steering Group is ASB's governing body, with representation of NARS (Brazil's Embrapa, Cameroon's IRAD, Indonesia's AARD, Peru's INIA, the Philippines' PCARRD, and Thailand's RFD), and international centers (CIAT, CIFOR, ICRAF, IFPRI, IITA, and TSBF). The ASB Global Steering Group has been consulted at each step of the process of generating the concept and this pre-proposal.

**Preparation of the pre-proposal:** When the concept note was approved by the Science Council, each of the four lead partners appointed a senior professional to a team that carried forward the pre-proposal development. This team prepared a preliminary draft of the pre-proposal in May 2002. Extensive consultations were held during June-August 2002 with the field-based partners of the core institutions, NARS and WWF field project staff and IUCN members to solicit comments and expressions of interest in joining the CP, which produced a **strong positive endorsement from practitioners in the field**. The concept was made available in English, French and Spanish and posted on websites. Drafts of the pre-proposal were circulated using an email listserve including over 100 NGO, NARS, ARIs and CGIAR colleagues at potential partner institutions. The development team met in August to revise the proposal on the basis of the abundant feedback received, and that new version was circulated once more using the email listserver. The email list was effective in stimulating comments from many potential partners regarding drafts of the pre-proposal. Email, however, is not the ideal medium for potential partners in many developing countries. It is recognized that significant additional consultations—especially face-to-face consultations at the local and national level—will be required for development of a full proposal and it is expected that these will lead to important changes across the elements of the proposed programme. We find it highly encouraging, however, that the email listserver elicited **strong messages of support from partners in the 'South' as well as the 'North'** (see **Annex 5** for an example). The concept and preproposal also were presented at a number of international meetings where potential partners were present, including an expert consultation held with stakeholders during the World Summit on Sustainable Development (WSSD) in Johannesburg on 28 August 2002. A number of suggestions on specific details of governance and partnership modalities arising from the WSSD consultation will be taken up during development of the full proposal. Also as part of the development of the pre-proposal, and other joint initiatives, ICRAF and CIFOR appointed Tony Cunningham (WWF), Sara Scherr (Forest Trends) and Jeff McNeely (IUCN) to review the big questions related to a CIFOR/ICRAF joint programme on biodiversity.

## 4 Resources, timing and development of the full proposal

### 4.1 Resources

In order to be selected for the CP, benchmark sites will need to represent areas of established national priorities for conservation and development; evidence of strong national commitment to supporting the CP mission at the locations will be sought. Sites will be the object of ongoing programs of the lead institutions or other major research and development partners. The sites will all be identified as priorities under international biodiversity programs and most will lie within the **Global 200 priority ecoregions of WWF**. Sites will have significant populations of poor people and thus are potential target areas for development assistance agencies. **CARE** has expressed interest in joining the consortium, and could provide some support for some of its sites that are included.

Most sites will lie within a subset of WWF priority ecoregions that have been selected for targeted fundraising under both the ecoregional programs and **the Target Driven Programs for species and forests**. WWF is actively seeking funds from its private, foundation, corporate and governmental sponsors for forest conservation work at all these sites. **IUCN** has members and/or field programs at most candidate sites and has ongoing fundraising efforts to support this work.

The lead partners in the CP have ongoing funded work at a number of candidate sites. Thus the **International Tropical Timber Organisation (ITTO)** is an active partner, and provides significant financial support for research on sustainable forest management at CIFOR's Bulungan research forest in East Kalimantan. The ITTO is also supporting CIFOR programs in the Congo Basin and is a potential partner for a site in this region. A Congo Basin benchmark site could also be eligible for financial support under the **Congo Basin Partnership – a Type II** partnership being launched at the WSSD in Johannesburg. A number of sites that have been supported under the **ASB** program will be candidates. One or more sites receiving long term support from the Dutch **Tropenbos Foundation** are potential candidate sites. The **Iwokrama** program in Guyana that has been supported by commonwealth countries and the European Union is a potential candidate site. One or more of the 'Pôles de Compétence en Partenariat' being established by **CIRAD** could be closely associated with the CP sites. A major funding application submitted to the **European 6<sup>th</sup> Research Framework** by a consortium of European research institutes entitled '**Forests and Trees in Multifunctional Landscapes**' could, if successful, generate considerable resources to support European scientists to work at the CP sites. Sites will all meet the criteria for funding from the **GEF** and would be particularly attractive for support under its **Operational Program 12** on integrated ecosystem management. All sites will meet criteria for prioritisation under the various international environmental instruments and processes and this should assist in fundraising. The **Resilience Alliance** is already investigating the possibility of working at a number of the sites, and would raise funds for its activities.

### 4.2 Duration and funding requirements

It is anticipated that this CP would steadily increase activity from USD 3-5 million in its first year to USD 15-20 million per year by its fourth year. Overall consortium federating funds will be 10-15% of these totals. The initial duration of the CP would be 7-10 years, with a mid-term evaluation anticipated in Year 3 and a final evaluation in the period 2010-2013. A plan for full proposal development (Phase III) in 2003 and funding request is attached (**Annex 6**). The total Phase III budget is estimated at USD 400,000, of which **USD 200,000 is requested from the CGIAR**.

## **Annex 1. The limitations of previous integrated approaches**

Governments, NGOs, and international agencies have implemented Integrated Conservation and Development Projects (ICDPs) for well over a decade, with mixed success. The many evaluations of these programs suggest that some of the main reasons for ICDPs' disappointing performance were:

- The projects failed to fully recognize the force and dynamism of the economic incentives driving forest destruction and the need to provide a combination of concrete economic incentives and locally enforced regulations to achieve changes in behaviour.
- The projects focused exclusively on the community or landscape level, without due consideration to the fact that many of the underlying causes of failure and enabling conditions for success were determined at the national, provincial, or even global level.
- The projects did not focus enough on land tenure issues, and the limited land tenure activities they did have over-emphasized fully protected areas rather than multi-functional areas designed to encourage the sustainable use of forest products.
- The projects often made incorrect assumptions about the main threats to biodiversity and about the ability of the project's activities to reduce the incentives for forest destruction.
- The projects failed to take a multi-functional approach to agriculture and forestry, which concentrates less on increasing the productivity of one single commodity in a given location and more on the total package of agricultural and forest products and environmental services that productive systems might provide.
- The project efforts outside the fully protected areas typically lacked clear and specific biodiversity objectives, to which the development activities were supposed to contribute.
- The projects under-estimated the level of conflict over access to natural resources in many areas and invested limited resources in addressing those conflicts.
- The projects invested insufficient resources in developing new technologies, institutional innovations, and markets that would allow them to reduce the trade-offs between conservation and development objectives.
- The projects attempted to implement a pre-determined set of activities based on log-frames produced largely by and for professionals from outside the project areas. Despite their practically universal claim of adopting a participatory approach, many of the projects lacked the flexibility and methods necessary to take into account local interests.
- The projects' research activities tended to be overly descriptive and diagnostic, instead of being designed to solve concrete problems posed by local and national stakeholders. Many project researchers mistook broad, general assessments or a characterization of a region or a system for an actual 'systems' or 'integrated' approach to multidimensional aspects of specific problems.
- The projects' staff and consultants remained too aloof from local stakeholders, undervalued local knowledge, and often felt more accountable to the agencies that fund them than to the needs and aspirations of the various local stakeholders. Ironically, that has actually made it more difficult for these projects to meet the objectives that the funding agencies set out for them.
- The projects did not do enough to develop the human resources needed to implement innovative natural resource management approaches at the local and national level. This was due in part to short-term project time horizons and overly traditional approaches to training and education.

## **Annex 2. The Krui agroforests: a prototype for the Rainforest Challenge**

The lands of the Krui people of Lampung Province in southwest Sumatra are a shining example of productive and sustainable agroforestry. In the valley bottoms, the Krui grow rice in permanent irrigated plots as their staple crop. In contrast, in the uplands they cultivate a succession of crops, building to a climax that mimics mature natural forest. The tall-growing timber species they plant include the damar tree (*Shorea javanica*), a source of valuable resin that provides a steady flow of income over the long term. The defining characteristic of the Krui system is its ability to deliver broad-based growth in which the poor can participate. Combining environmental and economic benefits, the Krui system offers considerable advantages over many other systems that replace or exploit natural forest.

In 1991 the Krui system came under threat as a direct consequence of Indonesian government policy. The Suharto government, which had a long history of appropriating traditionally managed land and re-allocating it to public or private ownership, declared large areas of the Krui agroforests to be State Forest Land—a classification that would allow logging followed by conversion to oil palm plantations. A forestry company was awarded the right to harvest an estimated 3 million trees—trees that had been planted by the local people.

The response was dramatic. The Krui stopped planting damar and other tree species, saying that they would not resume until they were certain they would be able to reap the benefits of their work. From both within and beyond the Krui lands came a chorus of disapproval, as environmental campaigners learned that a system renowned worldwide as a model of sustainable forest management might be lost forever.

Fortunately, a consortium of research institutions, NGOs, and universities was able to provide convincing scientific evidence on the social and environmental benefits of the Krui system precisely when it was needed. In this way the consortium was able to support these local communities in their efforts to obtain recognition by the central government, which had previously classified their lands as ‘empty’. The scientific evidence collected on the Krui system by the consortium was essential to legitimise the Krui system in the eyes of professional foresters and to refute arguments by vested interests intent on taking the land. Biodiversity assessments, silvicultural studies, and participatory mapping played valuable roles in documenting the system’s environmental and social benefits. The consortium conveyed requests to the government from village leaders for dialogue on the status of their land, arranged field visits for key government officials and organised a workshop to present research results and discuss the tenure issue. Throughout these discussions, local people expressed—clearly and forcefully—their hope that they would be able to pass down the damar agroforests to their ‘children’s children’.

The activities of the consortium were reported in detail to the Minister for Forestry, who signed a new decree in 1998 reversing the official position. This historic decree declared the Krui system to be a unique form of forest use, recognised the legitimacy of community-managed agroforests in Lampung Province and restored the rights of the Krui to harvest and market timber and other products from the trees they plant. Responsibility for managing the forest resource was explicitly devolved to local people. The decree is a powerful instrument for restoring social justice and promoting sustainable development. In the short term it benefits at least 7,000 families in the 32,000 hectares of reclassified Krui lands. This principle of local management could be extended to benefit hundreds of thousands of rural Indonesians in similar areas. Although it would not work everywhere, Indonesian NGOs have identified at least 50 other communities across the archipelago that have developed production systems comparable to the Krui case that would be ripe for replication of this approach to reform.

A number of the institutions that formed the Krui team—LATIN, Watala, IRD, ICRAF/ASB, and CIFOR—are potential partners in the Rainforest Challenge (see Annex 4).

### **Annex 3. Site selection criteria and potential candidate sites**

The CP will concentrate many of its activities on 6-12 representative *benchmark sites* in the humid tropics. These sites *generally* will have the following characteristics:

- Clear and acute trade-offs between conservation and development;
- Large numbers of poor people living in degraded and fragmented landscapes;
- Significant deforestation and natural resource degradation problems;
- Recognized global importance for biodiversity;
- Field level conservation and development activities already being implemented on the ground, preferably by one or more of the CP partners;
- Official commitment by national conservation and development agencies to using the sites as testing grounds to create new models for integrating conservation and development;
- Previous work by one or more CGIAR centres;
- Complementarities among sites in order to tackle the proposed hypotheses of global significance;
- Varying levels of the likelihood of success and failure of the different sites;
- A regional balance of sites among Africa, Asia, and Latin America, and
- Good prospects for sustained adequate levels of funding

Final selection of the initial benchmark sites for the CP will be made during preparation of the full proposal in 2003. Prior to that there will be an open call for proposals for candidate sites in which both the initial CP partners and other organizations can propose sites from the following list or they may propose other sites. The following list therefore is very tentative. But it already is clear that the candidate sites exceed the feasible number of benchmark sites. Some of these additional sites will be accommodated as *associate sites* as part of the dissemination strategy of the CP. These associate sites will be expected to raise the bulk of their own funding. (The WWF Global 200 Ecoregion corresponding to the sites appears in parentheses.)

#### **Indicative list of potential candidate sites**

##### **Amazon Basin and other South American humid forests**

- Acre\* or Rondonia\*, Western Brazilian Amazon (*Southwestern Amazonian moist forests*)
- Santa Cruz or Riberalta, Bolivian Amazon (*Southwestern Amazonian moist forests*)
- Para, Eastern Brazilian Amazon (n.a.)
- Iwokrama, Guyana (*Guianan moist forests*)
- Ucayali Valley\*, Peruvian Amazon (*Napo moist forests/Freshwater Amazon River and moist forests*)

##### **Congo Basin and other African humid forests**

- Southcentral Cameroon\* (*Western Congo Basin moist forests/Congolian coastal forests*)
- Northern Madagascar (*Madagascar forests and shrublands*)
- Ruwenzori Mountains, Uganda (*Albertine Rift montane forests*)
- Mount Elgon, Eastern Uganda and Western Kenya (n.a.)
- Cote d'Ivoire or Ghana, West Africa (*Guinean moist forests*)

##### **Insular Southeast Asia and Australasian humid forests**

- Bulungan, East Kalimantan, Indonesia (*Borneo lowland and montane forests*)
- Lampung\* or Jambi\*, Southern Sumatra, Indonesia (*Sumatran islands lowland and moist forest s*)
- Lore Lindu, Sulawesi, Indonesia (*Sulawesi moist forests*)
- Manupali\*, Mindanao, the Philippines (*Philippines moist forests*).

##### **Mainland Southeast Asian humid forests**

- Mae Chaem\*, Northern Thailand (*Kayah-Karen/Tenasserim moist forests*)
- North Vietnam (*North Indo-China sub-tropical moist forests*)
- Southwest China (*North Indo-China sub-tropical moist forests*)

\* *Benchmark sites of the Alternatives to Slash-and-Burn Systemwide Programme.*

# Rainforest Challenge Candidate Sites



Source: WWF Global 200 Ecoregions (WWF 2001)  
Author: K. Sebastian / IFPRI

■ Tropical and Subtropical Moist Broadleaf Forest Biome

● Candidate Sites

## **Annex 4. Potential partners in the Rainforest Challenge**

### **1 Proponents**

World Conservation Union (IUCN)  
Worldwide Fund for Nature (WWF)

### **2 Other ‘advanced research institutions’ (ARIs) and international organizations**

CARE  
Centre de Cooperation Internationale en Recherche Agronomique pour le Développement (CIRAD) France  
Centre for Biodiversity Management (CBM), Australia  
Cornell University, USA  
Forest Trends, USA  
Harvard University, Initiative on Science and Technology for Sustainability, USA  
Institut de Recherche pour le Développement (IRD), France  
International Institute for Environment and Development (IIED), UK  
International Tropical Timber Organization (ITTO)  
James Cook University, School of Tropical Biology, Australia  
Macaulay Institute, UK  
Missouri Botanical Garden, USA  
Resilience Alliance  
Smithsonian Tropical Research Institute, Panama\*  
Tropenbos International, the Netherlands  
Tropical Soil Biology and Fertility Programme (TSBF)  
United Nations Environment Programme (UNEP)  
University Catholique Louvain-la-Neuve, Department of Geography, Belgium  
University of California, Center for Sustainable Resource Development, Berkeley, USA  
University of California, Department of Agricultural and Resource Economics, Davis, USA  
University of Gottingen, Germany  
University of Florida, USA  
University of New Hampshire, Complex Systems Research Center, USA  
University of Wales, School of Agriculture and Forest Science, Bangor, UK  
University of Washington, USA  
Wageningen University, Forest and Nature Conservation Policy Group, the Netherlands  
World Conservation Monitoring Centre UNEP-WCMC, UK  
World Resources Institute (WRI)  
Yale University, School of Forestry and Environmental Studies, USA

### **3 National research systems (NARS) and nature conservation counterparts**

Agency for Agricultural Research and Development (AARD), Indonesia  
Bolivia Forestry Information System\*  
Empresa Brasileira de Pesquisa Agropecuária (Embrapa), Brazil  
Institut de Recherche Agricole pour le Développement (IRAD), Cameroon  
Institute for Environment and Natural Resources (IBAMA), Brazil\*  
Instituto de Pesquisa Ambiental da Amazonia (IPAM), Brazil\*  
Instituto Nacional de Investigación Agraria (INIA), Perú  
Instituto Nacional de Recursos Naturales (INRENA), Perú  
Intendente Technico Superintendencia Forestal, Bolivia\*  
Ministry of Environment and the Legal Amazon, Brazil\*  
Ministry of the Environment, Indonesia  
National Office for Forest Development (ONADEF), Cameroon\*  
National Service for Protected Areas, Bolivia\*  
Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD)  
Royal Forest Department (RFD), Thailand  
Secretariat for Amazonian Coordination (SCA), Brazil\*

#### **4 Local and national NGOs**

Association of Improved Agroforestry Seeds and Tree Producers (PROSEMA), Perú  
CARE Bolivia\*  
CARE Indonesia  
CARE Raks Thai  
Centro para la Investigacion y Promocion Agropecuaria, Bolivia\*  
Consortio de Desarrollo de Ucayali (CODESU), Perú  
Family of Nature and Environment Lovers–Lampung (Watala), Indonesia  
FASE Grupa, Brazil\*  
Fundacao Pro Natureza, Brazil\*  
Grupo de Pesquisa e Extensao em Sistemas Agroflorestais do Acre (PESACRE), Brazil\*  
IMAFLOA Manaus, Brazil\*  
Instituto de Homen e Meio Ambiente (IMAZON), Brazil\*  
Instituto para el Hombre Agricultura y Ecologia (IPHAE), Bolivia  
Indonesian Tropical Institute (LATIN), Indonesia  
LASAT\*  
National Commission on Amazonian Indigenous Communities, Brazil\*  
National Commission on Environment (CONAM), Perú  
Peruvian Amazon Research Institute (IIAP), Perú  
SNV Cobija, Bolivia  
Ucayali Rural Women Producers Association (AMUCAU), Perú

#### **5 Other national agencies and universities in developing countries**

Bogor Agricultural University (IPB), Indonesia  
Faculdade de Ciencias Agrarias do Para, Brazil  
Federal University of Acre (UFAC), Brazil\*  
Federal University of Para (UFPA), Brazil\*  
Instituto Nacional de Pesquisa Amazonica (INPA), Brazil\*  
Insitute of Ecology, Bolivia\*  
Limbe Botanical Garden, Cameroon\*  
Programa de Manejo de Bosques de Bolivia  
Regional School of Forestry (ERAIFT), DR Congo\*  
Universidad de Ucayali (UNU), Perú  
Universidad del Amazonia Perúana (UNAP), Perú  
Universidad Nacional Agraria de la Molina (UNALM), Perú  
Universidad Tecnica del Beni (UTB-Riberalta), Bolivia  
University of Yaounde, Cameroon\*

#### **6 International consortia**

Alternatives to Slash- and-Burn Systemwide Programme (ASB) hosted by ICRAF  
Amazon Initiative led by Embrapa and CIAT  
Central African Regional Program for the Environment (CARPE), Central Africa  
Congo Basin Partnership  
Millennium Ecosystem Assessment (MA) hosted by ICLARM  
Rewarding the Upland Poor for Environmental Services (RUPES) Project, Southeast Asia  
Tropical Forest People's Support Project (APFT)

#### **7 Future Harvest centres**

Center for International Forestry Research (CIFOR)  
Centro Internacional de Agricultura Tropical (CIAT)  
International Centre for Research in Agroforestry (ICRAF)  
International Institute of Tropical Agriculture (IITA)

\* confirmation pending further local and national consultations.

## **Annex 5. Feedback from local and national partners in developing countries**

The dissemination of ideas contained in the Rainforest Challenge was facilitated by translation of the original concept note into both Spanish and French, which were posted on ASB's website ([www.asb.cgiar.org/rc\\_spanish.shtm](http://www.asb.cgiar.org/rc_spanish.shtm); [www.asb.cgiar.org/rc\\_french.shtm](http://www.asb.cgiar.org/rc_french.shtm)). Throughout the preparation phase of this pre-proposal, the organizations leading its development have received enthusiastic feedback from various local and national partners in developing countries regarding the Rainforest Challenge concept and drafts of the pre-proposal.

Below is an excerpt from an e-mail message received from Oscar Llanque – Research Coordinator of the Bolivian Amazon Forest Management Program (*Programa de Manejo de Bosques de la Amazonia Boliviana*) – who strongly endorses the Rainforest Challenge initiative and expresses interest in participation on behalf of two additional local Bolivian organizations:

*“I want to suggest the importance to be considered as partners in the Rainforest Challenge Program two Bolivian organizations: Instituto para el Hombre, Agricultura y Ecología (IPHAE-Bolivia) and Universidad Tecnica del Beni (UTB-Riberalta). I just had a meeting with Armelinda Zonta, Director of IPHAE, and Guido Pardo, director of Carrera de Ingenieria forestal CIF UTB, and both agree about the significance to be part of this challenge...”*

*“ These two institutions are working very close related under the same objectives that are mentioned in the proposal. IPHAE is an NGO (with local activities and national influences) in the North Bolivian Amazon Region rural area with communities, and CIF UTB is working forming and training forestry professionals, and both with research, linking extension and education...”*

*“I am so happy to find in the CP a lot of important points of views related to the use and conservation of tropical rain forests that have extreme coincidence with the work that IPHAE and CIF UTB are doing in this region, particularly in the fight against the poverty with the use of the forest resources, goods and services at the same time of conserving them.”*

## Annex 6. Phase III plan for full proposal development and funding request

- *Interim management team appointed, comprising representatives of each of the four initiating partners plus four additional members to represent major regions of the tropics (the Amazon Basin, Congo Basin, Mainland SE Asia, and Insular SE Asia).*
- *This interim management team will initiate and guide the process of developing the full project proposal and will oversee proposal production.*
- *Proposal development will be modular, relying on leadership by regional working groups, theme working groups, and site steering committees.*
- *Theme background papers will be developed which flesh out the issues and receive input from researchers and development specialists at the potential sites.*
- *The interim management team will convene four sub-regional consultations at candidate sites to deepen involvement of local stakeholders and potential partners, and to discuss and extend the theme papers.*
- *Site steering committees and working groups will develop brief proposals (10 pp) for the initial research and management programs for candidate sites.*
- *Interim management committee will guide development of business plan and strategy for communication and fundraising.*
- *The interim management team will select 6-12 benchmark sites for the first phase following site selection criteria listed in Annex 3. Associate sites also may be designated.*
- *Planned activity matrix (themes vs. sites) will be developed through electronic consultation with potential partners.*
- *Full proposal, including proposed benchmark sites, associated sites, business plan, and funding strategy, will be submitted by interim management committee on behalf of the consortium.*

### **Phase III funding request (USD)**

Partial support for interim management committee operational costs		30.000
Facilitation, travel and subsistence costs for 4 sub-regional consultations		120.000
Professional services for business plan, fundraising and communication		50.000
	<i>Sub-total (request to CGIAR)</i>	<i>200.000</i>
Eight thematic papers		
Each for:		
Lead author budget	10.000	
Budget for local case studies	10.000	160.000
Production of booklet covering thematic papers		20.000
Production of policy briefs by teams		20.000
	<i>Sub-total (request to other sources)</i>	<i>200.000</i>
	<b><i>Total Phase III Budget</i></b>	<b><i>400.000</i></b>