

GLOBAL ENVIRONMENT FACILITY  
UNITED NATIONS ENVIRONMENT PROGRAMME

PEOPLE, LAND MANAGEMENT AND ENVIRONMENTAL CHANGE (PLEC):  
(Agrodiversity, Biodiversity and Conservation)

PROJECT BRIEF (EXECUTIVE SUMMARY)  
(November 1996)

**PROJECT TITLE: People, land management and environmental change (PLEC)**

**Geographic Scope:** Global: Countries in West Africa (Ghana, Guinea), East Africa (Kenya, Uganda, Tanzania), China, Papua New Guinea, Amazonia (Brazil, Peru).

**GEF Focal Area:** Biological Diversity, and cross-cutting to Land Degradation.

**Country Eligibility:**(with dates of ratification of the Convention on Biological Diversity): Ghana (29.8.94), Guinea (17.5.93), Kenya (26.7.94), Uganda (8.9.93), Tanzania (8.3.96), China (5.1.93), Papua New Guinea (16.3.93), Brazil (28.2.94), Peru (7.6.93). Scientific coordination from Australia (18.6.93).

**In-country Institutions:** Ghana: University of Ghana. Guinea: Université de Conakry. Kenya: Kenya Agricultural Research Institute and University of Nairobi. Uganda: Makerere University and Forestry Research Institute. Tanzania: National Soils Service. China: Chinese Academy of Sciences/Kunming. Papua New Guinea: National Research Institute, Department of Agriculture and Livestock, University of Papua New Guinea. Brazil: Núcleo de Altos estudos Amazônicos, Universidade Federal do Pará. Peru: Instituto de Investigaciones de la Amazonía Peruana, Iquitos.  
**Twinned Institutions:** Australian National University, University of East Anglia, New York Botanical Garden, University of Tokyo.

**Estimated Total Project Cost** **\$US 8,942,900**

**Proposed GEF Financing** **\$US 6,176,300**

**Estimated Co-financing**

UNU Funding	\$US 420,000
Cluster Scientists' time and services in kind	\$US 1,966,000
UNU and UNEP staff time in kind	\$US 180,600
National contributions in kind(not less than)	\$US 200,000
<b>Total estimated Co-financing</b>	<b>\$US 2,766,600</b>

**Implementing Agency:** United Nations Environment Programme

**Executing Agency:** United Nations University

**Estimated Starting Date:** 1 February 1997. **Project Duration:** 48 months.

**GEF PDF(PRIF) Preparation Costs:** \$US 100,000

## I. Global Significance

1. Most of plant biodiversity worldwide lies in cultivated and semi-cultivated lands in the tropics and sub-tropics, an area many times larger than can be effectively protected through government controls. During the last 50 to 100 years, significant numbers of cultivated plant varieties and landraces have disappeared due to commercialization and mechanization of agriculture. In China alone, out of more than tens of thousands of varieties of wheat grown since 1949, only about a thousand were left in the 1970s. At the same time, while valuable genetic material are rapidly depleted, in a part of China, in Yunnan, some 110 types of agroforestry are being utilized, including 11 sub-types, 82 forms, and 220 associations, mainly because farmers have engaged in locally adapted cultivation where biodiversity is maintained despite pressures to increase, and commercialize, food production.
2. Many of the areas where highly diverse plant species and genetic varieties still exist are managed by farmers and pastoralists whose systems are characterized by diversity in cropping and cultivation, micro-level adaptations, successional vegetation, and small-scale farming. Even as populations grew and markets expanded, indigenous knowledge systems were applied in farms which combined commercial and intensive production with adaptive techniques such as integrated pest management and organic methods for maintaining soil fertility and land quality. However, there is a need to document these approaches systematically, and to evaluate their viability in light of the pressing demand for increasing food production. It is necessary to determine the range of conservation strategies to be used and provide the appropriate support to communities in agroecosystems where biodiversity is at risk.
3. The contribution of this project, *People, Land Management and Environmental Change (PLEC)*, to the GEF, and globally, is that it focuses on agricultural lands located in priority ecosystems and managed by farmers and pastoralists. These are lands at the margins (sometimes called the "buffers") of forests, semi-arid regions, mountains, wetlands, and land corridors. Very little work has been done on how to address biodiversity loss in these larger surrounding areas, especially in plants and crops under threats of commercial and intensified production.<sup>1</sup>

### Root Causes of Declining Biodiversity in Agricultural Systems

4. The underlying causes of declining biodiversity in agricultural, pastoral, and forest lands are numerous and complex. Some of the factors are direct, such as the conversion of these lands into other uses and the rapid extraction of natural resources through commercialized ventures such as large-scale logging and hunting in forests. In many instances, numerous small-scale exploitations of resources occur due to demands for livelihood and income.
5. Contributing to exploitation and use of resources are forces that compel populations to accelerate activities, including population growth and distribution, distortions in resource pricing and land allocation policies, unclear property rights, and ill-defined laws governing conservation and protection of resources. In addition, other government-sponsored programmes may inadvertently induce further resource degradation, such as building of roads and other infrastructure that attract migrants into forests, and government settlement schemes, aimed at decongesting cities but opening up frontier sites that are often used for unsustainable cultivation.
6. These underlying causes are important from a general policy and historical perspective yet are often seldom understood or integrated into conservation programmes. How these forces affect farmer decision making is another area that lacks evaluation. There are few assessments of farmer

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<sup>1</sup> The Convention on Biological Diversity (CBD) states that biodiversity conservation cannot occur at the expense of farmers' livelihoods. A GEF-funded project that also addresses this issue is the UNDP/GEF Global Environmental Benefits from Alternatives to Slash-and-Burn Agriculture (ASB Phase II, May, 1996) Project. This project complements the ASB project by using a methodology that focuses upon biodiversity assessment. Secondly, PLEC extends the scope of ASB to other sites of equal importance, such as marginal but permanent lands, intensive and semi-commercialized small farm systems, and wetland areas. Lastly, compared to the scientific techniques used in ASB, PLEC's approach is multi-disciplinary, specifically combining social science and participatory methods with technical assessments.

adaptations to changes introduced through commercialization and population growth, yet there are many examples that may be used as models for replication in other sites within similar environmental and social contexts.

## II. Project Description and Objectives

7. This project has been developed in response to demand from governments and local groups for models of biodiversity conservation within agricultural systems. The PLEC approach is to collaborate with farmers and local communities in identifying appropriate conservation approaches that are socially and financially sustainable. By integrating locally developed knowledge of soil, climate, and other physical factors with scientific assessments of their quality in relation to crop production, a set of sustainable agricultural technologies can be devised so that crop diversity and management diversity are maintained. There are existing management approaches which are based upon cultural and religious practices that promote crop and soil conservation, including recognition of the importance of resource rights and tenure, gender, livelihood strategies, and governance.

### Objectives

8. The overarching goal of the project is to provide strategic advice and recommendations for achieving world food security while protecting global biodiversity through development of sustainable and participatory approaches to biodiversity conservation within agricultural systems. To reach this goal, the project engages local villagers and scientists in establishing demonstration sites in diverse types of ecosystems and areas of globally significant biodiversity, such as forest, mountain, semi-arid, freshwater, and wetlands in major regions in Africa, Asia and the Pacific, and the Americas.

9. The specific objectives of the project are:

- to establish historical and baseline comparative information on agrodiversity and biodiversity at the landscape level in representative diverse regions;
- to develop participatory and sustainable models of biodiversity management based on farmers' technologies and knowledge within agricultural systems at the community and landscape levels; and
- to recommend policies and approaches to sustainable agrodiversity management to key government decision makers, farmers, and field practitioners.

## III. Project Activities

10. Work on the PLEC approach began several years ago and publications are available from the UNEP/GEF and UNU offices. This project benefits from past work of the network and will continue to use the network's extensive contacts in disseminating and gathering relevant information. There will be at least 20 demonstration sites in five clusters in nine countries. These demonstration sites are in regions within countries where adaptive conservation technologies have been developed and where socio-economic activities are already ongoing at the community level.

11. These clusters, and their ecosystem contexts, are:

- (a) **West Africa** - two semi-arid and forest margin ecosystems in Ghana and one mountain area in Guinea;
- (b) **East Africa** - one area each in mountain and semi-arid areas, including corridors between mountains in Kenya, Uganda, and Tanzania;
- (c) **China** - area forming a corridor from mountain to forest ecosystems in Yunnan province;
- (d) **Papua New Guinea** - mountain and forest ecosystem in Papua New Guinea; and
- (e) **Amazonia** - one area in each country along the wetlands and floodplains of Brazil and Peru.

12. The following table describes the activities designed to meet each of the objectives.

Project Objectives:	Project Activities:
To establish historical and baseline comparative information on agrodiversity and biodiversity at the landscape level in representative diverse regions;	Establish demonstration sites and engage in primary data gathering by villagers and scientists using on-farm trials and social methods in the following representative countries: Ghana, Guinea, Kenya, Tanzania, Uganda, China, Papua New Guinea, Brazil, and Peru;  <i>Expected Results: By Year 1, a database program will be in place for cross-country exchange of information;</i>
To develop participatory and sustainable models of biodiversity management based on farmers' technologies and knowledge within agricultural systems at the community and landscape levels;	Conduct of participatory rural appraisals and land use planning exercises with farmers; Conduct outreach and awareness on in-situ biodiversity conservation; Engage in collaborative field trials between farmers and scientists;  <i>Expected Results: By Year 2, descriptions and comparisons of management regimes of demonstration sites will be completed;</i>
To recommend policies for and approaches to sustainable agrodiversity management to key government decision makers, farmers, and field practitioners.	Integration of scientific and community social information; multidisciplinary analysis of findings done at village, national, and cross-country workshops;  <i>Expected Results: By Year 3, initial policies and approaches developed; by Year 4, advice and feedback integrated into final set of recommendations.</i>

13. The PLEC network uniquely provides for South-to-South cooperation and South-to-North twinning arrangements. The project will be organized into clusters of countries and representatively diverse regions. Selection of cluster composition was influenced by: (a) critical regional biodiversity importance in areas undergoing rapid change and land use pressures; (b) critical ecosystems with important life support functions as well as national development potential, based upon national priorities and national plans; and (c) known examples of local agrodiversity management practices, or the strong likelihood of discovery of adaptive resource management.

14. Other considerations in the selection of clusters and demonstration sites include logistic and practical criteria. These are a balance of sites for representativeness of critical agrodiversity pressures and important ecosystems; national authorities expressing a desire to coordinate their activities with the project and to participate in project activities; presence of capable, local scientific institutions and leaders with access to colleagues from a variety of disciplines and institutions; and evidence of experiences in outreach and applied work. Each cluster has selected its own focus areas within which adaptive conservation technologies will be identified and evaluated in the demonstration sites.

**Participation and Sustainability**

15. Participatory activities have been initiated at the sites where both local villagers and scientists have begun work. Since 1994, the whole PLEC network has expanded to include 106 professionals, 91 of whom are in developing country institutions. Nineteen of the professional participants are women. All clusters are multidisciplinary, with members drawn from several institutions, including in most cases at least one member from government, local implementing agencies, and NGOs. Thirty associated participants come from community-based NGOs, farmers'

organizations, and other community bodies. To enhance capacity building, the community-based participants are joined by about 20 practitioners and students.

16. PLEC is an ongoing and stable programme and network. It has a track record of pilot regional experience, most of which is documented in various publications. These publications are available from the UNEP/GEF and UNU offices and include a review of case studies worldwide. The special issue of *Global Environmental Change: Human and Policy Dimensions*<sup>2</sup> and the twice-yearly periodical *PLEC News and Views*, contain descriptions of past PLEC activities and network updates.

### III. Project Outputs

17. The following table describes the project's outputs, including measurements of these outputs.

Project Outputs	Measurements/Descriptions of Outputs
Tested models of on-farm participatory management of agrodiversity in different landscapes or ecosystems;	Models will include approaches used in conducting inventories of number and types of plant and animal species maintained per unit area; descriptive and quantitative analysis of sustainability of farmers' practices in relation to crop outputs and effects on biodiversity;  <i>Expected Results: at least 20 tested models of agrodiversity management in ten types of landscapes or ecosystems, including policy and strategic recommendations;</i>
Data on biodiversity, agrodiversity, and degradation in vulnerable small farm environments, based on methodologies elaborated and tested in different landscapes and ecosystems;	Descriptive and quantitative analysis of resource management types, biodiversity within them, and trends of degradation, with analysis of the proximate causes of trends;  <i>Expected Results: Valuable information on farmers' strategies and approaches in relation to biodiversity assessments; policy relevant analysis of the underlying causes of biodiversity loss and degradation;</i>
Policy recommendations communicated to government decision makers, extension workers, NGOs, and local groups;	Identification of key government decision makers and assessment of their commitment to follow-up; review of types and number of stakeholders involved;  <i>Expected Results: High level participation of government decision makers in policy workshops with broad-based participation of stakeholders in consultation;</i>
Information exchange and networking across participating countries;	Field trial surveys in demonstration sites and information networking of global data on agrodiversity;  <i>Expected Results: Volume of information and knowledge on global agrodiversity across diverse ecosystems increases;</i>
National and regional networks established for capacity strengthening within participating institutions.	Verification of network information and completed training and other related programmes; strengthening of local capacities for continuing the project and possibly expanding to other sites within country and within the region;  <i>Expected Results: Number of trainees and collaborators from developing countries increases; number of cross-country exchange and networking increases.</i>

<sup>2</sup> The list of publications is also available from UNEP/GEF offices.

#### **IV. Rationale for GEF Financing**

18. PLEC meets the eligibility criteria and programme priorities agreed at the Conference of the Parties of the CBD, and addresses the priority ecosystems in the GEF Operational Strategy. Specifically, it responds to Article 12 of the CBD and is consistent with its provision.<sup>3</sup> More than 30% of project funding is mobilized from other sources. In addition, over \$2.0 million in grants for related work have already been solicited or are being actively sought.

#### **V. Lessons Learned and Technical Review**

19. PLEC draws lessons from its pilot phase, and in relation to the first phase of findings in a related UNDP/GEF project (Global Environmental Benefits from Alternatives to Slash-and-Burn Agriculture). These lessons are: (a) the largely untapped potential of agrodiversity as a contribution to conservation of biodiversity; (b) the variety and scope of farmers' experiences and adaptations in coping with threats to biodiversity, sustainability, and land quality; (c) the role and usefulness of networking as a primary vehicle for capacity strengthening and human resource development in biodiversity conservation; and (d) the expressed demand at all levels for PLEC outputs, especially tested methodologies of assessment of agrodiversity.

20. A Technical Review was undertaken by a STAP roster consultant in early 1996. The review was positive and the suggestions have been fully integrated into this revised proposal.

#### **VI. Incremental Costs and Global Benefits**

21. For PLEC, the incremental cost encompasses the cost for all actions undertaken as a response to the CBD in the specific context of agrodiversity. Incremental cost is a function of a shift from current practice to a recommended alternative practice assumed to be the better use, management, and protection of biodiversity in lands of small farmers. All stakeholders are expected to benefit, including local people, planners, and decision makers, development agencies, professionals, and other scientists. Without-PLEC outcomes would be the (a) continuing inability to engage and integrate the experience of farmers in managing biodiversity; and (b) increasing loss of agrodiversity as production pressures multiply. Replacing predicted outcomes by PLEC objectives does not, therefore, incur cost savings in current activities. The baseline is "no PLEC activity" and the incremental cost is the total cost of PLEC. In its GEF budget, PLEC subtracts domestic benefits to consider only the net incremental costs.

22. PLEC is designed to be cost effective. PLEC is enhanced by the small professional personnel assigned to specific sites. Participating members have a high moral and professional commitment to the ideals of PLEC and have already demonstrated their commitment at no personal financial gain. A substantial output with global benefits is assured at minimum cost. To undertake a project of this scale and nature based entirely on international consultancies would cost many times the present budget. There are also no ongoing institutional supports included in this budget.

#### **VII. Risks**

23. There are few technical risks in view of the demonstrated commitment by personnel and their institutions. The main risks involve: (a) weak institutional capacity and/or financial situation, addressed by capacity-building and diversification of support mechanisms; (b) personnel transfer at members'

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<sup>3</sup> CBD. 1992. p. 31: "The contracting parties, taking into account the special needs of developing countries, shall: (a) establish and maintain programmes for scientific and technical education and training in measures for the identification, conservation, and sustainable use of biological diversity and its components, and provide support for such education and training for the specific needs of developing countries; (b) promote and encourage research which contributes to the conservation and sustainable use of biological diversity ... (c) ... promote and cooperate in the use of scientific advances in biological diversity research in developing methods for conservation and sustainable use of biological resources.

institutions, addressed by identifying back-up leadership and inter-cluster collaboration plus direct involvement by advisory group members in Cluster work programmes; (c) deteriorating social, economic and political conditions in focus areas, addressed by engaging back-up sites and/or concentrating resources in remaining viable areas. Flexibility in project planning and execution, as exemplified by the diversity of PLEC methodologies and sites, is the major response strategy to risks.

### VIII. Institutional Framework and Project Implementation

24. The demonstration sites are organized through clusters representing the diverse ecosystems or landscapes. UNEP is the GEF implementing agency in-charge of the project while UNU is the project's executing agency responsible for carrying out the project. A Management and Advisory Group will be organized, and will meet annually, to advise the project regarding its scope, direction, and pace of operations. The members of this group include the cluster leaders and representatives from the agencies.

25. Project monitoring will be coordinated by UNEP and UNU following UNEP procedures. Annual or semi-annual contracts issued by UNU will contain explicit reporting and accounting requirements controlling stage payments and renewals. The technical and scientific progress of the project will be reviewed by the Scientific Coordinator and Deputy Coordinators through reports, correspondence, and visits. To enhance the monitoring process, there will be twinning of clusters and PLEC leaders. Half-yearly reports for UNEP monitoring will be also prepared.

26. The evaluation of the project will be done at the middle of the project by an independent consultant who can assess the scientific progress and management of the project. Another final evaluation will be conducted at the end of the project, including a full external evaluation and assessment.

#### BUDGET SUMMARY BY WORK ACTIVITY (in thousand US Dollars)

Work Activity	GEF	Co-Funding <sup>4</sup>	Total	%GEF	Total
<b>1. Demonstration sites<sup>5</sup></b>					
West Africa	155.1	47.4	202.5		
East Africa	150.1	57.2	207.3		
China	136.8	161.1	297.9		
Papua New Guinea	152.0	214.2	366.2		
Amazonia	136.0	135.4	271.4		
Cross-country	198.0	104.3	302.3		
Sub-total	928.0	719.6	1647.6	15.0	18.4
<b>2. Biodiversity assessment</b>					
West Africa	59.5	13.6	73.1		
East Africa	74.8	13.8	88.6		
China	66.2	46.0	112.2		
Papua New Guinea	44.7	61.2	105.9		
Amazonia	39.0	38.7	77.7		
Cross-country	68.2	20.2	88.4		
Sub-total	352.4	193.5	545.9	5.7	6.1

<sup>4</sup> Co-funding includes the relevant shares of the salaries of participants, the UNU budget provision, specific government or institutional support, and salary shares of UNU and UNEP personnel.

<sup>5</sup> Activities in demonstration sites include set-up, outreach and experimental work, collection, analysis, and comparisons of data across sites, and exchanges of information and findings.

**BUDGET SUMMARY BY WORK ACTIVITY (in thousand US Dollars)**

<b>Work Activity</b>	<b>GEF</b>	<b>Co-Funding</b>	<b>Total</b>	<b>%GEF</b>	<b>Total</b>
<b>3. Participatory rural appraisals</b>					
West Africa	52.2	13.6	65.8		
East Africa	44.5	13.8	58.3		
China	65.4	46.0	111.4		
Papua New Guinea	36.0	61.2	97.2		
Amazonia	29.0	38.7	67.7		
Cross-country	68.0	20.2	88.2		
<b>Sub-total</b>	<b>295.1</b>	<b>193.5</b>	<b>488.6</b>	<b>4.8</b>	<b>5.5</b>
<b>4. Outreach and experimental work</b>					
West Africa	67.2	13.6	80.8		
East Africa	106.7	13.8	120.5		
China	80.9	46.0	126.9		
Papua New Guinea	62.2	61.2	123.4		
Amazonia	182.3	38.7	221.0		
Cross-country	68.2	20.2	88.4		
<b>Sub-total</b>	<b>567.5</b>	<b>193.5</b>	<b>761.0</b>	<b>9.2</b>	<b>8.5</b>
<b>5. Reports, workshops on models<sup>6</sup></b>					
West Africa	31.8	20.3	52.1		
East Africa	11.7	20.7	32.4		
China	15.8	69.0	84.8		
Papua New Guinea	28.5	91.8	120.3		
Amazonia	11.8	58.0	69.8		
Cross-country	182.0	63.0	245.0		
<b>Sub-total</b>	<b>281.6</b>	<b>322.8</b>	<b>604.4</b>	<b>4.6</b>	<b>6.8</b>
<b>6. Capacity strengthening, training<sup>7</sup></b>					
West Africa	118.3	13.6	131.9		
East Africa	54.6	13.8	68.4		
China	87.0	46.0	133.0		
Papua New Guinea	60.8	61.2	122.0		
Amazonia	221.0	38.7	259.7		
Cross-country	369.1	50.4	419.5		
<b>Sub-total</b>	<b>910.8</b>	<b>223.7</b>	<b>1134.5</b>	<b>14.7</b>	<b>12.7</b>
<b>7. Networking, dissemination</b>					
West Africa	87.8	6.8	94.6		
East Africa	94.6	6.9	101.5		
China	64.1	23.0	87.1		
Papua New Guinea	68.0	30.6	98.6		
Amazonia	104.7	19.3	124.0		
Cross-country	696.5	100.8	797.3		
<b>Sub-total</b>	<b>1115.7</b>	<b>187.4</b>	<b>1303.1</b>	<b>18.1</b>	<b>14.6</b>

<sup>6</sup> Reports, workshops, meetings are organized for policy makers and NGOs, and village and local groups.

<sup>7</sup> Includes in-service training, and on-site training for collaborating institutions and village groups.

**BUDGET SUMMARY BY WORK ACTIVITY (in thousand US Dollars)**

<b>Work Activity</b>	<b>GEF</b>	<b>Co-Funding</b>	<b>Total</b>	<b>%GEF</b>	<b>Total</b>
<b>8. Coordination and planning<sup>b</sup></b>					
West Africa	77.0	6.8	83.8		
East Africa	70.3	6.9	77.2		
China	46.1	23.0	69.1		
Papua New Guinea	46.8	30.6	77.4		
Amazonia	68.0	19.3	87.3		
Cross-country	914.5	466.0	1380.5		
Sub-total	1222.7	552.6	1775.3	19.8	19.9
<b>9. Monitoring and evaluation<sup>9</sup></b>	65.0	50.0	115.0	1.1	1.3
<b>10. Project support services<sup>10</sup></b>					
Administration	253.0	130.0	383.0		
Travel, meetings, etc.	122.0		122.0		
Publications, dissemination, etc.	62.5		62.5		
Sub-total	437.5	130.0	567.5	7.1	6.3
<b>TOTAL</b>	<b>6,176.3</b>	<b>2,766.6</b>	<b>8,942.9</b>	<b>100.0</b>	<b>100.0</b>

<sup>b</sup> Includes planning for upscaling of project activities involving identification of in-country collaborating institutions and coordination with government programs.

<sup>9</sup> Project monitoring and evaluation activities will be coordinated by UNEP and UNU, in collaboration with PLEC leaders and cluster leaders. These include external reviewers and periodic visits to demonstration sites.

<sup>10</sup> Covers UNU and UNEP project administration, including costs of travel, meetings, publications, dissemination, etc.

**PEOPLE, LAND MANAGEMENT AND ENVIRONMENTAL CHANGE (PLEC) PROJECT MATRIX**

Narrative Summary	Verifiable Indicators	Means of Verification	Assumptions
<p><b>Project Goal:</b> to achieve world food security while protecting global biodiversity through development of sustainable and participatory approaches to biodiversity conservation within agricultural systems;</p>	<p>By the end of the project, multiple replicable models of agrodiversity management in a variety of ecosystems, landscapes and regions.</p>	<p>Demonstration sites in five ecologically different regions (West Africa, East Africa, China, Papua New Guinea, and Amazonia);</p>	<p>Government endorsements and commitments of national collaborating institutions are in place;</p>
<p><b>Project Objectives:</b></p> <p>1. To establish historical and baseline comparative information on agrodiversity at the landscape level in representative diverse regions;</p> <p>2. To develop participatory and sustainable models of biodiversity management based on farmers' technologies and knowledge, within agricultural systems at community and landscape level.</p> <p>3. To recommend policies and approaches to sustainable agrodiversity management to key government decision makers, farmers, and field practitioners;</p>	<p>1. By Year 1, database programs in place for cross-country exchanges of information;</p> <p>2. By Year 2, descriptions and comparisons of management regimes of demonstration sites completed;</p> <p>3. By Year 3, initial policies and approaches developed; By Year 4, advice and feedback integrated into final set of recommendations;</p>	<p>1. Primary data gathered by villagers and Plec scientists using on-farm trials and social methods in the following representative countries: Ghana, Guinea, Kenya, Tanzania, Uganda, China, Papua New Guinea, Brazil and Peru.</p> <p>2. Participatory rural appraisals and land use planning with farmers; in-situ biodiversity conservation; field trials;</p> <p>3. Integrations of scientific and community social information; multidisciplinary analysis of findings done at village, national, and cross-country workshops;</p>	<p>1. Memoranda of Agreements or cooperative arrangements across countries already established;</p> <p>2. Partnerships between community and scientific teams established;</p> <p>3. Cooperative arrangements for field trials and community outreach completed;</p>
<p><b>Outputs:</b></p> <p>1. Tested models of on-farm participatory management of agrodiversity in different landscapes or ecosystems;</p> <p>2. Data on biodiversity, agrodiversity and degradation in vulnerable small farm environments, based on methodologies elaborated and tested in different landscapes and ecosystems;</p>	<p>1. In-situ conservation of biodiversity in areas at risk due to agricultural production and population pressures using adaptive farmers' practices and village participatory land use planning;</p> <p>2. Data made available to villagers, governments, regional scientists and the network in Years 2 and 3, and internationally in Year 4;</p>	<p>1. Inventories of number and types of plant and animal species maintained per unit area; descriptive and quantitative analysis of sustainability of farmers' practices in relation to crop outputs and effects on biodiversity;</p> <p>2. Descriptive and quantitative analysis of resource-management types, biodiversity within them, and trends of degradation, with analysis of the proximate causes of trends;</p>	<p>1. Scientific data and social analysis completed; community participation is strong and sustainable;</p> <p>2. Scientific data and social analysis in each region completed by Year 3;</p>

3. Policy recommendations communicated to government decision makers, extension workers, NGOs, and local groups;	3. High level government participation in policy workshops; broad based participation of stakeholders in consultations;	3. Identification of key government decision makers and assessment of their commitment to follow-up; review of types and number of stakeholders involved;	3. Initial commitments of government officials done prior to start of field operations; stakeholders informed of project;
4. Information exchange and networking across participating countries.	4. Volume of data on agrobiodiversity in demonstration sites increases; comparisons with global patterns and other cases increase;	4. Field trial surveys in demonstration sites; information networking on global data on agrobiodiversity;	4. Data collection and analysis in demonstration sites already completed;
5. National and regional networks established for capacity building within participating institutions;	5. Number of trainees and cross-country exchange and training increases;	5. Verification of network information and completed training and other related programs;	5. PLEC network effectively working in participating countries;

Activities:	Inputs:	Budgetary Allocations (US\$ 000):	GEF	CO-FUNDING:	TOTAL
	<u>Cross-Country Coordination:</u>	<u>Activities</u>			
1. Village outreach and experimental work, including gathering of scientific information by local farmers and scientists in identifying demonstration sites in countries;	1. Network of scientists from various disciplines providing technical and social expertise;	Demonstration sites	928.0	719.6	1647.6
2. Scientific assessments of biodiversity in different landscapes;	2. Advice from government and inter-country counterparts;	Biodiversity assessment	352.4	193.5	545.9
3. Participatory rural appraisal and social assessment in demonstration sites;	3. Training and capacity-strengthening components;	Participatory rural appraisals	295.1	193.5	488.6
4. Community outreach, experimental work, including collection and analysis of data and comparison of information across landscapes;	4. Equipment and premises;	Outreach & experimental work	567.5	193.5	761.0
5. Reports on models of participatory management of agrobiodiversity in different landscapes, where findings and recommendations are presented and disseminated to stakeholders, especially local groups, policy makers and NGOs;	5. Published materials and other resources.	Reports, workshops on models	281.6	322.8	604.4
6. Capacity strengthening, including training and skilling local scientists and village groups;		Capacity strengthening, training	910.8	223.7	1134.5
7. Networking and dissemination of findings and recommendations;	<u>In-country collaborating institutions:</u>	Networking, dissemination	1115.7	187.4	1303.1
8. Coordination and planning of network activities;	1. Local scientists in collaborating institutions working closely with residents;	Coordination and planning	1222.7	552.6	1775.3
9. Monitoring and evaluation.	2. Counterpart NGOs and other groups engaging in policy dialogues and in awareness and dissemination;	Monitoring and evaluation	65.0	50.0	115.0
	3. Equipment and premises;	Project support services	437.5	130.0	567.5
	4. Locally-available resources and materials.	TOTAL	6176.3	2766.6	8942.9

ANNEX 1

PLEC MANAGEMENT GROUP, SCIENTIFIC ADVISORS, CLUSTER LEADERS &  
DEPUTY LEADERS, NOVEMBER 1996

MANAGEMENT AND ADVISORY GROUP

Scientific Coordinator	Professor Harold Brookfield Department of Anthropology RSPAS Australian National University Canberra, A.C.T. 0200 AUSTRALIA.
Co-Coordinator	Dr Juha I. Uitto United Nations University 53-70 Jungumae 5-Chome Shibuya-ku, Tokyo 150, JAPAN
Deputy Scientific Coordinator and Principal Scientific Advisor	Dr Christine Padoch Institute of Economic Botany New York Botanical Garden Bronx, New York NY 10458, USA.
Deputy Scientific Coordinator and Principal Scientific Advisor	Professor Michael Stocking School of Development Studies University of East Anglia Norwich NR4 7TJ, ENGLAND
Scientific Advisor	Dr Bede N. Okigbo Director, UNU Institute for Natural Resources in Africa Private Mail Bag, Kotoka International Airport, GHANA
Scientific Advisor	Professor Janet Momsen Department of Applied Behavioral Sciences University of California Davis, CA 95616-8604, USA
Scientific Advisor	Dr E. Adilson Serrão Chefe, Centro de Pesquisa Agroflorestal da Amazônia Oriental, Empresa Brasileira de Pesquisa Agropecuária (CPATU/EMBRAPA), 66.000 Belém, PA, BRAZIL.

## WEST AFRICA CLUSTER

Cluster Leader	Professor Edwin A. Gyasi Department of Geography & Resource Development University of Ghana P.O. Box 59, Legon, GHANA
Deputy Cluster Leader, Ghana	Dr L. Enu-Kwesi Department of Botany University of Ghana PO Box 59, Legon, GHANA
Deputy Cluster Leader, Guinée	Prof. Ibrahima Boiro Directeur du Centre d'Etudes et de Recherche en Environnement Université de Conakry B.P. 1147, Conakry, GUINEE REPUBLIQUE

## EAST AFRICA CLUSTER

Cluster Coordinating Leader	Dr R.M. Kiome Assistant Director Kenya Agricultural Research Institute P.O. Box 57811, Nairobi, KENYA
Deputy Cluster Leader, Kenya	Dr D. Mungai Dept. of Geography University of Nairobi P.O. Box 30197, Nairobi, KENYA
Deputy Cluster Leader, Tanzania	Dr Fidelis Kaihura Tanzanian Soil Survey Mlangani Agricultural Research Institute P.O. Box 5088, Tanga, TANZANIA
Deputy Cluster Leader, Uganda	Ms J. Tumuhairwe Department of Soil Science Makerere University P.O. Box 5088, Kampala, UGANDA

## CHINA CLUSTER

Cluster Leader	Professor Guo Huijun Assistant President Chinese Academy of Sciences/Kunming Fuguo Rd No. 22 Kunming, Yunnan, 650021, CHINA
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## **PAPUA NEW GUINEA CLUSTER**

**National Cluster Leader**

**Mr Thomas Nen  
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PO Box 5854  
Boroko, PAPUA NEW GUINEA**

**Twinned Cluster Leader, Australia**

**Dr Bryant J Allen  
Land Management Project  
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**Twinned Cluster Leader, Japan**

**Professor Ryutaro Ohtsuka  
Dept of Human Ecology  
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## **AMAZONIA CLUSTER**

**Cluster Leader**

**Profa. Dra. Tereza Ximenes-Ponte  
Vice-coordenadora de NAEA  
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Universidade Federal do Pará  
66.0075-900 Belém, Pará, BRAZIL**

**Deputy Cluster Leader**

**Dr David G. McGrath  
NAEA  
Campus Profissional Guama  
Universidade Federal do Pará  
66.075-900, Belém, Pará, BRAZIL**

PLEC BUDGET SUMMARIZED BY WORK ACTIVITY (Revised 19 November 1996)						
Activity	Clusters, other headings	GEF	Co-funding <sup>1</sup>	Total cost	% GEF	% Tot
<b>1 Demonstration sites <sup>2</sup></b>						
	West Africa	\$155,100	\$47,400	\$202,500		
	East Africa	\$150,100	\$57,200	\$207,300		
	China	\$136,800	\$161,100	\$297,900		
	Papua New Guinea	\$152,000	\$214,200	\$366,200		
	Amazonia	\$136,000	\$135,400	\$271,400		
	Cross-country	\$198,000	\$104,300	\$302,300		
	Sub-total	\$928,000	\$719,600	\$1,647,600	15.0%	18.4%
<b>2 Biodiversity assessment</b>						
	West Africa	\$59,500	\$13,600	\$73,100		
	East Africa	\$74,800	\$13,800	\$88,600		
	China	\$66,200	\$46,000	\$112,200		
	Papua New Guinea	\$44,700	\$61,200	\$105,900		
	Amazonia	\$39,000	\$38,700	\$77,700		
	Cross-country	\$68,200	\$20,200	\$88,400		
	Sub-total	\$352,400	\$193,500	\$545,900	5.7%	6.1%
<b>3 Participatory rural appraisal</b>						
	West Africa	\$52,200	\$13,600	\$65,800		
	East Africa	\$44,500	\$13,800	\$58,300		
	China	\$65,400	\$46,000	\$111,400		
	Papua New Guinea	\$36,000	\$61,200	\$97,200		
	Amazonia	\$29,000	\$38,700	\$67,700		
	Cross-country	\$68,000	\$20,200	\$88,200		
	Sub-total	\$295,100	\$193,500	\$488,600	4.8%	5.5%
<b>4 Outreach and experimental work</b>						
	West Africa	\$67,200	\$13,600	\$80,800		
	East Africa	\$106,700	\$13,800	\$120,500		
	China	\$80,900	\$46,000	\$126,900		
	Papua New Guinea	\$62,200	\$61,200	\$123,400		
	Amazonia	\$182,300	\$38,700	\$221,000		
	Cross-country	\$68,200	\$20,200	\$88,400		
	Sub-total	\$567,500	\$193,500	\$761,000	9.2%	8.5%
<b>5 Reports, workshops on models <sup>3</sup></b>						
	West Africa	\$31,800	\$20,300	\$52,100		
	East Africa	\$11,700	\$20,700	\$32,400		
	China	\$15,800	\$69,000	\$84,800		
	Papua New Guinea	\$28,500	\$91,800	\$120,300		
	Amazonia	\$11,800	\$58,000	\$69,800		
	Cross-country	\$182,000	\$63,000	\$245,000		
	Sub-total	\$281,600	\$322,800	\$604,400	4.6%	6.8%

## SUMROUND.XLS

Activ.	Clusters, other headings	GEF	Co-funding	Total cost	% GEF	% Tot
6	Capacity strengthening, training					
	West Africa	\$118,300	\$13,600	\$131,900		
	East Africa	\$54,600	\$13,800	\$68,400		
	China	\$87,000	\$46,000	\$133,000		
	Papua New Guinea	\$60,800	\$61,200	\$122,000		
	Amazonia	\$221,000	\$38,700	\$259,700		
	Cross-country	\$369,100	\$50,400	\$419,500		
	Sub-total	\$910,800	\$223,700	\$1,134,500	14.7%	12.7%
7	Networking, dissemination					
	West Africa	\$87,800	\$6,800	\$94,600		
	East Africa	\$94,600	\$6,900	\$101,500		
	China	\$64,100	\$23,000	\$87,100		
	Papua New Guinea	\$68,000	\$30,600	\$98,600		
	Amazonia	\$104,700	\$19,300	\$124,000		
	Cross-country	\$696,500	\$100,800	\$797,300		
	Sub-total	\$1,115,700	\$187,400	\$1,303,100	18.1%	14.6%
8	Coordination and planning <sup>5</sup>					
	West Africa	\$77,000	\$6,800	\$83,800		
	East Africa	\$70,300	\$6,900	\$77,200		
	China	\$46,100	\$23,000	\$69,100		
	Papua New Guinea	\$46,800	\$30,600	\$77,400		
	Amazonia	\$68,000	\$19,300	\$87,300		
	Cross-country	\$914,500	\$466,000	\$1,380,500		
	Sub-total	\$1,222,700	\$552,600	\$1,775,300	19.8%	19.9%
9	Monitoring and evaluation <sup>6</sup>	\$65,000	\$50,000	\$115,000	1.1%	1.3%
10	Project support services <sup>7</sup>					
	Administration	\$253,000	\$130,000	\$383,000		
	Travel, meetings, etc	\$122,000		\$122,000		
	Publications, dissemination	\$62,500		\$62,500		
	Sub-total	\$437,500	\$130,000	\$567,500	7.1%	6.3%
	Approved total	\$6,176,300	\$2,766,600	\$8,942,900	100.0%	100.0%
	Rounded	\$6,200,000				
	Notes					
	<sup>1</sup> Co-funding includes the relevant shares of the salaries of participants, the UNU budget provision, specific government or institutional support, and salary shares of UNU and UNEP personnel.					
	<sup>2</sup> Activities in demonstration sites include set-up, outreach and experimental work, collection, analysis, and comparisons of data across sites, and exchanges of information and findings.					
	<sup>3</sup> Reports, workshops and meetings are organized for policy makers and NGOs, including local groups. Includes in-service training, and on-site training of collaborating institutions and village groups.					
	<sup>5</sup> Includes planning for upscaling of project activities involving identification of in-country collaborating institutions and coordination with government programmes.					
	<sup>6</sup> Project monitoring and evaluation will be coordinated by UNEP and UNU, in collaboration with PLEC project and cluster leaders. These include external reviewers, and periodic visits to demonstration sites.					
	<sup>7</sup> Covers UNU and UNEP project administration, including costs of travel, meetings, publications, dissemination, etc.					