



**FORESTRY AND BIODIVERSITY MULTI-PROJECT
PROGRAMMATIC ENVIRONMENTAL ASSESSMENT
(F/BEA)
FINAL REPORT**



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F/BEA Final Report

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Volume I

Consolidated Forest and Biodiversity Multi-Project

A. EXECUTIVE SUMMARY

In 2004, the Mission arranged the carrying-out of a Forest/Biodiversity Multi-Project Environmental Assessment (F/BEA) of USAID-supported on-going activities that *may significantly impact on the environments of tropical forests and associated biodiversity areas, as well as those that directly or indirectly involve timber extraction for sale*, with the objective to conduct appropriate analysis and provide recommendations to assure compliance with both the letter and the spirit of USG and GOP environmental policy and mandates related to tropical forests and associated biodiversity areas.

These forest/biodiversity (FB)-associated activities are funded under the SO12/SO13 Joint Environmental Agenda (JEA), SO10 Poverty Reduction and Alleviation (PRA and PRA*plus*) Activities, and SO12/Parks-in-Peril (PiP) grants. All of these Activities are within the framework of the Mission Integrated Development Initiative (IDI).

The F/BEA scoping statement and terms of reference (SS-TOR) specify the methodology for carrying out the assessment. The final step in the scoping exercise was a survey questionnaire completed during April 2004 by USAID partners and their associates. The results of this exercise provided the assessment parameters. A team of six-persons, representing a range of environment-related specialties, was constituted early in May 2004 by USAID and its IDI partners (except Chemonics-ADP).

The F/BEA team determined that activities being assessed can be conveniently categorized into five classes of actions for analysis purposes. For each class of actions, partners, types of activity interventions and physical locations for intervention sites were identified to assist in structuring the information gathering process.

The large number of site-specific activities and interventions being assessed (both on-going and planned), and travel limitations (due political unrest and accessibility) to some sites, obliged the team to opt for a case study approach, limiting visits to carefully selected representative sites. Complementing site visits and on-site interactions with field personnel and beneficiaries, meetings, interviews and discussions were held in the period of May through July 2004. Utilizing information from site reports, additional document reviews, team discussions, and subsequent interviews and meetings with knowledgeable persons located in Lima, the team prepared a consolidated matrix of findings and conclusions. Subsequently, using a uniform format and common guidelines, each team member prepared a comprehensive technical report focused on his/her particular specialty, which were presented in mid-July. The final step of the aforementioned first phase of the process included the preparation of a draft consolidated report by the Team Leader that was submitted late in July.

The second phase¹ was the preparation of this report that integrates, from the five technical reports and the draft report prepared by the F/BEA Team Leader, the key findings and specific recommendations that will lead to each USAID partner to develop set of actions for mitigating and meeting the requirements

Most important Potential Negative Environmental Impacts and Recommended Mitigation Measures

The national forestry macro-zoning process has generated **large-scale fragmentation of forest areas**. Some forest concessions have been sited in protection lands or adjacent to protection forests. This has caused gaps, which due to the lack of control and protection interrupt the continuity of the biological diversity of the area.

¹ The second phase of the F/BEA was conducted between January 25th and March 7th 2005.

Additionally, lack or weak follow-up of environmental impacts generated by interventions may be contributing to an adverse environmental impact in habitats fragmentation, especially when activities encourage increased agricultural production, usually of monoculture crops, many of which are annuals requiring clean-cropping practices. Farmers may clear forest remnants and secondary forests to plant crops in response to increased demand for crops as raw materials, thereby disrupting natural habitats. These activities may be in conflict with USG/GOP regulations. On the other hand, most actions are designed to directly address only environmental consequences of on-site impacts.

Recommended Mitigation Measures:

- Adjust interventions to the legal framework regarding soil capacity.
- Incorporate the design and implementation of activities in its watershed context, considering it as a unit of management and spatial planning as well as regional ecological economic zoning (EEZ) in process.
- Design and consolidate a system that also integrates forest concessions with areas beyond their boundaries, on the basis of the watershed approach, and of other local/regional initiatives of spatial management and biodiversity conservation (e.g. biological or conservation corridors, regional/municipal conservation areas, communal protection areas, etc.).
- Conduct independent environmental audits on a regular basis in proportion to the intervention scale.

The promotion of cultivation of potentially **invasive exotic species** in degraded soils with the intention of reclaiming them has been verified. Although these crops may help to recuperate degraded soils, they are highly invasive, and without very careful management, can easily compete with the native vegetation and may even eliminate it. Peruvian Law prohibits the introduction of exotic species of flora and wildlife without specific official authorization.

Recommended Mitigation Measures:

- Eliminate the undesirable practice and eradicate species, because this is a severe breach of existing regulations.
- Act rapidly to avoid the introduction of potentially invasive exotic species even if there is scientific uncertainty about the long-term results of the potential invasion. New species introduction must respect relevant legal regulations.

The F/BEA encountered **serious gaps in the application of environmental regulations concerning land-use** that generate potential conflicts between land-use capability and present use. This is especially true in activities that promote monocultures where lack of environmental considerations is inherent to activity's approach. Productive activities both small and large-scale are being managed basically in function of compliance of pre-established objectives and attempts to establish "value-chains" towards economic sustainability. Due to not having permanent personnel specialized in social and environmental matters, but rather hired when thought necessary and at the express request of the beneficiary companies, these parameters are not expressly included in the planning and development of the intervention.

In addition, Peruvian forestry macro-zoning has treated the forest as a unit basically for timber utilization and has not taken into account the heterogeneous nature of the Amazon region from the biological and social viewpoints, or of uses that could have greater potential than present uses. This has given rise to endless conflicts, of varying nature, principally social ones that have had repercussions in the efficient development of the forestry concession process. Despite the fact that a large proportion of conflicts are of social, political and cultural nature, insufficient attention is paid to social conflicts due to overlapping with forest concession areas. From the design of the Activity appropriate conditions have not been given to monitoring environmental and social impacts in benefit of development of enterprise management, articulation with markets and financial services, from the forestry technical viewpoint.

Recommended Mitigation Measures:

- Subordinate interventions to the national legal framework particularly to land-use capability.
- Incorporate use-capability of soils and land-use planning in all actions, considering the watershed approach as a unit for natural resources management and citizen participation.
- Carry-out studies of high-yielding and environmental by suitable crops and promote native products.
- Train implementers and associates personnel in the application of soil capacity parameters consistently with the legal framework.
- Incorporate environmental variables in the monitoring and evaluation system and implement a monitoring system of environmental threats/damages plus a cost-benefit analysis of mitigation measures.
- Design and implement a social and environmental monitoring system at intervention level. If feasible, the implementing organization should see to the incorporation of environmental and social monitoring systems, starting from the stage prior to the execution of the interventions, incorporating them in the planning instruments and providing resources needed for their application throughout the life of intervention.
- Establish environmental and social early-warning systems to manage conflicts, promote citizen surveillance and participation of local organizations linked to management of natural resources and the environment in the intervention area.
- Consider other potential uses in the General Forest Management Plans (GFMP) and emphasize detection and monitoring of large-scale impacts, taking the hydrological watersheds as working units, especially where several concessions are being supported in the same area, as a means toward more efficient and progressive adaptation to the watershed approach. These actions should be performed on a regular basis and in proportion to the extent of the areas intervened. For this purpose, it is recommended the participation of independent external consultants.

Evaluations or baselines on the forest resource or on the biological content of the intervention areas are a long way short of desirable levels, having been obtained indirectly so that it is hard to ascertain whether they really represent the attributes of the ecological spaces that are being improved or managed. Besides, there is a generalized confusion among basic technical concepts (e.g. common name and scientific/botanical name of the biological species). This confusion is found even in the base documents generated (e.g. GFMP and AOP). Worse still when one is making an intervention in an area whose biodiversity is unknown. This can lead to the “planned” harvesting of species impacting species that are not considered or unknown.

Field studies prior to interventions have been insufficient and in some cases absent altogether. Several concession areas are lacking in information about their biological content. In those cases in which forest inventories had previously been carried out, these were limited to a very small portion of the concession area and/or were conducted in terms of the common names of plants without identifying their botanical names. This information cannot be considered baseline information on the botanical content of the areas. It is difficult – if not impossible – to predict environmental impacts and impacts due to styles of resource management, in ecological areas about which biological knowledge is precarious or non-existent.

The opportunity to centralize and exchange technical information generated in Permanent Monitoring Plots (PMP), or silvicultural information, which is beginning to become available in the concessions, has not been capitalized. This refers particularly to information on volumetric increments, on changes in species composition after harvest, presence and location of seed-trees, etc. This information is extremely valuable for the economic planning of forest enterprises, and for the scientific-technical community.

There is no information concerning elements of the flora and fauna, in particular rare species, which may be suffering extinction as a result of the present process of forest concessions. In addition, areas with rare biodiversity have not been defined within forest concessions.

Recommended Mitigation Measures:

- Reinforce biodiversity baseline and define potential impacts on flora and fauna.
- Reinforcement and widening of the system of PMP established, ensuring procedures for collection of biological material and the making of taxonomical studies of elements of flora and fauna within the plots, and the planning and implementation of biological prospecting, using approved and standardized methodologies, which will allow the generation of cumulative knowledge concerning the intervened units.
- Identification and continuous monitoring of areas with rare biological content.
- Establishment of monitoring protocols is required, in order to facilitate decision making concerning the conservation of some of these areas, as may be necessary and plan and coordinate dissemination systems allowing permanent access and analysis of this information by the specialized scientific community, in order to detect rare or threatened species, promoting the systematization of and improved access to information on a permanent basis.
- Conduct independent environmental audits. Evaluation and monitoring of biodiversity should be fostered in a regular manner; proportional to the extension of the areas intervened and carried out by external consultants (auditors) as a means of permanent and progressive improvement.

Furthermore, in the context of all interventions, the following cross-cutting issues are of special concern.

Past and current arrangements to formally comply with environmental procedures for **FB-associated activities largely have overlooked USAID environmental policy directives and guidance** focused on sustainable development and cost-effectiveness goals. A varied treatment of the environmental aspects in terms of the interventions' approach is perceived. As well as problems with environmental implications or internal environmental impacts generated by the interventions themselves, there is a relevant problem in the original design of some of the interventions (or in the nature of the organization and action of the implementer) that reveals serious gaps in regard to the application of GOP and USG environmental regulations, in particular those related to land capability, land-use planning and the protection of flora and fauna.

Recommended Mitigation Measures:

- Right from the planning stage of the interventions, incorporate an integral or holistic view of the environment from an ecosystemic approach, with special regard for protection existing flora and fauna species, major land-use capacity of soils in the areas of influence, land-use and watershed planning as a basic framework of the development within the intervention. These actions must be accompanied by mechanisms of information and training of the personnel involved, as well as dissemination to stakeholders.
- In the case of on-going interventions it is recommended submission of all actions to existing laws, which may in some cases be complemented by application of principles and agreements of international character – considering the watershed and land-use capability approaches – as well as measures for protecting existing flora and fauna species in the intervention areas. In these cases the actions must be accompanied by measures for information, dissemination and training.
- Incorporation of these policies into program and activity design, implementation and monitoring, and especially into environmental procedures compliance arrangements, can significantly reduce the compliance burden in terms of financial costs and time, as well as demands on institutional and professional capacities. This also can contribute significantly to achievement of sustainable development results.

Deficiencies have been noted in the evaluations or baseline data which form the axis for environmental adequacy or management, in particular the data concerning biodiversity; in addition to, the weakness follow-up actions on environmental impacts generated by the interventions. In this connection and in general terms, it has become evident that the interventions lack of a monitoring system for environmental threats and that the corresponding mitigation measures implemented are not based on a cost-benefit analysis. Consequently, there is insufficient systematization of experiences, or learning culture, not only as part of the Activity but as part of an internal policy of the responsible organization.

Recommended Mitigation Measures:

- Environmental monitoring and evaluation systems should be incorporated in the planning instruments as well as the resources required for their application over the life of the intervention.
- From the economic standpoint, recommendations center upon regulating pressure on access to and use of the natural resources of the forest. In other words, the measures for mitigating threats will be defined in terms of restricting free access to the resources, redefining property rights (in the framework of EEZ) and planning sustainable extraction of renewable resources. This should be incorporated in the monitoring system of environmental threats, including methodologies for quantifying environmental damage and benefits, as well as the respective cost-benefit analysis for the application of those measures.
- Continuous external monitoring programs should be planned, independent of the operating organization and proportional to the area of influence of the intervention in order to improve environmental appropriateness of the intervention.

There are repeated and continuous **misunderstandings and conflicts among USAID's partners and their associates working in the same area**, basically due to contradictions between their approaches (e.g. agricultural production of annual crops vs. sustainable practices in buffer zones). There is a lack of coordination (among implementers) and of communication (toward the stakeholders and general population), causing confusion and some resistance on the part of stakeholders, a key element for the success of the interventions.

Recommended Mitigation Measures:

When in one single area of action, two or more interventions are implemented with USAID funding, permanent coordination mechanisms should be established among the implementing organizations and between these and the Mission, with the objective of avoiding conflicts of approach, saturation of beneficiaries and inefficient use of funds.

F/BEA Major Conclusions

- USAID and GOP environmental procedures and related environmental management policies are sufficiently flexible and compatible to permit design and implementation of a unified procedures compliance system for both.
- Improvements are needed in levels of awareness and understanding among USAID partners and their associates concerning USAID and GOP environmental procedures and processes and of systematic environmental management approaches.
- There is considerable opportunity to improve cost-effectiveness through improved integration of environmental compliance procedures into program and activity results planning, achieving and monitoring. Several elements of this opportunity are identified and discussed in this report.
- Activities within most classes of actions identify and consider at least some on-site environmental impacts. There are opportunities for improvement, most notably for activities providing technical assistance for monoculture crop production. Additionally, improvements are needed in identifying

and assessing environmental consequences of indirect impacts that may significantly affect both on-site and off-site FB-environments, including consideration of alternative avoidance/mitigation measures and implementation arrangements.

- Activity designs and implementation generally do not consider synergistic and cumulative indirect impacts of multiple activities. Although such impacts arguably may be outside the manageable interests of implementers at the individual activity level, it may be argued that many are within manageable interests at the USAID partner level. Identification and consideration of these types of impacts should be included at partner-level, and to the extent practicable, incorporated into site-specific activity design and implementation. To the extent that the scope of site-specific activities does not accommodate to mitigation measures for significant indirect off-site impacts, USAID and partners need to seek alternatives for addressing these at the landscape level.
- Further, when assessing benefits of proposed classes of actions and activities compared to no action, and compared to alternative actions or combinations of actions, synergistic and cumulative impacts should be considered. This is especially true for FB-associated activities, because these are subject to special legal restrictions and policy concerns.
- There is opportunity to considerably improve information availability, flow and utilization related to environmental compliance procedures and requirements, consequences and performance. Similarly, improvements can be achieved in processes of environment-related results reporting, documentation and approval. Efforts recently have been initiated to improve effectiveness of baseline and monitoring information generation, availability, flow and utilization, and should continue to receive high priority for attention and funding. Otherwise, effective long-term sustainable management of these fragile ecosystems is in jeopardy.
- The FBEA scoping statement and TOR tasked this assessment with providing recommendations for improving compliance with environmental procedures for forest management assistance activities, for activities carried out within natural protected areas and buffer zones, and for those FB-associated activities being implemented under the PRA/PRA*plus* Programs. It also tasked the assessment with providing suggestions and guidance for improving responsiveness of FB-associated programs and activities to USAID policies related to integration of USAID environmental procedures with host country procedures and policies, and incorporation of environmental compliance procedures into program and activity results planning, achieving and monitoring.

B. BACKGROUND -- LEGAL AND POLICY SETTINGS

The provisions of USAID Regulation 216 (22CFR216) establish conditions and procedures for environmental review of activities supported with USAID funds, in which compliance is viewed as a process that has the objective of environmentally sound development.

Under Regulation 216, forestry and related biodiversity management activities are not included within the classes of actions determined generally to have significant effects on the environment. Thus, an environmental assessment or impact statement is not automatically required.

However, USAID environmental procedures specify that under certain circumstances programmatic assessments may be applied to classes of actions, in lieu of the application of Initial Environmental Examination and Environmental Threshold Decisions (IEE/ETD) general procedures for each activity [Reg. 216.2(d)(2)]. Also, special and more demanding environmental assessment, management and mitigation requirements apply to activities that may significantly impact on environments of tropical forest ecosystems (FAA Amendments under sections 117-119). These circumstances call for application of additional design standards and environmental consequences criteria, as compared to other activities.

Additionally, past and current arrangements to formally comply with environmental procedures for FB-associated activities largely have overlooked USAID environmental policy directives and guidance focused on sustainable development and cost-effectiveness goals. Incorporation of these policies into program and activity design, implementation and monitoring, and especially into environmental procedures compliance arrangements, can significantly reduce the compliance burden in terms of financial costs and time, as well as demands on institutional and professional capacities. This also can contribute significantly to achievement of sustainable development results.

In furtherance of USAID policy, the F/BEA approach seeks to integrate environmental compliance procedural requirements with more development-focused environmental policies in a way that converts procedural compliance expenditures into development investments.² Incorporating compliance costs into program and activity results planning, achieving and monitoring, and into Peruvian environmental management capacity-building, can be expected to contribute to this end. Such an approach can significantly reduce the proportion of total program and activity costs dedicated to formal compliance, while substantially contributing to achievement of environmental management program and activity investment results essential to sustainable development.

Annexes A and B presents a brief description of the characteristics of the USAID and GOP legal and policy setting surrounding USAID-supported programs and activities encompassed in the F/BEA. These sections are equally relevant to other USAID-supported programs and activities that may significantly affect tropical forests and associated ecosystems. **Annex C** shows a matrix that summarizes commonalities, expressed as equivalency levels, between major procedural elements of each.

² This approach, based on catalyzing voluntary stakeholder compliance, has gained widespread acceptance worldwide for activities of private as well as public sector enterprises and institutions. Over the past decade, the GOP has been building this approach into its environmental management policy system (as has the USG), most recently through adoption of the National Environmental Management System Framework Law in June, 2004.

C. RATIONALE, SCOPE AND PURPOSES OF F/BEA

1. Rationale

The principal reasons for the F/BEA are:³

- *Mission's commitment to develop an Environmental Assessment (EA):* Because of Mission concerns about environmental compliance for activities that may impact significantly on FB-associated environments, especially for activities under the Mission Integrated Development Initiative (hereafter referred to as IDI) program, the USAID/Peru FY 2004 Annual Report⁴ committed to prepare an environmental assessment of forest and protected areas management activities.
- *Gaps in the Alternative Development Program's Programmatic Environmental Assessment (ADP PEA):* ADP PEA,⁵ initially was intended to cover all IDI program activities. Subsequently, a decision was made to defer to the F/BEA a more thorough assessment of retrospective and prospective environmental management considerations for assistance program activities that may directly or indirectly affect tropical forests and associated biodiversity areas.⁶
- *Global 200⁷ Ecosystem Analysis.* Much of Peru's tropical forests and associated ecosystems are designated among the world's most valuable and most vulnerable biological assets by the Global 200 ecosystem analysis developed by WWF.
- *Size of Program.* The USAID/Peru 2002-2006 Strategy Plan allocates nearly US\$400 million for IDI programs, and most activities under IDI may potentially significantly impact on the environments of tropical forests and associated ecosystems.
- *Magnitude of Focus Area.* The geographic focus area of the F/BEA encompasses parts of seven departments that hold over 20 million hectares of Peru's permanent production forests. Additionally, native communities have ownership and use rights over another 8 million hectares of tropical forests⁸ and associated ecosystems. This represents approximately 34% of Peru's total forest coverage.⁹

³ For a more detailed discussion, see **Annex D**, showing a summary of "USAID/Peru Scoping Statement and Terms of Reference for a Multi-Project Environmental Assessment and Evaluation of Activities Affecting Tropical Forests and Associated Biodiversity Areas", dated March 18, 2004.

⁴ USAID/PERU Annual Report FY 2004, p. 13.

⁵ See January 2004 draft compared to the final June, 2004 draft.

⁶ Although the ADP PEA largely confined itself to social and economic infrastructure projects and income enhancement projects managed by the primary ADP partner (Chemonics-ADP), it does provide several observations and recommendations related to environmental consequences of ADP activities in and around tropical forest ecosystems. These have been considered in, and are largely compatible with, F/BEA findings and conclusions. Nevertheless, the two assessments diverge considerably with respect to recommended environmental compliance and management improvement measures. Reasons may be because the F/BEA team: 1) visited areas and activity sites not available to the ADP PEA assessment team, 2) carried out the assessment several months after the ADP PEA, 3) had benefit of the work already performed by the ADP PEA, and, 4) proposes improvements through application of an environmental management systems (EMS) approach, as contrasted with the environmental compliance systems (ECS) approach proposed by the ADP PEA.

⁷ It's a science-based global ranking of the Earth's most biologically outstanding terrestrial, freshwater and marine habitats. It provides a critical blueprint for biodiversity conservation at a global scale.

⁸ The term "tropical forests" as here used includes a broad range of types of forest cover in the Peruvian tropics, from largely pristine primary natural forests to forest remnants interspersed within areas of subsistence and/or commercial

- *Fragility of Tropical Forest Ecosystems.* The region includes environmentally fragile Protected Areas (PA) covering approximately 9.5 million hectares, constituting approximately three-fourths of the total natural protected areas included in Peruvian Natural Protected Areas System (SINANPE) to date.

Table No. 1
State Protected Areas covered by F/BEA Interventions

Protected Area	Area in Hectares	USAID Partner with current direct intervention	USAID Partner with indirect intervention
Yanachaga-Chemillén National Park	122.000,00	TNC-Pronaturaleza	Not identified
Cordillera Azul National Park	1.353.190,84	FM-CIMA	WWF-CEDEFOR Chemonics-PRA
Río Abiseo National Park	274.520,00	Not identified	Chemonics-PRA
Tingo María National Park	18.000,00	Not identified	Chemonics-PRA
Manu National Park	1.532.806,00	Not identified	WWF-CEDEFOR
Pacaya-Samiria National Reserve	2.080.000,00	TNC-Pronaturaleza	Not identified
Tambopata National Reserve	274.690,00	Not identified	Not identified
Yanesha Communal Reserve	34.744,70	TNC-Pronaturaleza	Not identified
Amarakaeri Communal Reserve	402.335,62	Not identified	WWF-CEDEFOR
San Matías-San Carlos Protection Forest	145.818,00	TNC-Pronaturaleza	Not identified
Alto Purus Reserved Zone (1)	2.724.263,68	Not identified	WWF-CEDEFOR
Kugapakori Nahua Nanti Reserve (2)	456.672,73	Not identified	WWF-CEDEFOR
Total Area:	9.419.041,57	3.735.753,54	

(1) Transitory condition prior to final categorization

(2) It's not considered a PA

- *Special Compliance Requirements.* Compliance requirements for FB-associated activities are more stringent than for other activities.
- *Compliance with GOP Law.* Mission management seeks to achieve compliance with GOP environmental procedures by partners and their associates, especially regarding impacts on tropical forests and associated ecosystems.
- *Aptness of Multi-Project Programmatic Environmental Assessment.* The integrity of tropical forests and associated ecosystems is especially vulnerable to indirect impacts that result from the synergistic and/or cumulative (over time) effects of several activities within a naturally integrated contiguous area generally defined by natural barriers (e.g., a watershed). Individual site-specific activity interventions often do not generate significant off-site impacts, but collectively, such

agriculture, including significant areas of secondary forests and previously forested areas (surrounded by natural forests) that have been degraded and abandoned by subsistence farmers and coca producers.

⁹ INRENA. 1995.

impacts often become significant and may become severe. Over time these impacts may cause irreparable damage. A multi-project programmatic approach to environmental assessment is especially apt under these conditions. It facilitates assessment of synergistic and cumulative impacts that result from numerous site-specific interventions having secondary effects beyond site boundaries. This, in turn, facilitates design of measures at a sufficiently aggregated level to cost-effectively avoid/mitigate such impacts.

Accordingly, a comprehensive “stock-taking” is needed, along with appropriate analysis and recommendations to assure compliance with both the letter and the spirit of USG and GOP environmental policy and mandates related to tropical forests and associated biodiversity areas.

Additionally, the draft ADP PEA does not obviate the need for an in-depth ex-post and ex-ante environmental assessment and compliance review of ADP-funded interventions that potentially may significantly affect tropical forests and biodiversity areas. Such an assessment should include site-specific findings, conclusions and, as appropriate, recommendations for improvements in mitigation actions, baseline information collection, monitoring arrangements, reporting and follow-up actions, to assure adequate future conformance to the USG and GOP environmental mandates and policies.¹⁰

The multi-project environmental assessment approach proposed is appropriate to assess the environmental effects of a number of individual actions and their cumulative environmental impact in specified geographic areas. Similarly, it is appropriate where the assessment is intended to establish criteria for classes of actions to eliminate or minimize adverse effects of such actions, to enhance the positive environmental effects of such actions and/or to reduce the amount of paperwork or time involved in adhering to environmental procedures.

2. Scope

The F/BEA encompasses all USAID/Peru 2002-2006 Strategy Plan assistance program activities and interventions *that potentially may have a significant positive or negative impact on tropical ecosystems* within the broad geographic region of focus of IDI programs, except for those activities managed directly by Chemonics-ADP (assessed in the ADP PEA). Thus, the F/BEA includes those activities receiving SO12/SO13 funding under the mission JEA being managed by SO12 (Cordillera Azul and CEDEFOR activities), activity receiving only SO12 funding (TNC-PiP), as well as FB-associated activities being implemented under SO10 funding the Poverty Reduction and Alleviation programs (PRA) and the PRA*plus* under SO13 funding. Although the F/BEA is applicable to the area of geographic focus of the ADP PEA, it includes additional areas where USAID partners are active. For example, the ADP PEA does not include tropical forest ecosystems in Madre de Dios or Loreto, which are included in F/BEA because of USAID-supported activities in forest concessions there and in the Pacaya-Samiria National Reserve, also located in the latter Department.

Activities encompassed, by lead partner institution, are:

- **Chemonics-PRA:** Activities providing technical and financial assistance under the SO10 Poverty Reduction and Alleviation (PRA) Activity, including business enterprise development assistance (especially in business planning), and related assistance to raw materials producers, processors and marketers, including agricultural and timber production, processing and market access activities being assisted under PRA*plus* with ADP funding.

¹⁰ Pages 24-31 of the draft ADP PEA.

- **The Field Museum of Chicago (FM):** Under the SO12/13, the *Cordillera Azul Activity* implements activities related to the Cordillera Azul National Park and buffer zone, including technical assistance for park values protection; to stabilize and generated improved incomes for rural families and communities through agro-forestry, farm diversification and reforestation of degraded areas.
- **The Nature Conservancy (TNC):** Under the *Parks in Peril* initiative and supported by the SO12, TNC and its partners develop activities related to PA management assistance and income generation for local families and communities within the Pacaya-Samiria National Reserve (NR), the Yanachaga-Chemillen National Park (NP), the Yanasha Communal Reserve (CR), the San Matias - San Carlos Protection Forest (PF), and surrounding buffer zones.
- **World Wildlife Fund (WWF):** Through the *Integrated Forestry Program – CEDEFOR* under the SO12/13, WWF provides technical and financial assistance for management of forest concessions [including the preparation of GFMP and annual operating plans (AOP)], reforestation and agro-forestry.

3. Purposes of the F/BEA

Purposes of the F/BEA are to:

- Identify weaknesses in the application of USAID environmental procedures in on-going and future FB-associated program and activity results design, achieving and monitoring, by classes of actions.
- Identify design, implementation and/or monitoring weaknesses in FB-associated activities that represent threats to the environments of tropical forest ecosystems, and suggest measures to correct identified weaknesses.
- Provide guidance for developing improved design standards and criteria for activities within the various classes of actions that are within the scope of the F/BEA, in order to minimize adverse individual, synergistic and cumulative effects on the environments of affected tropical forest ecosystems.¹¹
- Provide guidance to reduce the amount of paperwork and time involved in complying with required environmental procedures and relevant policies.
- Assess adequacy of environmental regulatory and policy compliance arrangements applied (or proposed for application) during design, implementation and monitoring phases of on-going and future activities, and recommend improvement measures by classes of actions.
- Identify effective and efficient alternatives for complying with both USAID and GOP environmental procedures and policies for on-going and future activities within the classes of actions assessed.

Annex E offers a summarized explanation of the methodology used in the F/BEA process and **Annex F** presents the list of the preparers and of the persons who provided expert assistance and guidance in Peru.

¹¹ The design of standards and criteria for classes of actions covers the identification of threats associated with activities and the geographic areas where they are sited, potentially significant impacts that may result from activity implementation, and necessary measures to mitigate the significant identified impacts.

D. MAJOR FINDINGS FOR EACH PARTNER

The present section of the Multi-Project Environmental Assessment concerns on-going and planned site-specific interventions that potentially may significantly affect tropical FB-associated areas or that directly or indirectly involve timber extraction for sale, based on Section 216.6 (d) of 22 CFR 216. Thus, in what follows identification is made about impacts or gaps associated to the classes of actions considered in the framework of the F/BEA, as well as recommendations for mitigation actions in relation to each USAID partner.

It should be noted that the two interventions included in the JEA (CEDEFOR and Cordillera Azul) and the TNC Parks in Peril activity are *de facto* activities which have as central objective mitigating pre-existing environmental impacts and/or threats through the conservation of biodiversity and sustainable natural resources management. However, USAID has considered it necessary to include evaluation of the adequacy and appropriateness of the environmental review and compliance processes being applied to date for these forestry/biodiversity on-going interventions, which are supported under the current Mission Strategic Plan for 2002-2006, especially as to conformance with (and/or appropriateness of) conditions issued in the relevant ETD's. In these cases the causes of the impacts or potential threats encountered do not constitute by any means the causes of adverse environmental impacts of the potential threats or problems identified. Rather, the efforts derive from the elements in the present context of the working area of the implementing organizations and/or problems/gaps of the technical assistance in the support which is being given.

Most if not all ongoing and planned future activities that potentially may significantly affect tropical forests and/or associated biodiversity areas (or that are subject to even more demanding provisions) fall under one of three IEEs and the respective ETD; there is one each for SO10, SO12 and SO13.¹² The referenced ETD's each issued a negative determination with conditions for activities that potentially may significantly affect tropical forests and associated biodiversity areas.¹³

For the expanded alternative development program (ADP-SO13), the ETD issued a negative determination with conditions for activities in protected areas and for development of forestry management plans, including reforestation activities. The conditions are as follows: "These activities shall be guided by applicable US and Peruvian government environmental regulations, restrictions, and guidelines for the management of tropical forests and for the protection of the biological diversity and the ecological integrity of protected areas. These conditions must be presented in the forest management plans that will be generated for each protected area to be supported by the ADP. The management plans will incorporate an environmental assessment of the potential environmental impacts. The terms of reference

¹² LAC-IEE-02-36 covers the Expanded Alternative Development Program of SO13 (ADP), and was issued on July 16, 2002 (it also extends and/or replaces certain IEE/ETD'S issued from 1995). LAC-IEE-02-61 covers the Strengthened Environmental Management Program (STEM) of SO12 (ENR), and was issued on September 19, 2002, (it also extends and/or replaces certain activity level IEE/ETD's issued after 1995). LAC-IEE-03-34 covers the program of Increased Economic Opportunities for the Poor (PRA) of SO10 (EGAT), and was issued on June 10, 2003.

¹³ Road construction and road improvement projects were issued positive determinations. Note that with the new CITES designation for Bigleaf Mahogany (*Swietenia macrophylla*), called Caoba in Peru, it is likely that these IEE/ETD's require modification to a positive determination for activities affecting Caoba populations and its critical habitat.

for preparation of the management plans shall be submitted to LAC/BEO for approval prior to initiating activities.”¹⁴

In relation to PRA, the ETD issued a negative determination with conditions for activities and actions designed to achieve three sub-IRs under SO10. These are: 1) support to activities to improve infrastructure development and regulation (sub-IR 1.3); 2) provide capital support to microfinance institutions (sub-IR 2.3), and; 3) support to expand use of environmentally sound production technologies (sub-IR 3.2). The ETD conditions require that 1) the implementing agency assure that environmental concerns are included as appropriate in policy analyses, and that environmental assessments are included for infrastructure projects as an integral part of the project, 2) monitoring and specific environmental analyses must be conducted by the implementing agency to ensure that appropriate mitigation procedures are in place for environmentally sound production technologies interventions of significant scale and magnitude. Additionally, interventions providing capital support to micro-finance institutions must adhere to environmental guidelines known as “micro-enterprises and the environment in Peru” (adapted from the 2001 LAC Environmental Guidelines). Finally, support to expanded use of environmentally sound production technologies must adhere to relevant portions of the LAC environmental guidelines (Chapter 4: “Environmental Issues and Best Practices for Micro-finance Institutions and Micro and Small-Scale Enterprises”). Some activities under way or being planned under PRA potentially may have significant effects on tropical forests and biological diversity. These will be identified and included in the proposed environmental assessment.¹⁵

Some activities underway or being planned under PRA potentially may have significant effects on tropical forests and biological diversity. As will be seen in the following pages, the Chemonics-PRA activity exhibits serious limitations in the application of environmental regulations, which its original design did not consider, since it is oriented to relief of poverty through the development of markets, the generation of employment and investments.

1. Criteria that qualify Impacts:

For this analysis certain criteria have been defined which qualify the environmental impact in function of the causes that generate or exacerbate it.

For these purposes, it is considered that in virtue of its magnitude the adverse impacts may be:

- **Synergistic Impacts:** Impacts that cooperating together enhance their effects (a synergistic effect). Certain negative impacts of an individual activity (e.g., a forest concession) may not be significant. However, when a number of these activities are carried out in close proximity to each other within an environmentally interactive landscape (e.g. such as a macro or micro watershed), those negative impacts become significant. In order to anticipate possible significant negative synergistic impacts, one must look at the critical natural wildlife habitats, ranges and/or migratory routes within the scope of an entire watershed (or other natural interactive landscape).¹⁶

¹⁴ Additionally, a positive determination was issued for economic infrastructure and for agricultural extension and information services. For these activities, a PEA was called for. That PEA recently was completed and a revised draft report was submitted in January, 2004, but the report has not yet been accepted by the Mission. Several of the preliminary findings included in the draft report (that are related to tropical forests and biodiversity conservation) will be discussed elsewhere in this scoping statement.

¹⁵ Since wood processing and/or value-added enterprises that may be supported by PRA likely will affect demand for timber, an environmental assessment apparently is necessary, even if the scale of the enterprise being supported is such that the potential for significant impacts is not present.

¹⁶ Mann, Fred. Electronic communication.

- **Cumulative Impacts¹⁷:** These are negative impacts that in the short term or during the period of assistance may not be significant, but that build up negative impacts over time until they become significant.

Additionally, according to the measures that may be taken or in virtue of its capacity of resolution:

- **Can be mitigated (M):** When the impact is real (has already occurred), and it is still possible to take measures to attenuate/manage/correct it (mitigate) or control the action or cause which generate the impact.
- **Can be avoided (A):** When the impact is potential (it has not yet occurred) so that the agent (operator) is able to avoid it before its occurrence.
- **Unavoidable (U):** When the impact is due to factors outside of the operator's power of control.

Finally, the spatial criteria have been considered:

- **On-Site Impacts:** If a detected impact affects only physical areas within the activity boundaries
- **Off-Site Impacts:** If it affects only physical areas outside of the activity boundaries.

Many negative impacts may be both synergistic and cumulative. These impacts always affect off-site areas (and often, on-site areas as well).

It is beyond the scope and the manageable interests of individual activities to develop and apply mitigations for such multiple-activity synergistic and cumulative impacts. Yet, both USAID and the GOP have a moral and legal responsibility to anticipate and to mitigate such impacts. Mitigations must be designed and managed at the interactive landscape level, using the tools of land use planning, and application of other environmental policies, including watershed management, natural protected areas, etc. The recent GOP legislation provides a number of policy opportunities to assist local governments and national environmental institutions to develop and apply planning and implementation for mitigation of these impacts.

In the following pages, a brief analysis is presented of the adverse impacts to which the above-mentioned criteria have been applied, some mitigation measures are being applied and recommendations proposed by the F/BEA team. The analysis is presented independently for each operator and in function of each class of action. For a clearer understanding, please refer to **Summary Matrix of Conclusions and Recommendations per Classes of Actions** in Section E of this report, which provides the information in summary by classes of action.

In all cases, it should be noticed that the USAID partners are making significant efforts to comply with their Activity objectives and to optimize their activities environmentally, according to the understanding that each organization has of this matter. Positive impacts of the interventions not treated in these pages are emphasized in the technical reports written by the members of the F/BEA team.

¹⁷ The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (CEQ 40 CFR 1508.7).

2. Determination of Classes of Actions:

The assessment team determined that activities being assessed can be conveniently categorized into five classes of actions for analysis purposes. For each class of actions, partners, types of activity interventions and physical locations for intervention sites were identified to assist in structuring the information gathering process. The results are shown in the matrix below (Table No. 2).

Table No. 2
Matrix of Classes of Actions by Partners, Types of Inputs and Physical Locations of Activities ¹⁸

Class of Actions	Partners	Types of Inputs/Interventions	Physical Locations
Forest Concessions	WWF	<ul style="list-style-type: none"> • TA/sustainable forest management • TA/preparation of GFMPs and AOPs • TA during plan implementation • TA/training to Forest Mgmt. Committees • Collection of data from monitoring plots • TA/business management 	<p><u>Huanuco</u>: Tingo Maria, Puerto Inca (Pachitea) <u>Loreto</u> ¹⁹ <u>Madre de Dios</u>: Tahuamanu, Manu, Tambopata <u>San Martín</u>: Bellavista, Huallaga (Saposa), Mariscal Cáceres, Tocache <u>Ucayali</u>: Atalaya, Coronel Portillo, Padre Abad (Aguaytia-Von Humboldt), Purus</p>
	Chemonics-PRA	<ul style="list-style-type: none"> • Financial/in-kind assistance/ Credit 	<p><u>Ucayali</u>: Pucallpa, Aguaytía</p>
Agriculture Production	Chemonics-PRA	<ul style="list-style-type: none"> • TA to marketers/processors of monoculture crops • TA to producers of monoculture crops 	<p><u>Ayacucho</u>: Anco-San Miguel <u>Cajamarca</u>: Bagua, Jaen <u>San Martín</u>: Tarapoto, Bellavista, Lamas, El Dorado, Picota, Tocache, Mariscal Cáceres, Moyobamba, Rioja <u>Ucayali</u>: Pucallpa, Curimana, Neshuya - Aguaytia</p>
Buffer Zones/ Agroforestry	WWF, FM, TNC	<ul style="list-style-type: none"> • TA on-farm agroforestry testing/verification systems applications • Sustainable agriculture/farm diversification • On-farm reforestation • Strengthening of local organizations/ associations • Community environmental education/ awareness/participation • Other TA/Training 	<p><u>Pasco</u>: Oxapampa-Pozuzo, Villa Rica - Palcazu <u>Loreto</u>: 20 de Enero, San Carlos, Manco Capac, Nueva Esperanza <u>Ucayali</u>: Aguaytía-Von Humboldt</p>
Protected Areas	FM, TNC	<ul style="list-style-type: none"> • TA to Master Plan participatory elaboration process • TA to PA administration/PA Management Committees • In-kind /logistical support to PA administration and control • Construction of control stations • Legal/TA natural resources plans • Community environmental awareness/participation • Other training 	<p><u>Loreto</u>: Pacaya-Samiria NR <u>Pasco</u>: Yanachaga-Chemillen NP, Yanesha CR, San Matías-San Carlos PF <u>San Martín</u>: Cordillera Azul NP.</p>
Business and Development	Chemonics-PRA	<ul style="list-style-type: none"> • Prepare business plans for local initiatives • Find clients for local initiatives • Facilitate processes to access to financial credits • Some training activities 	<p><u>Ayacucho</u>: Anco-San Miguel <u>Cajamarca</u>: Bagua, Jaen <u>San Martín</u>: Tarapoto, Bellavista, Lamas, El Dorado, Picota, Tocache, Mariscal Cáceres, Moyobamba, Rioja <u>Ucayali</u>: Pucallpa, Curimana, Neshuya – Aguaytia</p>

¹⁸ Based on summary of F/BEA survey questionnaire results (**Annex G**) and other secondary information.

¹⁹ TA to bidders of the first forest concession process in Loreto.

Chemonics: Poverty Relief and Alleviation Activity – PRA

Class of Action: Forest Concessions

Adverse environmental impact: Large-scale fragmentation of forest areas

Cause²⁰ No. 1

- As a result of forestry macro-zoning, some forest concessions have been sited in protection lands or adjacent to protection forests. This has caused gaps, which due to the lack of control and protection, interrupt the continuity of the biological diversity of the area.
- Some forest concessions do not necessarily take into account the adjacent areas which are classified as protection lands. Additionally, the technical assistance effort on three (3) forest concessionaires is centered basically on sustainable management of the forest for the purpose of economic gain through utilization of timber species located within the concession area.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures: PRA's activities in the forestry sector are not large. It supports the preparation of General Forest Management Plan (GFMP) of the three concessionaires. To date, neither Chemonics nor its local operators are paying attention to this impact.

Recommended Mitigation Measures:

- Consider watershed approach and land-use zoning in the technical assistance activities for forest concessionaires.
- Incorporate the design and implementation of activities of the forest concessions in its watershed context as a unit of management and spatial planning as well as the regional EEZ process.
- Design and consolidate a system that also integrates forest concessions with areas beyond their boundaries, on the basis of the watershed approach, and of other initiatives of spatial management and biodiversity conservation (e.g. biological or conservation corridors, regional/municipal conservation areas, communal protection areas, etc.).
- Support regional/municipal conservation areas and conservation corridors in the zone of influence of the intervention.
- Reinforce training activities to the concessionaires and ensure appropriate follow-up of the results of these activities. It becomes a priority task to acquire concessionaires' ability to continue and make this activity sustainable once the USAID implementer is no longer present in the area.

Cause No. 2

- Weak knowledge on forest management and key concepts by concessionaires and their workers and the Forest Management Committees (FMC). This is the case of the GFMP which include concepts of some complexity that are not fully managed by the concessionaires, and less so by their field workers. One of these is the significance and importance of the PMPs, which provide information on volumetric increments and changes in the composition of the forest, necessary for harmonizing the

²⁰ For the purpose of the F/BEA analysis, the following causes are considered: 1) those elements of the context of the intervention that provoke/worsen environmental impacts and/or threats; 2) gaps in design and/or implementation of measures to avoid/mitigate significant exacerbation of impact/threats already occurring.

Annual Operational Plans (AOP), and the productive activities, and serve as a benchmark for integrating concessions in the biological context of their area of influence.

- Concessionaires have little or weak perception of the responsibility they have assumed. This assumes special relevance in the case of forest concessionaires, who face the challenge of undertaking a profitable business in the long-term (40 years) based on the responsible management of the forest, given the existing cultural parameters and the vast biodiversity of the country.²¹

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures: Training is being provided but do not include mechanisms for evaluating their effect on beneficiaries.

Recommended Mitigation Measures:

- Improve training activities for concessionaires and their workers, and for members of the Forest Management Committees (FMC), concerning the relevant concepts in the management of forest concessions and its significance in national development. This training should be implemented on a regular basis and should include elements which provide better clarity for the concessionaires as responsible forestry entrepreneurs in both the environmental and social areas.
- Follow-up on training activities to evaluate their effect.
- Promote local participation in support of the forest concessions in the area with the collaboration of the concessionaires assisted by PRA. Through the implementation of very simple actions (e.g. dissemination of newsletters or relevant regulations), awareness can be created in the population and through the FMCs concerning the potential and benefits of the sustainable forest management and the role of the forest concessions in the regional development

Adverse environmental impact: Conflict between land-use capability and present use

Cause No. 1

- Deficiencies in macro-scale forestry zoning favor logging over other uses. By virtue of its design, forestry macro-zoning has treated the forest as a unit basically for timber utilization and has not taken into account the heterogeneous nature of the Amazon region from the biological and social viewpoints, or of uses that could have greater potential than present uses. Protection lands have actually been integrated as part of the timber resource. This has given rise to endless conflicts, of varying nature, principally social ones that have had repercussions in the efficient development of the forestry concession process
- Follow-up of environmental impacts caused by interventions is weak. From the design of the Activity appropriate conditions have not been given to monitoring environmental and social impacts in benefit of development of enterprise management, articulation with markets and financial services, from the forestry technical viewpoint. Although PRA is currently supporting only three (3) concessionaires located in the Pucallpa Economic Corridor and a limited number of enterprises of the sector, the recommendation acquires special importance if as has been indicated, 30% of the businesses of PRA will become forestry oriented in a near future.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed

²¹ Consejo Peruano para la Certificación Forestal Voluntaria. 2002

recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures: None.

Recommended Mitigation Measures:

4. Consider other potential uses in the GFMP.
5. Incorporate use-capability of soils and land-use planning in all actions considering the watershed approach, as a unit for natural resources management and citizen participation. This implies studying and keeping in mind the GOP regulations (e.g. Regulation on Major Use Capacity of the Soil).
6. Support ecologic economic zoning in the areas of influence, if the case.
7. Emphasize detection and monitoring of large-scale impacts, taking the hydrological watersheds as working units, especially where several concessions are being supported in the same area, as a means toward more efficient and progressive adaptation to the watershed approach. These actions should be performed on a regular basis and in proportion to the extent of the areas intervened. For this purpose, it is recommended the participation of independent external consultants.

Cause No. 2

- Despite the fact that a large proportion of conflicts are of social, political and cultural nature. Chemonics-PRA lacks of permanent support from specialists in the social issues.
- Insufficient attention is paid to social conflicts due to overlapping with forest concession areas. A significant proportion of concessionaires cannot even set foot on their concessions due to problems of overlapping with farms, mining concessions, and/or native community lands. Physical and legal clearing is long overdue, and the lack of it generates social conflicts and a bad image for the forestry entrepreneurs.
- Stakeholders and local population in general are unaware of the coverage of the forest concession process. For the consolidation of the process and the system it is necessary to generate confidence and empathy with social actors involved, on the basis of respect for their territorial, environmental and social rights, and for their right to live.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures: None.

Recommended Mitigation Measures:

Design and implement a social and environmental monitoring system at intervention level. If feasible, the implementing organization should see to the incorporation of environmental and social monitoring systems, starting from the stage prior to the execution of the interventions, incorporating them in the planning instruments and providing resources needed for their application throughout the life of intervention.

Adverse environmental impact: Decreased biological diversity/potential loss of genetic resources

Cause No. 1

- Deficiencies on baselines or evaluations of forestry activities. Evaluations or baselines on the forest resource or on the biological content of the intervention areas are a long way short of desirable levels, having been obtained indirectly so that it is hard to ascertain whether they really represent the attributes of the ecological spaces that are being improved or managed. In addition, there is

generalized confusion between the concepts: “common name” and “scientific/botanical name” of the biological species. This confusion is found even in the base documents generated (e.g. GFMP and AOP). The common (popular) names of Amazonian trees normally embrace several species. The attempt is made to translate local reconnaissance categories as named by a *matero*²² or a local guide, into taxonomic entities, assuming specific equivalences for each common name, without having carried out the necessary dendrological studies. In some cases, common names are used for which the taxonomic identity is unknown. Worse still when one is making an intervention in an area whose biodiversity is unknown. This can lead to the “planned” harvesting of species impacting species that are not considered or unknown.

- Weak baseline information of the biological contents of the forest concessions. Field study prior to intervention has been insufficient and in some cases absent altogether. Several concession areas are lacking in information about their biological content. In those cases in which forest inventories had previously been carried out, these were limited to a very small portion of the concession area and/or were conducted in terms of the common names of plants without identifying their botanical names. This information cannot be considered baseline information on the botanical content of the areas. It is difficult – if not impossible – to predict environmental impacts and impacts due to styles of resource management, in ecological areas about which biological knowledge is precarious or non-existent.
- Lack of emphasis on systematization/centralization/integration of information. The opportunity to centralize and exchange technical information generated in Permanent Monitoring Plots (PMP), or silvicultural information, which is beginning to become available in the concessions, has not been capitalized. This refers particularly to information on volumetric increments, on changes in species composition after harvest, presence and location of seed-trees, etc. This information is extremely valuable for the economic planning of forest enterprises, and for the scientific-technical community.
- Lack of specific procedures for avoiding depredation of endangered species or their critical physical location. There is no information concerning elements of the flora and fauna, in particular rare species, which may be suffering extinction as a result of the present process of forest concessions.
- Areas with rare biodiversity have not been defined within forest concessions. One consequence of this is that impacts may be occurring in the biological elements of the ecosystems affected.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat on the decrease of biodiversity **can be mitigated (M)** and **can be avoided (A)** in relation to the loss of genetic resources, to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- PMP have been installed in the forest concessions, but only in a preliminary manner, the biodiversity baseline lacks the necessary scientific thoroughness to permit its use as a suitable framework for beginning monitoring work.
- Efforts at monitoring on the basis of the PMP lack the necessary scientific. The PMP are considered among the original parameters of the GFMP, but the importance of their application has been diluted during the implementation process; thus, botanically, they show serious gaps. The GFMP baseline contains information, though not very solid, concerning the content of biological species.

Recommended Mitigation Measures:

- Reinforce biodiversity baseline and define potential impacts on flora and fauna.
- Reinforcement and widening of the system of PMP established, ensuring procedures for collection of biological material and the making of taxonomical studies of elements of flora and fauna within the plots, and the planning and implementation of biological prospecting, using approved and

²² Local tree explorer.

standardized methodologies, which will allow the generation of cumulative knowledge concerning the intervened units.

- Identification and continuous monitoring of areas with rare biological content.
- Establishment of monitoring protocols is required, in order to facilitate decision making concerning the conservation of some of these areas, as may be necessary. These actions should be taken in a cooperative manner with institutions that have past experience in these tasks and have approved protocols, such as the National Universities and other research centers.
- Plan and coordinate dissemination systems allowing permanent access and analysis of this information by the specialized scientific community, in order to detect rare or threatened species, promoting the systematization of and improved access to information on a permanent basis.
- Conduct independent environmental audits. Evaluation and monitoring of biodiversity should be fostered in a regular manner; proportional to the extension of the areas intervened and carried out by external consultants (auditors) as a means of permanent and progressive improvement.

Adverse environmental impact: Accelerated loss of wildlife

Cause: Weak treatment of potential impacts on wildlife and poaching in forest concessions. Prevention of poaching in forest concessions is incipient and is made harder by the practice of hunting prevalent among forestry workers. At the present time, there are no specific procedures for preventing the destruction of endangered species in their critical habitats (e.g. *collpa*,²³ nesting areas, etc.). No protocols have been developed for detecting sites with rare biological content within forest concessions during their operation, and their consequent exclusion from production area.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures: GFMP consider the need for certain measures with respect to the impact, but they are not being adequately implemented.

Recommended Mitigation Measures:

- Generate awareness about the importance of fauna among concessionaires and their workers.
- Training concessionaires and their workers in methods to protect fauna, for instance, about the improvements needed to conserve wildlife species which may be in critical condition, or in procedures that permit documentation and taking the appropriate decisions in the event of detection of rare biological elements.
- Follow-up on training activities to evaluate impact in beneficiaries.
- Promote the establishment of procedures to sanction forest concession workers who disregard regulations.
- Monitoring of GFMP's compliance in this regard.

Adverse environmental impact: Health and sanitary risks among local population and workers

Cause: Lack of a health and safety approach and plan for forest concession operations. One noticeable deficiency at documentary level in the GFMPs, as well as in the field, is the lack of appropriate planning and implementation of preventive health and safety actions and monitoring. It may be expected that employees, local populations and surrounding wildlife and natural habitats may be exposed to increased

²³ Resting place for wildlife.

health and safety risks. Due to the very nature of work in remote areas, subject to infectious diseases, presence of heavy machinery and the difficulty of communication, transportation and evacuation of sick personnel.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures: None.

Recommended Mitigation Measures:

- Design and put into effect strict policies concerning health and worker safety, including mandatory record-keeping and monitoring.
- Design and implement a health and safety plan including procedures required for preventing and/or appropriately treat accidents at work, infectious-contagious diseases which affect also the population adjacent to the concession, and make the necessary coordination with dispensaries and hospitals in the vicinity in case of emergencies.
- Also, provision should be made for continuous training activities and the preparation of suitable extension and dissemination materials and the relevant mechanisms for impact evaluation.
- Incorporate health and safety protocols in the GFMP.

Adverse environmental impact: Potential impacts in the hydrologic regime of the watersheds

Cause: Lack or weak monitoring of large-scale activities. If the scale of support by Chemonics-PRA is enlarged it is expected that there will be an impact of all the forestry activities in a watershed when such activities are operating simultaneously. This could generate negative changes in the hydrologic regime of the watersheds, such as unforeseen flow fluctuations, floods and landslides in sensitive areas, which are eventualities not suitably contemplated at present.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures: GFMP conducts the planning of the management area in compliance with INRENA's guidelines and applies it correctly.

Recommended Mitigation Measures:

- Planning actions of the concessions should be incorporated in the zoning processes underway, if applicable, and use the watershed approach.
- Promote other forest land uses (local forests, regional/municipal conservation areas, etc.) to help ensuring the quality and quantity of water supply in the watershed.
- Monitor compliance of the GFMPs, principally in terms of potential cumulative impacts, taking into consideration the land-use planning of the watershed.
- Include business baseline of environmental services.

Adverse environmental impact: Over-exploitation of traditional timber species
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Cause No. 1

Small/limited investment effort for development of new species. This is an initiative analyzed only marginally during the F/BEA. However, it is considered to be of vital importance for the development of the timber-processing industry and for the primary production sector, the conservation of traditional timber species, generally submitted to high degrees of selective harvesting and, finally, to enhance the value of production forests. In spite of its importance, the investment destined to this purpose is minimal compared to the cost of technological testing in the laboratory which far exceed those for traditional laboratory testing;²⁴ and take into account the exact taxonomic identification (dendrological) as well as the incorporation of the timber species evaluated in the whole production-marketing chain, not to mention, the scale of the repercussions in the forest-productive sector and the conservation of threatened species.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures: None.

Recommended Mitigation Measures:

- As far as possible, increase the investment in research applied to the productive species for introduction in the market, through strategic alliances. Chemonics-PRA could take the lead in this initiative in coordination with producers associations and forestry enterprises, which undertake the research necessary for incorporating new timber species in the market.
- Many of the concessionaires interviewed agreed that, due to selective logging of valuable species the most abundant species in the forest are “hardwood” species appropriate for flooring. It is for these hardwood species that it is most difficult to determine the kiln-drying cycle. This is an area which needs more technical support and infrastructure/equipment.

Cause No. 2

Illegal loggers invade forest concessions to extract valuable forest species (selective logging). Selective logging by groups of people who encroach on the forest concessions is a serious threat to sustainability of the forest and to the process of concessions itself. These groups often carry arms and have criminal backgrounds, which means that the concessionaires and other interested parties are at disadvantage. In some cases, illegal loggers make agreements with member of nearby native communities who are allowed to extract certain amount of timber from their communal lands. In this context, concessions are invaded, and even protected areas. In all cases valuable hardwoods are illegally extracted.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures: None.

Recommended Mitigation Measures:

²⁴ For example, the introduction of a new timber species in the high-quality furniture industry requires an investment of US\$200K.

The problem is complex. Nevertheless, Chemonics-PRA could take some specific actions that could favor the campaign against this illegal activity that destabilizes forest concessions, causing distortions in timber prices, as well as problems due to conflicts, violation of communities and concessionaires rights. As is well known, the FMC have to fulfill a role in favor of control of illegal logging in their watershed. In this way it is recommended to implement actions for strengthening FMCs in the intervention area; for example, in promoting its establishment and collaborating in its consolidation, so it may take an active part in the control and surveillance of illegal logging.

Support the establishment of FMCs in the areas of influence of the intervention and promote their consolidation by collaborating in the legal recognition process as well as providing with training courses that could improve control measures. Likewise it is recommended:

- Implementation of a systemic monitoring system of illegal logging activities that affect forest concessions.
- Improve local organizations' presence in control actions (early-warning systems) by designing specific mechanisms and strategies, integrating communities and local organizations in citizen surveillance actions, with prior training.
- Implement local awareness campaigns for citizen participation, based on the knowledge that forests constitute a very valuable heritage for the nation and for the future of their families.
- Support native communities within the intervention site to manage their forests and avoid having them burglarized and exploited by illegal loggers.

Note: For complementary aspects to be considered, please refer to **Annex J**.

Class of Action: Agriculture Production

Adverse environmental impact: Introduction of exotic species

Cause No. 1

Introduction of potentially invasive exotic species. PRA is promoting cultivation of *kudzu*²⁵ in degraded soils with the intention of reclaiming them. Although this crop helps to recuperate degraded soils, it is highly invasive and without very careful management can easily compete with the native vegetation and may even eliminate it.

Peruvian Law prohibits the introduction of exotic species of flora and wildlife without specific authorization of the Ministry of Agriculture through Ministerial Resolution, based on technical reports referring to environmental impact and analysis of the risk to plant or animal life, as the case may be, and ensuring compliance with regulations of biosecurity²⁶ and genetic resources. In this sense, the case of planning the introduction of exotic species or of genetically modified organisms, interventions must apply this precautionary principle.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat is **avoidable (A)** in terms of the introduction of new exotic species, to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. Nevertheless, in terms of exotic species already introduced, their impact **should be**

²⁵ A grass with reticular roots considered as a forage crop; originary from Africa.

²⁶ Bio-security is understood as the norms and mechanisms for impeding and controlling the impact and negative effects of the investigation, production, liberation and introduction of new species genetically modified elaborated by conventional biotechnology.

eliminated (E). With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures: Chemonics-PRA and their associates are promoting the introduction of exotic invasive species.

Recommended Mitigation Measures:

3. Eliminate the undesirable practice and eradicate species (severe breach of existing regulations).
4. Act rapidly to avoid the introduction of potentially invasive exotic species even if there is scientific uncertainty about the long-term results of the potential invasion. New species introduction must respect relevant legal regulations.
5. Disseminate among the personnel of PRA and their associates the guidelines for the “Prevention of Losses of Biodiversity caused by Biological Invasion²⁷,” the purpose of which is to avoid greater losses of biodiversity due to harmful effects of invasive species with support to government’s and administrative agencies that they may apply the Biodiversity Convention.

Adverse environmental impact: Conflict between land-use capability and present use

Cause No. 1

- Limited consideration of land-use regulations (serious gaps in the application of environmental regulations).
- Lack of environmental considerations is inherent to Activity’s approach. Right from its original design the PRA Activity omitted environmental variables, claiming that it was concentrated on development of markets, employment and investments.
- Promotion of large-scale crops (monoculture). Among the new activities incorporated in PRA^{plus} is the promotion of crops on a large-scale (monoculture) such as sugar-cane, cotton, maize, rubber and oil-palm.
- The economic revenue approach does not consider environmental and social aspects. Productive activities both small and large-scale are being managed basically in function of compliance of pre-established objectives and attempts to establish “value-chains” towards economic sustainability. For this purpose, productive activities are being promoted (e.g. cotton, maize, oil-palm) with the purpose of establishing associative transactions. Due to not having permanent personnel specialized in social and environmental matters, but rather hired when thought necessary and at the express request of the beneficiary companies, these parameters are not expressly included in the planning and development of the intervention.
- Lack of studies of soils and associated crops prior to intervention.
- There is a very sophisticated system of monitoring and evaluation of impacts which measures programmatic results in function of fulfillment of objectives and targets related to sales increases and increases in employment and investment, beyond levels existing before PRA²⁸, as has established in its contract with USAID. However, the monitoring and evaluation system does not include environmental variables.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

²⁷ Please, refer to **Annex I** (IUCN, 2000.)

²⁸ Chemonics, Plan Global PRA^{plus}. 2004

On-going Mitigation Measures: Some officers of the PRA Activity are very emphatic that assistance is not provided on slopes and concerning the prohibition of purchasing restricted pesticides with USAID funds. However, these criteria are not internalized in all technical teams responsible for field activities.

Recommended Mitigation Measures:

- Subordinate interventions to the national legal framework particularly to land-use capability. The Regulation on Major Use Capacity of the Soil and its Amendment (*Reglamento de Clasificación de Tierras según su Capacidad de Uso Mayor*, D.S. N° 390-71-AG and D.S. N° 0062/75) is the most important instrument for land-use planning for agricultural, livestock and forestry use. Soil classification is aimed at securing maximum social and economic benefit without degrading soil and other natural resources.
- Incorporate use-capability of soils and land-use planning in all actions, considering the watershed approach as a unit for natural resources management and citizen participation.
- Carry-out soil analysis before new interventions.
- Carry-out studies of high-yielding and environmental by suitable crops.
- Promote native products.
- Train implementers and associates personnel in the application of soil capacity parameters consistently with the legal framework.
- Incorporate environmental variables in the monitoring and evaluation system.
- Implementation of a monitoring system of environmental threats/damages plus a cost-benefit analysis of mitigation measures.
- Conduct independent environmental audits on a regular basis in proportion to the intervention scale.
- Establishment of environmental and social early-warning systems, as a tool for managing conflicts, citizen surveillance and the participation of local organizations linked to management of natural resources and the environment in the intervention area.

Adverse environmental impact: Soil degradation (return to coca production)

Cause No. 1

- Since the beginning of the new stage of the PRA Activity – known as *PRAplus* - Chemonics and its associates put more emphasis in focalized areas of the ADP in order to contribute to the relief and reduction of poverty in the economic corridors selected in terms of generation of employment and sustainable incomes. This new strategy infers an approach of agricultural production in response to the demands of markets in support of farmers who have signed agreements of auto-eradication of coca. However, low returns of promoted alternative crops do not permit adequate economic incentives. In this connection, interviewed farmers stated that coca is still a possibility as the yields obtained from alternative crops do not come up to expectations.
- Weak technical assistance and follow-up provided to farmers. The follow-up capacity of PRA through its numerous subcontractors is very small in relation to the magnitude of intervention. In this connection and in relation to what has been told by the beneficiaries themselves, it is believed that the beneficiaries could abandon legal crops due to insufficient and unsuitable technical assistance, returning to the cultivation of coca leaf or carrying out other illegal activities such as poaching, illegal logging invasion of protected areas, etc.
- Monitoring and evaluation systems do not incorporate environmental variables.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Assistance is not provided to production on slopes.
- Prohibition to purchase restricted pesticides with USAID funds.

Recommended Mitigation Measures:

- Improve technical assistance for alternative crops where this can lead to sustained support to beneficiaries.
- Incorporate use-capability of soils and land-use planning - according to the legal framework - in all actions considering the watershed approach.
- Incorporate use of appropriate soil conservation technologies.
- Incorporate environmental variables in the monitoring and evaluation system.
- Implementation of a monitoring system of environmental threats/damages plus a cost-benefit analysis of mitigation measures.
- Establishment of environmental and social early-warning systems.

Adverse environmental impact: Habitat fragmentation

Cause: Lack or weak follow-up of environmental impacts generated by intervention and/or not proportional to its scale, especially when the activities promoted by PRA encourage increased agricultural production, usually of monoculture crops, many of which are annuals requiring clean-cropping practices. Anticipated improved incomes may encourage farmers to plant on land unsuitable for clean cropping, and soil erosion and fertility depletion may result. Farmers may clear forest remnants and secondary forests to plant crops in response to increased demand for crops as raw materials, thereby disrupting natural habitats. Monoculture clean cropping and improved prices often cause increased pesticides use that may pollute waterways, damage nearby wildlife and natural vegetation, and/or pose a hazard to human health and safety. Farmers may open new lands in forested areas to plant. These activities may be in conflict with USG/GOP regulations.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Monitoring focuses mainly on Activity targets and at small-scale
- Dissemination of USG/GOP environmental regulations among PRA operators has not achieved expected results.

Recommended Mitigation Measures:

- Adjust interventions to the legal framework regarding soil capacity.
- Consider watershed approach and land-use zoning.
- Conduct independent environmental audits on a regular basis in proportion to the intervention scale.

Adverse environmental impact: Unplanned settlements

Cause: Human settlements in *restingas*²⁹ due to promotion of short-cycle agricultural crops (e.g. beans). Farming on the *restingas* is considered a new business option thanks to high organic matter content of these terraces. Nevertheless, their carrying capacity, the impacts on other activities and potential problems

²⁹ Upper-river terraces which are not flooded in the rainy season.

with families already settled along the riverbank, have not been taken into account. According to DS.011-96-AG these areas constitute an ecological protection zone.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures: Support in temporary land occupation and acquisition (e.g. Vista Alegre, Ucayali) is aggravating the problem.

Recommended Mitigation Measures:

- Application of legal disposition on Ecological Protection Zones in the Amazon Region (DS No. 011-96-AG).
- Conduct EIA
- Conduct socioeconomic/ecological diagnosis and mapping to identify current impacts and threats to environment.
- Incorporate cost-benefit analysis of mitigation measures centered on evaluation of costs in relation to the benefits obtained by avoidance of impacts as consequence of implementing said measures. Impacts are considered as changes in social well-being as a consequence of pressure on the availability and quality of natural resources.

Adverse environmental impact: Use of chemicals in farming activities

Cause: Farmers encouraged to achieve higher short-term yields, do not receive appropriate guidance and follow-up. Increased demand for raw materials encourages increased agricultural production, usually of monoculture crops. Monoculture clean cropping and improved prices often cause increased pesticides use that may pollute waterways, damage nearby wildlife and natural vegetation, and/or pose a hazard to human health and safety.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures: Prohibition to purchase restricted pesticides with USAID funds is being applied and there are cases in which the gradual adoption of organic biocides and biological control is being considered and promoted. However, the weak follow-up of actions on the field does not allow a real control of the use of agrochemicals by farmers.

Recommended Mitigation Measures:

- Inform and train farmers and beneficiaries in pesticide management.
- Do not promote crops highly demanding in agrochemicals.
- Promote biological control and ecological certification for organic farming.
- Reduce monoculture activities, favoring permanent crops (e.g. coffee, cacao, etc.) in secondary forests, aiming at agroforestry as a sustainable management system.

Note: For complementary aspects to be considered, please refer to **Annex J**.

Adverse environmental impact: Conflict between land-use capability and present use

Cause:

- Limited consideration of land-use regulations (serious gaps in the application of environmental regulations).
- Lack of environmental considerations is inherent to Activity's approach. Right from its original design the PRA Activity omitted environmental variables, claiming that it was concentrated on development of markets, employment and investments.
- The economic revenue approach does not consider environmental and social aspects. Productive activities both small and large-scale are being managed basically in function of compliance of pre-established objectives and attempts to establish "value-chains" towards economic sustainability. For this purpose, productive activities are being promoted (e.g. cotton, maize, oil-palm) with the purpose of establishing associative transactions. Due to not having permanent personnel specialized in social and environmental matters, but rather hired when thought necessary and at the express request of the beneficiary companies, these parameters are not expressly included in the planning and development of the intervention.
- There is a very sophisticated system of monitoring and evaluation of impacts which measures programmatic results in function of fulfillment of objectives and targets related to sales increases and increases in employment and investment, beyond levels existing before PRA, as has established in its contract with USAID. However, the environmental variables are not considered in that system. However, the monitoring and evaluation system does not include environmental variables.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Assistance is not provided to production on slopes.
- Monitoring focuses mainly on Activity targets and results.
- Dissemination of USG/GOP environmental regulations among PRA personnel and operators has not achieved expected results.

Recommended Mitigation Measures:

- Incorporate use-capability of soils and land-use planning considering the watershed approach.
- Incorporate use of appropriate soil conservation in the interventions.
- Incorporate cost-benefit analysis of mitigation measures centered on evaluation of costs in relation to the benefits obtained by avoidance of impacts as consequence of implementing said measures. Impacts are considered as changes in social well-being as a consequence of pressure on the availability and quality of natural resources.
- Conduct independent environmental audits on a regular basis in proportion to the intervention scale. A priority should be given to a social evaluation of the economic benefits of the productive chains promoted by the Chemonics-PRA Activity in the Selva. Determine whether on the basis of the results obtained from this evaluation, PRA should concentrate in supporting forest concessionaires and/or permanent crops such as oil-palm, sugar-cane, cacao and coffee, in an approach which respects the major use capacity of the soil and land-use planning in the framework of the watershed.

- Establishment of environmental and social early-warning systems, as a tool for managing conflicts, citizen surveillance and the participation of local organizations linked to management of natural resources and the environment in the intervention area.

Adverse environmental impact: Habitat fragmentation

Cause: Lack or weak follow-up of environmental impacts generated by intervention and/or not proportional to its scale, especially when the activities promoted by PRA encourage increased agricultural production, usually of monoculture crops, many of which are annuals requiring clean-cropping practices. Anticipated improved incomes may encourage farmers to plant on land unsuitable for clean cropping, and soil erosion and fertility depletion may result. Farmers may clear forest remnants and secondary forests to plant crops in response to increased demand for crops as raw materials, thereby disrupting natural habitats. Monoculture clean cropping and improved prices often cause increased pesticides use that may pollute waterways, damage nearby wildlife and natural vegetation, and/or pose a hazard to human health and safety. Farmers may open new lands in forested areas to plant. These activities may be in conflict with USG/GOP regulations.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures:

- Monitoring focuses mainly on Activity targets and results.
- Dissemination of USG/GOP environmental regulations among PRA personnel and operators has not achieved expected results.

Recommended Mitigation Measures:

- Adjust interventions to the legal framework regarding soil capacity.
- Consider watershed approach and land-use zoning.
- Conduct independent environmental audits on a regular basis in proportion to the intervention scale. A priority should be given to a social evaluation of the economic benefits of the productive chains promoted by the Chemonics-PRA Activity in the Selva. Determine whether on the basis of the results obtained from this evaluation, PRA should concentrate in supporting forest concessionaires and/or permanent crops such as oil-palm, sugar-cane, cacao and coffee, in an approach which respects the major use capacity of the soil and land-use planning in the framework of the watershed.

Adverse environmental impact: Unplanned settlements

Cause: Human settlements in *restingas* due to promotion of short-cycle agricultural crops (e.g. beans). Farming on the *restingas* is considered a new business option thanks to high organic matter content of these terraces. Nevertheless, their carrying capacity, the impacts on other activities and potential problems with families already settled along the riverbank, have not been taken into account. According to DS.011-96-AG these areas constitute an ecological protection zone.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures: Support in temporary land occupation and acquisition (e.g. Vista Alegre, Ucayali) is aggravating the problem.

Recommended Mitigation Measures:

- Application of legal disposition on Ecological Protection Zones in the Amazon Region (DS No. 011-96-AG).
- Conduct EIA.
- Elaborate a socioeconomic and ecological diagnosis and mapping to identify current impacts and threats to environment product of the intervention.
- Incorporate cost-benefit analysis of mitigation measures centered on evaluation of costs in relation to the benefits obtained by avoidance of impacts as consequence of implementing said measures. Impacts are considered as changes in social well-being as a consequence of pressure on the availability and quality of natural resources.

Adverse environmental impact: Use of chemicals in farming activities

Cause: Producers encouraged to achieve higher short-term yields, do not receive appropriate guidance and follow-up. Increased demand for raw materials encourages increased agricultural production, usually of monoculture crops. Monoculture clean cropping and improved prices often cause increased pesticides use that may pollute waterways, damage nearby wildlife and natural vegetation, and/or pose a hazard to human health and safety.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures: Prohibition to purchase restricted pesticides with USAID funds is being applied and there are cases in which the gradual adoption of organic biocides and biological control is being considered and promoted. However, the weak follow-up of actions on the field does not allow a real control of the use of agrochemicals by farmers.

Recommended Mitigation Measures:

- Inform and train producers and other beneficiaries in pesticide potential impacts and management.
- Do not promote crops highly demanding in agrochemicals.
- Reinforce biological control efforts and promote the ecological certification for organic production.
- Reduce monoculture activities, favoring permanent crops (e.g. coffee, cacao, etc.) in secondary forests, aiming at agroforestry as a sustainable management system.

Adverse environmental impact: Soil contamination due to inadequate waste disposal

Cause: Business plans do not incorporate the adoption of solid waste management practices. Agricultural and timber processing enterprises often generate substantial amounts of solid, liquid and gaseous wastes that may cause localized soil contamination. Employees, local populations, and surrounding wildlife and natural habitats may be exposed to increased health and safety risks.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** when elaborating new business and development plans and **can be mitigated (M)** in activities underway, to the extent to which the USAID partner and/or its associates consider and apply the proposed

recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures: GFMPs include recommendations on waste disposal management.

Recommended Mitigation Measures:

- Application of legal dispositions about the issue (SNGA).
- Promote the environmental management systems (EMS) approach in business plans and, where possible, encourage enterprises to work towards their own EMS. The EMS approach promotes the application of environmentally responsible practices. In the specific case of solid waste promote processing systems that minimize production of toxic wastes, control discharge of toxic wastes into water bodies, and stimulate use of waste products for improvement of agricultural soils, energy, feed products, or other commercial uses.

Adverse environmental impact: Water quality alteration from non treated residues, salty water and with sediments

Cause: Some mitigation measures are being implemented by some supported entrepreneurs on their own initiative (e.g. OLAMSA in Ucayali).

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** when elaborating new business and development plans and **can be mitigated (M)** in activities underway, to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures: None.

Recommended Mitigation Measures:

- Application of legal dispositions about the issue, especially the Water Law and its Regulation.
- Implementation of a monitoring system of environmental threats and damages that include a cost-benefit analysis of mitigation measures.
- Promote the environmental management systems (EMS) approach in business plans and, where possible, encourage enterprises to work towards their own EMS. The EMS approach promotes the application of environmentally responsible practices.

Adverse environmental impact: Air contamination

Cause: With the exception of GFMP business plans do not incorporate the adoption of air contamination management practices.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** when elaborating new business and development plans and **can be mitigated (M)** in activities underway, to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures: GFMP include recommendations on maintenance of systems carburation and air cleaners fitted to forestry extraction and transformation equipment.

Recommended Mitigation Measures:

- Increase number of business plans with air considerations.
- Extend requirements on air quality to transformation plants.
- Promote the environmental management systems (EMS) approach in business plans and, where possible, encourage enterprises to work towards their own EMS. The EMS approach promotes the application of environmentally responsible practices.

The Field Museum of Chicago: Cordillera Azul Activity

Class of Action: Buffer Zones and Agroforestry

Adverse environmental impact: Habitat reduction/alteration (fragmentation)

Cause No. 1:

- Weak follow-up of environmental impacts generated by intervention and/or not proportional to its scale. The implementation of the Activity has shown serious difficulties in the organization of the teams responsible for monitoring in the communities due to constant changes in the planning criteria; on the other hand, the measures of applying monitoring have not yet been given, because of repeated changes in its design, lack of precision in its indicators and of definition concerning the follow-up methodology; and finally, the field team and sector coordinators are not clear about the monitoring methodology for its application.
- Almost no coordination or cooperation among different USAID implementers working in the same geographical areas.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures:

- Direct support to the administration of the protected area.
- Technical assistance to land zoning efforts
- Natural resources management plans in critical areas (e.g. *Acuerdos Azules*).
- Monitoring mainly focused on Activity targets and is performed at small-scale.
- Establishment of agroforestry systems with native species.
- Support to local surveillance committees.
- Awareness and environmental education program.

Recommended Mitigation Measures:

- Conduct independent environmental audits on a regular basis in proportion to the intervention scale.
- Participate in regional and local in land-use planning processes.
- Support establishment of regional and municipal conservation areas.
- Increase technical assistance and follow-up to consolidate actions.
- Train beneficiaries in monitoring activities.
- Strengthening dissemination of traditional knowledge and practices.
- When in one area two or more activities financed by USAID are implemented, permanent coordination mechanisms should be established between the implementing organizations in order to avoid contradictory messages and disputes between the institutions responsible of the Activities, and between them and the local stakeholders.

Cause No. 2

- The interventions are oriented to reducing pressure on the National Park through the development of small-scale economic activities with local communities in the Buffer Zone, based on the assumption that most of the pressure are local and that offering opportunities for local development will reduce such pressures. Despite of the importance of these interventions the impact on conservation is limited (focalized) due to the complexity of the context.

It is in this context that no evidence exists that the intervention of FM-CIMA has contributed to avoiding the advance of shifting agriculture and consequently of the loss of tree-cover and fragmentation of the habitat. On the contrary, the strategy for mitigation used by FM could be at risk until a system of incentives for marketable permanent crops (e.g. coffee) is put in place and as long as the agroforestry systems loses ground to monoculture.

- Programmatic imprecision with regard to: farm diversification activities, economic return to forestry activities and to funding of agroforestry activities, considering that these activities are highly labor intensive and that in the Buffer Zone monoculture predominate. In this sense, competition for use of labor becomes the principal limiting factor to replication (e.g. as done by PRADERA). This is a situation that does not provoke internalization of costs associated with insertion into the market, as for example costs referred to organic certification of the farm.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures:

- Establishment of agroforestry systems.
- Sustainable agriculture and farm diversification.

Recommended Mitigation Measures:

- Generation of a system of incentives for market-oriented permanent crops (e.g. coffee) in Cordillera Azul NP buffer zone. Strengthen support to agroforestry programs, establishing well-defined property rights; define and evaluate the economic efficiency of the production systems with relation to monoculture agroforestry systems; elaborate business plans for agroforestry and productive chains; evaluate and optimize the use of labor. Successful increases in economic growth, increased labor demand, and demand for commercial crops tend to stabilize families, and may encourage poor subsistence families to better manage soil fertility through adoption of appropriate soil conservation and cropping practices on suitable land, and to seek stable employment in lieu of shifting subsistence agriculture, thereby dampening spontaneous colonization pressures.
- Conduct monitoring of agroforestry activities.
- Implementation of a monitoring system of environmental threats and damages including a cost-benefit analysis of mitigation measures.
- Reduce undesirable and counterproductive incentives considering business plans for each of the species under management.

Adverse environmental impact: Accelerated loss of wildlife

Cause: Over-exploitation and/or reduction of wildlife (flora and fauna) population and of hydro-biological resources.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Direct support to the Park's administration.
- Support to local surveillance and Park support committees.
- Awareness and environmental education program.

- Technical assistance to develop and implement wildlife management plans

Recommended Mitigation Measures:

- Reinforce technical and operative capabilities of Park’s administration.
- Follow-up on approval of plans for resource management.
- Reinforce entrepreneurial and market aspects of the natural resources’ management plans.
- Implement a system for biological and threats monitoring.
- Systematize experiences on reduction of over-exploitation and disseminate them.

Adverse environmental impact: Use of chemicals in farming activities

Cause: Due to the intensive monoculture cropping the indiscriminate use of chemicals in agriculture is wide-spread among farmers in the Selva. Monocultures degrade soil and favor the dissemination of diseases and pests that are combated with the use of agrochemicals.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Sustainable agriculture and farm diversification.
- The Master Plan of the Cordillera Azul NP considers adoption of toxic residues and waste and water disposal.

Recommended Mitigation Measures:

- Adopt appropriate policies in the *Acuerdos Azules* and implement communication and awareness program.
- Inform and train local population.

Class of Action: Protected Areas

Adverse environmental impact: Habitat fragmentation

Cause:

- Weak follow-up of environmental impacts generated by intervention and/or not proportional to its scale. The implementation of the Activity has shown serious difficulties in the organization of the teams responsible for monitoring in the communities due to constant changes in the planning criteria; on the other hand, the measures of applying monitoring have not yet been given, because of repeated changes in its design, lack of precision in its indicators and of definition concerning the follow-up methodology; and finally, the field team and sector coordinators are not clear about the monitoring methodology for its application.
- Almost no coordination or cooperation among different USAID implementers working in the same geographical area.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative** and **synergistic**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures:

- Monitoring focuses mainly on Activity targets and at small-scale.
- Direct support to Park’s administration and zoning efforts.
- Natural resources management plans in critical areas (e.g. *Acuerdos Azules*).
- Implement activities of protection of critical areas.
- Support to the local surveillance and Park support committees.
- Awareness and environmental education program.

Recommended Mitigation Measures:

- Conduct independent environmental audits on a regular basis in proportion to the intervention scale.
- Train Park personnel in monitoring techniques. Among other aspects on protection and conservation of the representative values of the area, information can be useful for promoting and disseminating its environmental services and potential.
- Encourage initiatives aimed at recognition of the true value of environmental services, which at the present time on its early stages and receives little recognition from beneficiary groups.
- When in one area two or more activities financed by USAID are implemented, permanent coordination mechanisms should be established between the implementing organizations in order to avoid contradictory messages and disputes between the institutions responsible of the Activities.

Adverse environmental impact: Accelerated loss of wildlife

Cause No. 1: Over-exploitation and/or reduction of wildlife (flora and fauna) population and of hydro-biological resources.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative** and **synergistic**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Direct support to the Park’s administration.
- Support to local surveillance and park support committees.
- Natural resources management plans in critical areas (*Acuerdos Azules*)
- Support to producers groups.
- Support to Park’s Management Committee.

Recommended Mitigation Measures:

- Reinforce technical and operative capabilities of Park’s administration.
- Follow-up on approval of plans for resource management.
- Systematize experiences on over-exploitation and disseminate appropriately.
- Implementation of a system of biological monitoring and of threats.

Cause No. 2: Illegal hunting, fishing and gathering. The principal threats in the Park are the indiscriminate extraction of the *piazaba* palm, fibers of which are used for making brooms, fishing by local populations and outsiders, who use dynamite, pesticides and *barbasco*³⁰ in their operations as well as conducting illegal logging.

³⁰ Shrub with toxic roots containing *rotenona* used for drugging and killing fish.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Direct support to the Park’s administration.
- Support to local surveillance and Park support committees.
- Natural resources management plans in critical areas (e.g. *Acuerdos Azules*).
- Environmental awareness campaigns.

Recommended Mitigation Measures:

- Reinforce technical and operative capabilities of the Park.
- Approve plans for resource management.
- Reinforce entrepreneurial and market aspects of the management plans.
- Implement a system for biological and threats monitoring that include a cost-benefit analysis of mitigation measures.
- Disseminate information on the implications of illegal hunting, fishing and logging to gain support from local authorities and population in general.

Adverse environmental impact: Trade of endangered species
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Cause: Trade of endangered species.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative** and **synergistic**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Direct support to Park’s administration.
- Support to local surveillance and Park support committees.
- Awareness and environmental education program

Recommended Mitigation Measures:

- Provide INRENA, *Capitanias de Puertos*, Customs, and other responsible agencies technical capacity for control, supervision and law enforcement.
- Support INRENA in the establishment of bilateral and multilateral agreements on wildlife trade and fisheries.
- Establish independent monitoring systems.
- Establish hubs on real time information in strategic areas.

Note: For complementary aspects to be considered, please refer to **Annex J**.

The Nature Conservancy: Parks in Peril (Central Selva; Pacaya-Samiria National Reserve)

Class of Action: Buffer Zones and Agroforestry

Adverse environmental impact: Habitat reduction/alteration (fragmentation)

Cause:

- Weak follow-up of environmental impacts generated by intervention and/or not proportional to its scale. Most actions are designed to directly address only environmental consequences of on-site impacts. Though there may be some important advances in planning processes there are also some limitations, for example in the system of biological and threats monitoring - currently in the implementation stage – as well as knowledge concerning the interrelations between socioeconomic and cultural systems of the local communities with respect to the informal and illegal economies.
- Almost no coordination or cooperation among different USAID implementers working in the same geographical areas.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures:

- Direct support to the administrations of the protected areas.
- Technical assistance to land zoning efforts.
- Natural resources management plans in critical areas, Integrated Conservation and Development Projects (ICDP)
- Monitoring mainly focused on Activity targets and is performed at small-scale.
- Establishment of agroforestry systems with native species.
- Support to local surveillance and support committees of the protected areas.
- Awareness and environmental education program.

Recommended Mitigation Measures:

- Current inputs under these activities include plan preparation, technical assistance and training in developing management and operating plans for protected area and buffer zones, and generally seek to introduce technologies and control measures that reduce on-site environmental impacts from the activity itself and from existing external pressures and threats impacting on-site.³¹ However, during the assessment, several additional measures for mitigating potential on-site impacts were identified. Thus, the conduction of independent environmental audits on a regular basis in proportion to the intervention scale is recommended.
- Participate in regional and local in land-use planning processes.
- Support establishment of regional and municipal conservation areas.
- Increase technical assistance and follow-up to consolidate actions.
- Train beneficiaries in monitoring activities.
- Strengthening dissemination of traditional knowledge and practices.

³¹ For example, assistance to protected areas and buffer zones seeks to alleviate existing pressures on the protected areas from in-migration and illegal uses.

- When two or more activities funded by USAID operating in the same zone or area, permanent coordination mechanisms should be established between implementing organizations in order to avoid contradictory messages and disputes among the institutions responsible for Activities' implementation.

Adverse environmental impact: Accelerated loss of wildlife

Cause: Over-exploitation and/or reduction of wildlife (flora and fauna) population and of hydro-biological resources.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative** and **synergistic**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Direct support to the administration of the protected areas.
- Support to local surveillance and support committees of the protected areas.
- Awareness and environmental education program.

Recommended Mitigation Measures:

- Reinforce technical and operative capabilities of the protected areas' administrations.
- Follow-up on approval of plans for resource management.
- Reinforce entrepreneurial and market aspects of the management plans, including their respective business plans.
- Implement a system for biological and threats monitoring.
- Actions are being developed to generate environmental awareness on the benefits of the protected areas and there are support committees of the protected areas, so that it would be very valuable to have a systematization of experiences in reduction of over-exploitation, and disseminate them in order to strengthen the processes underway which need citizen participation.

Adverse environmental impact: Use of chemicals in farming activities

Cause: Due to the intensive monoculture cropping the indiscriminate use of chemicals in agriculture is wide-spread among farmers in the Selva. Monocultures degrade soil and favor the dissemination of diseases and pests that are combated with the use of agrochemicals.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures: None.

Recommended Mitigation Measures:

- Include chemical control use in natural resources management plans and guidance for its implementation.
- Inform and train producers on cultural practices and products that reduce pathogens in crops.
- Incorporate biological control measures in resources management plans.

Adverse environmental impact: Habitat fragmentation

Cause:

- Weak follow-up of environmental impacts generated by intervention and/or not proportional to its scale. Most actions are designed to directly address only environmental consequences of on-site impacts. Though there may be some important advances in planning processes there are also some limitations, for example in the system of biological and threats monitoring - currently in the implementation stage – as well as knowledge concerning the interrelations between socioeconomic and cultural systems of the local communities with respect to the informal and illegal economies.
- Almost no coordination or cooperation among different USAID implementers working in the same geographical area.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative** and **synergistic**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures:

- Monitoring focuses mainly on Activity targets and at small-scale.
- Direct support to the administration and zoning efforts of the protected areas.
- Natural resources management plans in critical areas (e.g. ICDP).
- Implement activities of protection of critical areas.
- Support to local surveillance and support committees of the protected areas.
- Awareness and environmental education program.

Recommended Mitigation Measures:

- Monitoring of changes of use and status of ecosystems.
- Reinforce use of techniques for utilization and cultural practices.
- Establish balance between low-impact techniques and cultural practices, and incorporate the business approach.
- Train personnel of the protected areas and local population in monitoring techniques. Among other aspects of protection and conservation of the representative values of the protected areas, the information may be useful for promoting and disseminating their environmental services and potential.
- Encourage initiatives aimed at recognition of the true value of environmental services, which at the present time in its early stages and receives little recognition from beneficiary groups.

Adverse environmental impact: Accelerated loss of wildlife

Cause No. 1:

- Although the intervention of TNC through its partner in the Pacaya-Samiria NR has contributed to the recovery the populations of certain species, the strategy is thought to be becoming weaker by not having planned the use of the communal labor force according to criteria of economic efficiency.
- Additionally, the costs of extraction quotas are rising.
- Communal management of natural resources in the Pacaya-Samiria NR are being threatened by economic incentives offered by the illegal economy, without mentioning the physical risk to the community members of the Reserve when they meet illegal loggers.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative** and **synergistic**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Support to groups of producers.
- Natural resources management plans in critical areas.

Recommended Mitigation Measures:

- Plan labor use in the Pacaya-Samiria NR.
- Redefine the system of incentives for communal resource management.

Cause No. 2: Weak treatment of potential impacts of illegal hunting, fishing and gathering.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Direct support to the administration of the protected areas.
- Support to local surveillance and support committees of the protected areas,
- Natural resources management plans in critical areas (e.g. ICDP)
- Environmental awareness campaigns.

Recommended Mitigation Measures:

- Reinforce technical and operative capabilities of protected areas.
- Approve plans for resource management.
- Reinforce entrepreneurial and market aspects of the management plans.
- Implement a system for biological and threats monitoring that includes a cost-benefit analysis.
- Disseminate information on the implications of illegal hunting, fishing and logging.

Cause No. 3: Incidental fishing, including damage to wildlife and fishes.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Change of fishing arts (*aparejos*).
- Use of low-powered engines in boats.

Recommended Mitigation Measures:

- Follow-up on compliance with legal regulations promoting responsible fishing practices.
- Dissemination of suitable methods beyond critical areas.
- Support in the acquisition of user-friendly fishing arts (*aparejos*).

Adverse environmental impact: Trade of endangered species
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Cause: Trade of endangered species.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative** and **synergistic**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Direct support to the administration of protected areas.
- Support to local surveillance and support committees of the protected areas.
- Awareness and environmental education program.

Recommended Mitigation Measures:

- Provide INRENA, *Capitanias de Puertos*, Customs, and other responsible agencies with technical capacity for control, supervision and law enforcement.
- Support INRENA in the establishment of bilateral and multilateral agreements on wildlife trade and fisheries.
- Establish independent monitoring systems.
- Establish hubs on real time information in strategic areas.

Note: For complementary aspects to be considered, please refer to **Annex J**.

WWF: Integrated Forestry Program – CEDEFOR

Class of Action: Forest Concessions

Prior to detailed analysis, it must be pointed out that the WWF-CEDEFOR intervention covers an enormous geographical area (more than 2.400.000 has.). The negative environmental impacts of the interventions, analyzed at the scale of a forest concession, are mostly insignificant, but transferred to the scale of the complete operation, or of the sum of different interventions in a given area may acquire strong significance (synergistic impact).

Adverse environmental impact: Habitat reduction/alteration (fragmentation)

Cause No. 1:

- As a result of forestry macro-zoning, some forest concessions have been sited in protection lands or adjacent to protection forests. This has caused gaps, which due to the lack of control and protection; interrupt the continuity of the biological diversity of the area.
- Some forest concessions do not necessarily take into account the adjacent areas which are classified as protection lands. Additionally, the technical assistance effort on behalf of the forest concessionaires is centered basically on sustainable management of the forest for the purpose of economic gain through utilization of timber species located within the concession area. At this moment one cannot foresee the magnitude of the impact of the concession in its surroundings.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures:

- Initial steps toward integrated management at watershed level.
- Promotion of other styles of forest land-use planning that are complementary to forest concessions (e.g. local forests).

Recommended Mitigation Measures:

- Integrate forest concessions in its watershed context as a unit of management and spatial planning as well as the regional ecological economic zoning (EEZ) process, as the case may be.
- Design and consolidate a system that also integrates forest concessions with areas beyond their boundaries, on the basis of the watershed approach, and of other initiatives of spatial management and biodiversity conservation (e.g. biological or conservation corridors, regional/municipal conservation areas, communal protection areas, etc.).
- Support regional/municipal conservation areas and conservation corridors.
- Reinforce training activities in favor of the concessionaires and ensure appropriate follow-up of the results of these activities. It becomes a priority task to acquire the ability to continue and make this activity sustainable once the USAID implementer is no longer present in the area.

Cause No. 2:

- Weak knowledge concerning forest management and key concepts on the part of concessionaires and their workers and the Forest Management Committees (FMC). While the technical support actions of WWF-CEDEFOR are very valuable in terms of magnitude and coverage, the pressure for fulfillment of targets forced the operator to reduce the emphasis on efforts to generate capabilities and to internalize sustainable forestry management concepts at the level of beneficiaries. This is the case of

the General Forest Management Plans (GFMP) which include concepts of some complexity that are not fully managed by the concessionaires, and less so by their field workers. One of these is the significance and importance of the Permanent Monitoring Plots (PMP), which provide information on volumetric increments and changes in the composition of the forest, necessary for harmonizing the Annual Operational Plans (AOP), and the productive activities, and serve as a benchmark for integrating concessions in the biological context of their area of influence.

- Concessionaires have little or weak perception of the responsibility they have assumed. This assumes special relevance in the case of forest concessionaires, who face the challenge of undertaking a profitable business in the long-term (40 years) based on the responsible management of the forest, given the existing cultural parameters and the vast biodiversity of the country.³²

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **cumulative**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures: WWF has developed training activities directed at the concessionaires, who lack of mechanisms for evaluating, in an objective and independent manner, their effect on the persons to whom they are directed.

Recommended Mitigation Measures:

- It is considered essential the strengthening of the capabilities of the agents involved in the management of the forest concessions. To this end, it is recommended the provision of training on a regular basis for concessionaires and their workers, and for members of the Forest Management Committees (FMC), concerning the relevant concepts in the management of forest concessions and its significance in national development. WWF should exert its influence with its concessionaires to provide them with a better insight into their responsibilities as responsible forestry entrepreneurs, and to give more and better support to the FMC's, since up to now the participation of the concessionaires has been very marginal.
- Follow-up on training activities to evaluate their effect.
- Achieve local participation through the implementation of a communication strategy aimed at creating awareness among the population concerning the potential and benefits of sustainable forest management, as well as the role of the forest concessionaires. Technical terms and relevant legal regulations should be simplified so that local populations may participate actively in the new forestry process.

Adverse environmental impact: Conflict between land-use capability and present use

Cause No. 1:

- Deficiencies in macro-scale forestry zoning favor logging over other uses. By virtue of its design, forestry macro-zoning has treated the forest as a unit basically destined for timber utilization and has not taken into account the heterogeneous nature of the Amazon region from the biological and social viewpoints or of uses that could have greater potential than present uses. Protection lands have actually been integrated as part of the timber resource. This has given rise to endless conflicts, of varying nature, principally social ones that have had repercussions in the efficient development of the forestry concession process
- Follow-up of environmental impacts caused by interventions is weak or not proportional to the scale of interventions. Right from the design stage, monitoring of fulfillment of targets and results has been favored at the expense of monitoring of environmental and social aspects, which has been poor.

³² Consejo Peruano para la Certificación Forestal Voluntaria. 2002

Additionally, it is evident that follow-up actions on the intervention are not proportional to the extension of the spaces intervened. Periodical external and independent evaluation of the operating organizations is difficult and is not considered.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Areas are assigned to forestry uses without considering other potential uses. The opening of the GFMP to non-timber uses is tenuous. Some concessionaires particularly in Madre de Dios, have expressed interest in diversifying production to other lines such as Brazilian Nut (*castaña*); rubber (*shiringa*) and ecotourism, activities which are of significant potential for the concessionaires. Nevertheless, assistance is still very much limited to logging.
- Collect data on compatible uses.
- WWF is monitoring the environmental development of the interventions. However, this is still on a limited scale and often is done by the same organization, with the result that it tends to be confused with monitoring of targets set for the Activity.

Recommended Mitigation Measures:

- More in-depth treatment should be given to other (non-timber) potential uses in the GFMP.
- Incorporate use-capability of soils and land-use planning in all actions considering the watershed as a unit for natural resources management and citizen participation. This implies studying and keeping in mind the GOP regulations (e.g. Regulation on Major Use Capacity of the Soil).
- Support EEZ in the areas of influence, where applicable.
- Emphasize detection and monitoring of large-scale impacts, taking the hydrological watersheds as working units, especially where several concessions are being supported in the same area, as a means toward more efficient and progressive adaptation to the watershed approach. These actions should be performed on a regular basis and in proportion to the extent of the areas intervened. For this purpose, it is recommended the participation of independent external consultants.

Cause No. 2:

- Treatment of the social and cultural themes suffers from some weaknesses. In some cases, it is based on lengthy situational diagnosis which, however, does not result in an appropriate inclusive strategy that covers the populations and organizations, traditional or local, with a systematic vision and in terms of social, cultural and environmental criteria. This does not allow identification of critical points, or threats, or in turn, the design of specific mitigation measures. Despite the fact that a large proportion of conflicts are of social, political and cultural nature. CEDEFOR has not permanent support from specialists in the social field.
- Insufficient attention is paid to social conflicts due to overlapping with forest concession areas. A significant proportion of concessionaires cannot even set foot on their concessions due to problems of overlapping with farms, mining concessions, and/or native community lands. Physical and legal clearing is long overdue, and the lack of it generates social conflicts and a bad image for the forestry entrepreneurs.
- Stakeholders and local population in general are unaware of the scope of the forest concession process. For the consolidation of the forest concessions process and system it is necessary to generate confidence and empathy with social actors involved, on the basis of respect for their territorial, environmental and social rights, and for their right to live.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- WWF is coordinating with INRENA and PETT in support to the physical and legal clearing of the concessions, both on paper and on the ground.
- Support continues to be given in the establishment of FMC's and, in some cases, funding of their meetings.
- Participation in and support to the National Forestry Table and the Regional Tables to manage the problem.

Recommended Mitigation Measures:

- Support INRENA for resolving problems of rights overlap define boundaries and register concessions appropriately.
- Support the creation of an inter-sectoral coordinating space with the participation of INRENA, PETT, the Ministry of Energy and Mines, native community's organizations and others, to unify criteria for assigning rights.
- Design and implement a social and environmental monitoring system at intervention level. If feasible, the implementing organization should see to the incorporation of environmental and social monitoring systems, starting from the stage prior to the execution of the interventions, incorporating them in the planning instruments and providing resources needed for their application throughout the life of intervention.

Adverse environmental impact: Decreased biological diversity/potential loss of genetic resources

Cause:

- Deficiencies on baselines or evaluations of forestry activities. In several cases, the evaluations or baselines on the forest resource or on the biological content of the intervention areas are a long way short of desirable levels, having been obtained indirectly so that it is hard to ascertain whether they really represent the attributes of the ecological spaces that are being improved or managed. For example, it has been considered acceptable to use secondary information and information from areas outside of the concessions in order to define the timber content of these areas in the GFMPs. This is inappropriate; especially considering that, for many of the intervention areas, the pre-existing information concerning their biological content is practically non-existent. Additionally, there is generalized confusion between the concepts: "common name" and "scientific/botanical name" of the biological species. This confusion is found even in the base documents generated (e.g. GFMP and AOP). The common (popular) names of Amazonian trees normally embrace several species. The attempt is made to translate local reconnaissance categories as named by a *matero* or a local guide, into taxonomic entities, assuming specific equivalences for each common name, without having carried out the necessary dendrological studies. In some cases, common names are used for which the taxonomic identity is unknown. Worse still when one is making an intervention in an area whose biodiversity is unknown. This can lead to the "planned" harvesting of species impacting species that are not considered or unknown.
- Weak baseline information of the biological contents of forest concessions. Field study prior to intervention has been insufficient and in some cases absent altogether. Several concession areas are lacking in information about their biological content. In those cases in which forest inventories had previously been carried out, these were limited to a very small portion of the concession area and/or were conducted in terms of the common names of plants without identifying their botanical names. This information cannot be considered baseline information on the botanical content of the areas. It is

difficult – if not impossible – to predict environmental impacts and impacts due to styles of resource management, in ecological areas about which biological knowledge is precarious or non-existent.

- Lack of emphasis on centralization/integration of information. The opportunity to centralize and exchange technical information generated in Permanent Monitoring Plots (PMP), or silvicultural information, which is beginning to become available in the concessions, has not been capitalized. This refers particularly to information on volumetric increments, on changes in species composition after harvest, presence and location of seed-trees, etc. This information is extremely valuable for the economic planning of forest enterprises, and for the scientific-technical community.
- Lack of specific procedures for avoiding depredation of endangered species or their critical physical location. There is no information concerning elements of the flora and fauna, in particular rare species, which may be suffering extinction as a result of the present process of forest concessions.
- Areas with rare biodiversity have not been defined within forest concessions. One consequence of this is that impacts may be occurring in the biological elements of the ecosystems affected.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat on the decrease of biodiversity **can be mitigated (M)** and **can be avoided (A)** in relation to the loss of genetic resources, to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- PMP have been installed in the forest concessions, but only in a preliminary manner, for the biodiversity baseline lacks the necessary scientific thoroughness to permit its use as a suitable framework for beginning work.
- Efforts at monitoring on the basis of the PMP lack the necessary scientific accuracy. The PMP are considered among the original parameters of the GFMP, but the importance of their application has been diluted during the implementation process; thus, botanically, they show serious gaps.
- The GFMP baseline contains information, though not very solid, concerning the content of biological species.

Recommended Mitigation Measures:

- Reinforce biodiversity baseline and define potential impacts on flora/fauna.
- Reinforcement and widening of the system of PMP established, ensuring procedures for collection of biological material and the making of taxonomical studies of elements of flora and fauna within the plots, and the planning and implementation of biological prospecting, using approved and standardized methodologies, which will allow the generation of cumulative knowledge concerning the intervened units.
- Identification and continuous monitoring of areas with rare biological content.
- Establishment of monitoring protocols is required, in order to facilitate decision making concerning the conservation of some of these areas, as may be necessary. These actions should be taken in a cooperative manner with institutions that have past experience in these tasks and have approved protocols, such as the National Universities and other research centers.
- Plan and coordinate dissemination systems allowing permanent access and analysis of this information by the specialized scientific community, in order to detect rare or threatened species, promoting the systematization of and improved access to information on a permanent basis.
- Conduct independent environmental audits. Evaluation and monitoring of biodiversity should be fostered in a regular manner; proportional to the extension of the areas intervened and carried out by external consultants (auditors) as a means of permanent and progressive improvement.

Adverse environmental impact: Accelerated loss of wildlife

Cause: Weak treatment of potential impacts on wildlife and poaching in forest concessions. Prevention of poaching in forest concessions is incipient and is made harder by the practice of hunting prevalent among forestry workers. At the present time, there are no specific procedures for preventing the wiping-out of endangered species in their critical habitats (e.g. *collpas*, nesting areas, etc.). No protocols have been developed for detecting sites with rare biological content within forest concessions during their operation, and their consequent exclusion from production area.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site**.

On-going Mitigation Measures: Some of the GFMP consider the need for certain measures with respect to the impact, but they are not being adequately implemented.

Recommended Mitigation Measures:

- Generate awareness about the importance of the fauna among concessionaires and their workers.
- Training concessionaires and their workers in measures to protect fauna, for instance, about the improvements needed to conserve wildlife species which may be in critical condition, or in procedures that permit documentation and taking the appropriate decisions in the event of detection of rare biological elements.
- Follow-up on training activities to evaluate impact in beneficiaries.
- Promote the establishment of procedures to sanction forest concession workers who disregard regulations.
- Monitoring of GFMP's compliance in this regard.

Adverse environmental impact: Health and sanitary risks among local population and workers

Cause: Lack of a health and safety approach and plan for forest concession operations. One noticeable deficiency at documentary level in the GFMPs, as well as in the field, is the lack of appropriate planning and implementation of preventive health and safety actions and monitoring. It may be expected that employees, local populations and surrounding wildlife and natural habitats may be exposed to increased health and safety risks. Due to the very nature of work in remote areas, subject to infectious diseases, presence of heavy machinery and the difficulty of communication, transportation and evacuation of sick personnel.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Small training courses have been developed by WWF.
- The GFMP consider the subject in a very preliminary way.

Recommended Mitigation Measures:

- Design and put into effect strict policies concerning health and worker safety, including mandatory record-keeping and monitoring.

- Design and implement a health and safety plan including procedures required for preventing and/or appropriately treat accidents at work, infectious-contagious diseases which affect also the population adjacent to the concession, and make the necessary coordination with dispensaries and hospitals in the vicinity in case of emergencies.
- Also, provision should be made for continuous training activities and the preparation of suitable extension and dissemination materials and the relevant mechanisms for impact evaluation.
- Incorporate health and safety protocols in the GFMP.

Adverse environmental impact: Potential impacts in the hydrologic regime of the watersheds

Cause: Lack or weak monitoring of large-scale activities. Although there are no signs of impacts at this level given the scale of the WWF-CEDEFOR intervention, we may expect to see an impact in a watershed when they are operating simultaneously and in full level. This could generate negative changes in the hydrologic regime of the watersheds, such as unforeseen flow fluctuations, floods and landslides in sensitive areas, which are eventualities not suitably contemplated at present.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be avoided (A)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures: GFMP conducts the planning of the management area in compliance with INRENA’s guidelines and applies it correctly.

Recommended Mitigation Measures:

- Monitoring system of the hydrological regime at watershed level. A system of monitoring and recording should be set up at watershed level that will permit monitoring of trends and impacts in the hydrologic regime as a result of the operation of the concessions.
- Establish integrated networks and flow measuring stations (*estaciones de aforo*) in order to record flows in rivers and tributary streams.
- Monitor compliance of the GFMPs, principally in terms of potential cumulative impacts, taking into consideration the land-use planning of the watershed.
- Promote other forest land uses (local forests, regional/municipal conservation areas, etc.) to help ensuring the quality and quantity of water supply in the watershed.
- Strengthen of the FMCs as the “seed” of a watershed management entity.

Adverse environmental impact: Over-exploitation of traditional timber species

Cause No. 1

Small/limited investment effort for development of new species. This is an initiative analyzed only marginally during the F/BEA. However, it is considered to be of vital importance for the development of the timber-processing industry and for the primary production sector, the conservation of traditional timber species, generally submitted to high degrees of selective harvesting and, finally, to enhance the value of production forests. In spite of its importance, the investment destined to this purpose is minimal compared to the cost of technological testing in the laboratory which far exceed those for traditional laboratory testing;³³ and take into account the exact taxonomic identification (dendrological) as well as

³³ For example, the introduction of a new timber species in the high-quality furniture industry requires an investment of US\$200K.

the incorporation of the timber species evaluated in the whole production-marketing chain, not to mention, the scale of the repercussions in the forest-productive sector and the conservation of threatened species.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures: Research and development of few lesser-known-species (LKS) is in place. WWF is making an important effort at the present time, having achieved collaborative agreements with three furniture manufacturers who are carrying out all the technological tests which will permit incorporation in the market of six (6) forest species: lagarto caspi (*Calophyllum brasiliense*), copaiba (*Copaifera officinalis*), pashaco blanco (*Albizia* sp), pumaquiro (*Aspidosperma macrocarpon*), cachimbo (*Cariniana domesticata*) and capirona (*Calycophyllum spruceanum*). The two last-named species are aimed at the high end of the United States furniture market.

Recommended Mitigation Measures:

- As far as possible, increase the investment in research applied to the productive species for introduction in the market through strategic alliances (e.g. Chemonics-PRA could take the lead in this initiative in coordination with producers associations and forestry enterprises).
- Many of the concessionaires interviewed agreed that, due to selective logging of valuable species the most abundant species in the forest are “hardwood” species appropriate for flooring. It is for these hardwood species that it is most difficult to determine the kiln-drying cycle. This is an area which needs more technical support and infrastructure/equipment.

Cause No. 2

Illegal loggers invade forest concessions to extract valuable forest species (selective logging). Selective logging by groups of people who encroach on the forest concessions is a serious threat to sustainability of the forest and to the process of concessions itself. These groups often carry arms and have criminal backgrounds, which means that the concessionaires and other interested parties are at disadvantage. In some cases, illegal loggers make agreements with member of nearby native communities who are allowed to extract certain amount of timber from their communal lands. In this context, concessions are invaded, and even protected areas. In all cases valuable hardwoods are illegally extracted.

Despite of the complexity of this illegal activity, WWF is developing some important actions to reduce impacts.

Qualification of Impact: Considering its resolution capacity, the adverse impact/threat **can be mitigated (M)** to the extent to which the USAID partner and/or its associates consider and apply the proposed recommendations and the respective USG/GOP environmental regulations. With regard to the magnitude of the impact, it is **synergistic** and **cumulative**; in terms of its spatial distribution it is **on-site** and **off-site**.

On-going Mitigation Measures:

- Support to the formation of FMCs, but only a few FMCs have been formally recognized by INRENA.
- Support in the organization of meetings and some training activities for FMC’s members.
- Support to the Multisectoral Commission against Illegal Logging (CMLTI) in actions which range from its creation and preparation of working strategy to the support to INRENA in field operations.

Recommended Mitigation Measures:

- Implementation of a systemic monitoring system of illegal logging activities that affect forest concessions.

- Improve the FMC's strengthening process. It is necessary to solve the problem of their legal recognition and their inscription in Public Register so that they may obtain juridical identity and become free of State tutelage in order to facilitate their mission. At the same time, the process of training their members in themes which concern them should be reinforced.
- Improve local organizations' presence in control actions (early-warning systems) by designing specific mechanisms and strategies, integrating communities and local organizations in citizen surveillance actions, with prior training.
- Implement local awareness campaigns for citizen participation, based on the knowledge that forests constitute a very valuable heritage for the nation and for the future of their families.
- Support native communities within the intervention site to manage their forests and avoid having them burglarized and exploited by illegal loggers.

Note: For complementary aspects to be considered, please refer to **Annex J**.

Class of Action: Buffer Zones and Agroforestry

For security reasons the F/BEA team could not reach the intervention zone of Aguaytia, where WWF is implementing the *Von Humboldt Aguaytia Integrated Pilot Project – Alternative Sustainable Forest Resource Use*. Therefore, it is suggested taking as references recommendations proposed to TNC y FM for the relevant class of action, as well as some additional aspects considered in the ADP PEA (**Annex J**).

E. SUMMARY MATRIX OF CONCLUSIONS AND RECOMMENDATIONS

Before presenting the **Summary Matrix of Conclusions and Recommendations**, it is of relevance to describe below some conclusions and recommendations considered by the team to be of major importance to achieving the purposes of the F/BEA. These generally transcend the various classes of actions assessed, and apply to the many variations of ecosystems found within the focus areas of the assessment. Similarly, they are relevant to most on-going and planned activities of USAID partners and associates responsible for planning and implementing programs and activities in the F/BEA framework. Some issues³⁴ of special concern in the context of all interventions are presented below:

A varied treatment of the environmental aspects in terms of the interventions' approach is perceived. As well as problems with environmental implications or internal environmental impacts generated by the interventions themselves, there is a relevant problem in the original design of some of the interventions (or in the nature of the organization and action of the implementer) that reveals serious gaps in regard to the application of GOP/USG environmental regulations, in particular those related to land capability, land-use planning and the protection of flora and fauna.

Recommended Mitigation Measures:

- Right from the planning stage of the interventions, incorporate an integral or holistic view of the environment from an ecosystemic approach, with special regard for protection existing flora and fauna species, major land-use capacity of soils in the areas of influence, land-use and watershed planning as a basic framework of the development within the intervention. These actions must be accompanied by mechanisms of information and training of the personnel involved, as well as dissemination to stakeholders.
- In the case of on-going interventions it is recommended submission of all actions to existing laws, which may in some cases be complemented by application of principles and agreements of international character – considering the watershed and land-use capability approaches – as well as measures for protecting existing flora and fauna species in the intervention areas. In these cases the actions must be accompanied by measures for information, dissemination and training.

Likewise, deficiencies have been noted in the evaluations or baseline data which form the axis for environmental adequacy or management, in particular the data concerning biodiversity; in addition to, the weakness follow-up actions on environmental impacts generated by the interventions. In this connection and in general terms, it has become evident that the interventions lack of a monitoring system for environmental threats and that the corresponding mitigation measures implemented are not based on a cost-benefit analysis. Consequently, there is insufficient systematization of experiences, or learning culture, not only as part of the Activity but as part of an internal policy of the responsible organization.

Recommended Mitigation Measures:

- Environmental monitoring and evaluation systems should be incorporated in the planning instruments as well as the resources required for their application over the life of the intervention.
- From the economic standpoint, recommendations center upon regulating pressure on access to and use of the natural resources of the forest. In other words, the measures for mitigating threats will be defined in terms of restricting free access to the resources, redefining property rights (in the framework of EEZ) and planning sustainable extraction of renewable resources. This should be

³⁴ For additional reference information, please go to “Consolidated Matrix of Findings that limit Environmental Results and Recommended Mitigation Measures,” Volume II.

incorporated in the monitoring system of environmental threats, including methodologies for quantifying environmental damage and benefits, as well as the respective cost-benefit analysis for the application of those measures.

- Continuous external monitoring programs should be planned, independent of the operating organization and proportional to the area of influence of the intervention in order to improve environmental appropriateness of the intervention.

Confused and weak perception of the extent of the intervention. There are repeated and continuous misunderstandings and conflicts among USAID's partners and their associates working in the same area, basically due to contradictions between their approaches. There is a lack of coordination (among implementers) and of communication (toward the stakeholders and general population), causing confusion and some resistance on the part of stakeholders, a key element for the success of the interventions.

Recommended Mitigation Measures: When in one single area of action, two or more interventions are implemented with USAID funding, permanent coordination mechanisms should be established among the implementing organizations and between these and the Mission, with the objective of avoiding conflicts of approach, saturation of beneficiaries and inefficient use of funds.

On the next page will be found the **Summary Matrix of Conclusions and Recommendations per Classes of Actions.**

Table No. 3
Summary Matrix of Impacts, Mitigation Actions and Recommendations per Classes of Actions

Classes of Actions/Types of Interventions/ Implementing Partners	Adverse Environmental Impacts	Causes	Criteria that Qualify Impacts					On-going Mitigation Measures		Recommended Mitigation Measures	
			Impacts are: ³⁵	On Site	Off Site	Scope of Impact		Actors	Action	Actions	Responsible Actors
						Synergistic ³⁶	Cumulative				
<i>Class of Action:</i> FOREST CONCESSIONS (FC)											
<i>Type of intervention:</i> <ul style="list-style-type: none"> • TA/sustainable forest management • TA/preparation of GFMPs and AOPs • TA during plan implementation • TA/training to Forest Management Committees (FMC) • Collection of data from monitoring plots 	Habitat reduction/ alteration (fragmentation)	<ul style="list-style-type: none"> • Some FCs have been sited in protection lands or in areas adjacent to protection forests, disrupting BD continuity. • Some FCs do not take into account the adjacent areas which are classified as protection lands. • These areas (protection lands) lack of control/protection 	M	x		X	x	WWF	<ul style="list-style-type: none"> • Initial steps toward integrated management at watershed level • Promotion of other forest land uses (e.g. local forests) 	<ul style="list-style-type: none"> • Integrate FCs in the watershed context and regional EEZ. • Incorporate in FC planning areas beyond the FC's boundaries. • Participate in regional/municipal conservation areas and conservation corridors • Train concessionaires and follow-up training activities. 	WWF
								PRA	None	<ul style="list-style-type: none"> • Consider watershed approach and land-use zoning. • Incorporate the design and implementation of activities of FCs in the watershed context and regional EEZ. • Incorporate in FC planning areas beyond the FC's boundaries. • Participate in regional/municipal conservation areas and conservation corridors • Train concessionaires and follow-up training activities. 	<ul style="list-style-type: none"> • Consider watershed approach and land-use zoning. • Incorporate the design and implementation of activities of FCs in the watershed context and regional EEZ. • Incorporate in FC planning areas beyond the FC's boundaries. • Participate in regional/municipal conservation areas and conservation corridors • Train concessionaires and follow-up training activities.
			<ul style="list-style-type: none"> • Weak knowledge of forest management and key concepts by concessionaires and their workers and the FMCs. • Concessionaires with little/weak perception of their responsibility on 	A	x			x	WWF PRA	<ul style="list-style-type: none"> • Training actions being provided but without evaluation of effect. 	<ul style="list-style-type: none"> • Training on regular basis • Follow-up on training activities • Communication strategy to promote local participation

³⁵ Can be Avoided (A); Can be Mitigated (M); Unavoidable (U); Eliminated (E)

³⁶ Impacts that cooperating together enhances their effects (a synergistic effect). Due to its importance, they are marked in red.

<ul style="list-style-type: none"> TA/business management Financial/in-kind assistance/ Credit <p><i>Implementing Partners:</i></p> <p>WWF-CEDEFOR Chemonics-PRA</p>		sustainable management (ecologically and socially)										
	Conflict between land-use capability and present use	<ul style="list-style-type: none"> Deficiencies in the forest macro-zoning favor timber uses over others. Follow-up of environmental impacts caused by interventions is weak or not proportional to the scale of interventions. 	M	x	x	X	x	WWF	<ul style="list-style-type: none"> Areas are assigned to forestry uses. Collect data on compatible uses Monitoring and follow-up oriented principally to Activity targets/ expected results. 	<ul style="list-style-type: none"> Consider other potential uses. Incorporate use-capability of soils and land-use planning in all actions considering the watershed approach (unit for natural resources management and citizen participation). Support EEZ in the areas of influence Conduct environmental independent audits on regular basis and proportional to the area of influence of the interventions. 	WWF PRA Supported concessionaires	
			PRA	None								
		<ul style="list-style-type: none"> Implementing organizations lack of technical social expertise. Insufficient attention to social conflicts due to overlapping with FC areas. Stakeholders and local population in general are unaware of the scope of the FC process. 	M	x	x	X	x	WWF	<ul style="list-style-type: none"> Coordination with INRENA/PETT for physical and legal clearing. FMCs being implemented. Participation in and support to the National Forestry Table and the Regional Tables to manage the problem. 	<ul style="list-style-type: none"> Support INRENA for resolving problems of rights overlap, and define boundaries and register concessions appropriately Support the creation of an inter-sectoral coordinating space to unify criteria for assigning rights. Design and implement a social/environmental monitoring system. 	WWF INRENA PETT Supported concessionaires FMC	
PRA	None	<ul style="list-style-type: none"> Design and implement a social/environmental monitoring system. 	PRA Supported concessionaires									
	Decreased biological diversity/potential loss of genetic resources	<ul style="list-style-type: none"> Deficiencies on baselines or evaluations of forestry activities Weak baseline information of the biological contents of FCs. Lack of emphasis on systematization/centralization/integration of information. Lack of specific procedures for avoiding depredation of endangered species and/or their critical physical location. Areas with rare BD have 	A/ M	x	x	X	x	WWF PRA	<ul style="list-style-type: none"> Incipient PMPs established within FCs Monitoring (PMP) efforts lack of the required level. GFMP's baseline includes weak information about biological species. 	<ul style="list-style-type: none"> Reinforce BD baseline and define potential impacts on flora/fauna Reinforce and optimize PMP system. Identification and continuous monitoring of areas with rare/unique biological content Monitoring protocols need to be established. Systematize and improve access to information on a permanent basis. Conduct independent environmental audits. 	WWF PRA Supported concessionaires Research Centers	

		not been defined in FC									
	Accelerated loss of wildlife	Weak treatment of potential impacts on wildlife and poaching in forest concessions: <ul style="list-style-type: none"> Lack of specific procedures in GFMP for avoiding depredation of endangered species or their critical physical location. Areas with rare BD have not been defined in FC 	M	x		X	x	WWF PRA	Some GFMP include certain measures about preventing poaching.	<ul style="list-style-type: none"> Generate awareness about the importance of fauna among concessionaires and their workers. Train concessionaires/workers in measures to protect fauna Follow-up on training activities to evaluate impact Promote the establishment of procedures to sanction FC workers who disregard regulations. Monitoring of GFMP's compliance in this regard. 	WWF PRA Supported concessionaires
	Health and sanitary risks among local population and workers	Lack of a health/safety approach and plan	A	x	x	X	x	WWF PRA	<ul style="list-style-type: none"> Small training courses Partially considered in GFMP None	<ul style="list-style-type: none"> Establish health/safety policies Design and implement a health/safety plan Training concessionaires and their workers Incorporate health/safety protocols in the GFMP 	WWF PRA Supported Concessionaires
	Potential impacts in the hydrologic regime of the watersheds	Lack or weak monitoring of large-scale activities.	A	x	x	X	x	WWF PRA	GFMP applies land-use zoning of the FC management area. GFMP applies land-use zoning of the FC management area.	<ul style="list-style-type: none"> Monitoring system of the hydrological regime at watershed level. Establish integrated networks and flow measuring stations. Monitor compliance of the GFMPs. Promote other forest land uses (local forests, regional/municipal conservation areas, etc.) Strengthen of the FMCs as the "seed" of a watershed management entity. <ul style="list-style-type: none"> Zoning and integration at the watershed level Promote other forest land uses (e.g. local forests) Monitor the compliance of the GFMPs. Include business baseline of environmental services. 	WWF Supported Concessionaires INRENA Regional/local authorities FMC PRA Concessionaires INRENA Regional/local authorities FMC
	Over-exploitation of traditional	Small/limited investment effort for development of new species.	M	x	x	X	x	WWF PRA	Research/development of few lesser-known (LKS) species is in place. None	<ul style="list-style-type: none"> Increase investment through new alliances. Increase the number of species. 	WWF PRA Research centers

	timber species	Illegal loggers invade FCs to extract valuable forest species (selective logging).	M	x	x	X	x	WWF	<ul style="list-style-type: none"> • Support to the formation of FMCs. • Very few FMCs have been formally recognized • Initial activities toward FMC's strengthening. • Support to the CMLTI and INRENA. 	<ul style="list-style-type: none"> • Implementation of a systematic monitoring system of illegal logging that affect FCs. • Support the establishment and/or improve FMC's strengthening process (legal recognition, training, etc.) • Improve local organizations' presence in control actions (early-warning systems). • Local awareness campaign for citizen participation. • Support native communities within the intervention site to manage their forests and avoid having them burglarized and exploited by illegal loggers. 	WWF PRA FMC INRENA CMLTI Local Organizations PRA FMC INRENA
								PRA	None		

Classes of Actions/Types of Interventions/Implementing Partners	Adverse Environmental Impacts	Causes	Criteria that Qualify Impacts					On-going Mitigation Measures		Recommended Mitigation Measures	
			Impacts are:	On Site	Off Site	Scope of Impact		Actors	Action	Actions	Responsible Actors
						Synergistic	Cumulative				
<i>Class of Intervention:</i> AGRICULTURE PRODUCTION											
<i>Type of intervention:</i> <ul style="list-style-type: none"> TA to marketers/processors of monoculture crops TA to producers of monoculture crops <i>Implementing Partner:</i> Chemonics-PRA	Introduction of exotic species	Introduction of potentially invasive exotic species (e.g. kudzu)	A/ E ³⁷	X		X	X	PRA	None	<ul style="list-style-type: none"> Eliminate the undesirable practice and eradicate species (<u>severe breach of existing regulations</u>) New introduction of species must respect relevant legal regulations. Disseminate among appropriate personnel the UICN guide. 	PRA & their associates MinAg
	Conflict between land-use capability and present use	<ul style="list-style-type: none"> Limited consideration of land-use regulations (serious gaps in the application of environmental regulations) Lack of environmental considerations is inherent to Activity's approach Promotion of large-scale crops (monoculture) Economic revenue approach does not consider environmental and social aspects Lack of studies of soils and associated crops prior to intervention. M&E systems do not incorporate environmental variables. 	M	X	X	X	X	PRA	<ul style="list-style-type: none"> Assistance is not provided to production on slopes Prohibition to purchase restricted pesticides with USAID funds 	<ul style="list-style-type: none"> Adjust interventions to the legal framework regarding soil capacity. Incorporate use-capability of soils and land-use planning in all actions considering the watershed approach. Carry-out soil analysis before new interventions. Carry-out studies of high-yielding and environmental by suitable crops. Promote native products. Train implementers/ associates personnel in soil capacity parameters. Incorporate environmental variables in the M&E system. Implementation of a monitoring system of environmental threats/damages + a cost-benefit analysis of mitigation measures. Conduct independent environmental audits on a regular basis in proportion to the 	PRA & their associates

³⁷ Eliminate.

										intervention scale.	
										<ul style="list-style-type: none"> Establishment of environmental and social early-warning systems. 	
	Soil degradation (return to coca production)	<ul style="list-style-type: none"> Low productivity/returns of promoted alternative crops is not developing adequate economic incentives. Weak TA and follow-up provided to farmers. M&E systems do not incorporate environmental variables. 	M	x	x	X	x	PRA	<ul style="list-style-type: none"> Assistance is not provided to production on slopes Prohibition to purchase restricted pesticides with USAID funds 	<ul style="list-style-type: none"> Improve TA for alternative crops where this can lead to sustained support to beneficiaries Incorporate use-capability of soils and land-use planning in all actions considering the watershed approach. Incorporate use of appropriate soil conservation technologies. Incorporate environmental variables in the M&E system. Implementation of a monitoring system of environmental threats/damages + a cost-benefit analysis of mitigation measures. Establishment of environmental and social early-warning systems. 	PRA & their associates DEVIDA
	Habitat fragmentation	Lack or weak follow-up of environmental impacts generated by intervention and/or not proportional to its scale.	M	x	x	X	x	PRA	<ul style="list-style-type: none"> Monitoring focuses mainly on Activity targets and at small-scale Weak dissemination of USG/GOP environmental regulations among PRA operators. 	<ul style="list-style-type: none"> Adjust interventions to the legal framework regarding soil capacity. Consider watershed approach and land-use zoning. Conduct independent env. audits on a regular basis in proportion to the intervention scale. 	PRA & their associates
	Unplanned settlements	Human settlements in <i>restingas</i> due to promotion of short-cycle agricultural crops.	A	x	x	X	x	PRA	None	<ul style="list-style-type: none"> Application of legal disposition on Ecological Protection Zones in the Amazon Region Conduct EIA Conduct socioeconomic/ ecological diagnosis/ mapping to identify current impacts/threats to environment. Incorporate cost-benefit analysis of mitigation measures. 	PRA & their associates
	Use of chemicals in farming activities	Farmers encouraged to achieve higher short-term yields, do not receive appropriate guidance and follow-up.	A	x	x	X	x	PRA	Prohibition to purchase restricted pesticides with USAID funds and gradual adoption of biological control is promoted.	<ul style="list-style-type: none"> Inform and train farmers/ beneficiaries in pesticide mgmt. Do not promote crops highly demanding in agrochemicals Promote biological control and organic certification Reduce monoculture activities 	PRA & their associates

Classes of Actions/Types of Interventions/Implementing Partners	Adverse Environmental Impacts	Causes	Criteria that Qualify Impacts					On-going Mitigation Measures		Recommended Mitigation Measures	
			Impacts are:	On Site	Off Site	Scope of Impact		Actors	Action	Actions	Responsible Actors
						Synergistic	Cumulative				
<i>Class of Intervention:</i> BUFFER ZONES/ AGROFORESTRY											
<i>Type of intervention:</i> <ul style="list-style-type: none"> TA on-farm agroforestry testing/ verification systems applications Sustainable agriculture/farm diversification On-farm reforestation Strengthening of local organizations Community environmental awareness/ participation Other TA/Training <i>Implementing Partners:</i> WWF FM TNC	Habitat reduction/ alteration (fragmentation)	<ul style="list-style-type: none"> Weak follow-up of environmental impacts generated by interventions and/or not proportional to its scale. Almost no coordination or cooperation among different USAID implementers working in the same geographical area. 	M	X		X	X	FM TNC	<ul style="list-style-type: none"> Direct support to PA TA to land zoning efforts Natural resources management plans in critical areas, PICD (TNC-PN) and <i>Acuerdos Azules</i> (FM-CIMA) Monitoring (mainly focused on Activity targets and is performed at small-scale) Establishment of agroforestry systems w/native species Support to local surveillance/PAs support committees. Awareness and environmental education program 	<ul style="list-style-type: none"> Conduct independent environmental audits on a regular basis in proportion to the intervention scale. Participate in regional and local in land-use planning processes. Support establishment of regional and municipal conservation areas. Increase TA/follow-up to consolidate actions. Train beneficiaries in monitoring activities. Strengthening dissemination of traditional knowledge and practices. Establish permanent coordination mechanisms among USAID partners working in the same intervention areas. 	FM-CIMA and their associates TNC-PN INRENA PETT Local Governments Local Organizations
		<ul style="list-style-type: none"> Advance on shifting agriculture. Programmatic imprecision with regard to: farm diversification activities, economic return to forestry activities and to funding of agroforestry activities. 	M	X			X	FM	<ul style="list-style-type: none"> Establishment of agroforestry systems Sustainable agriculture/farm diversification. 	<ul style="list-style-type: none"> Generation of a system of incentives for market-oriented permanent crops (e.g. coffee) in Cordillera Azul NP buffer zone Conduct monitoring of agroforestry activities Implementation of a monitoring system of environmental threats/damages + a cost-benefit analysis of mitigation measures. Reduce undesirable and counterproductive incentives. 	FM-CIMA and their associates

	Accelerated loss of wildlife	Over-exploitation/ reduction of wildlife (flora and fauna) population and of hydro-biological resources.	M	x	x	X	x	FM TNC	<ul style="list-style-type: none"> • Direct support to the PA administration. • Support to local surveillance/park support committees. • Awareness and environmental education program • TA to develop and implement wildlife management plans. 	<ul style="list-style-type: none"> • Reinforce technical and operative capabilities of PAs. • Follow-up on approval of plans for resource management. • Reinforce entrepreneurial and market aspects of the management plans. • Implement a system for biological and threats monitoring. • Systematize experiences on reduction of over-exploitation and disseminate them. 	FM-CIMA and their associates TNC-PN Surveillance Committees
	Use of chemicals in farming activities	Indiscriminate use of chemicals in agriculture.	A	x	x		x	TNC	None.	<ul style="list-style-type: none"> • Include chemical control use in natural resources management plans and guidance for implementation. • Inform and train producers on cultural practices and products that reduce pathogens in crops • Incorporate biological control measures in resources management plans. 	TNC INRENA Producer Groups
			A	x	x		x	FM	<ul style="list-style-type: none"> • Sustainable agriculture/farm diversification. • Cordillera Azul Master Plan considers adoption of toxic residues and waste and water disposal. 	<ul style="list-style-type: none"> • Adopt policies in the <i>Acuerdos Azules</i> and implement communication and awareness program • Inform and train local population 	FM-CIMA and their associates

Classes of Actions/Types of Interventions/Implementing Partners	Adverse Environmental Impacts	Causes	Criteria that Qualify Impacts					On-going Mitigation Measures		Recommended Mitigation Measures	
			Impacts are:	On Site	Off Site	Scope of Impact		Actors	Action	Actions	Responsible Actors
						Synergistic	Cumulative				
<i>Class of Intervention:</i> PROTECTED AREAS											
<i>Type of intervention:</i> <ul style="list-style-type: none"> TA to Master Plan participatory elaboration process TA to PA administration/ PA Management Committees In-kind/logistical support to PA administration and control Construction of control stations Legal/TA natural resources plans Community environmental awareness/ participation Other training 	Habitat reduction/ alteration (fragmentation)	<ul style="list-style-type: none"> Weak follow-up of environmental impacts generated by intervention and/or not proportional to its scale. Almost no coordination or cooperation among different USAID implementers working in the same geographical area.. 	M	x		X	x	FM	<ul style="list-style-type: none"> Monitoring focuses mainly on Activity targets and at small-scale. Direct support to PA administration + zoning Natural resources management plans in critical areas, PICD (TNC-PN) and <i>Acuerdos Azules</i> (FM-CIMA) 	<ul style="list-style-type: none"> Conduct independent environmental audits on a regular basis in proportion to the intervention scale. Train PA personnel in monitoring techniques. Encourage initiatives aimed at recognition of the true value of environmental services. Establish coordination mechanisms between USAID partners working in the same area. 	FM-CIMA and their associates INRENA
			M	x		X	x	TNC	<ul style="list-style-type: none"> Implement activities of protection of critical areas Support to local surveillance/park support committees. Awareness and environmental education program 	<ul style="list-style-type: none"> Monitoring of changes of use and status of ecosystems. Reinforce use of techniques for utilization and cultural practices. Establish balance between low-impact techniques and cultural practices, and the business approach. Train PA personnel and local population in monitoring techniques. Encourage initiatives aimed at recognition of the true value of environmental services. Establish coordination mechanisms between USAID partners working in the same area. 	TNC-PN INRENA

<p><i>Implementing Partners:</i></p> <p>FM TNC</p>	<p>Accelerated loss of wildlife</p> <ul style="list-style-type: none"> • Use of communal labor force has not been planned according to economic efficiency (Pacaya-Samiria NR). • Costs of extraction quotas are rising. • Perverse economic incentives offered by illegal economy. 	M	x	x	X	x	TNC	<ul style="list-style-type: none"> • Support to producers groups. • Natural resources management plans in critical areas. 	<ul style="list-style-type: none"> • Plan labor use in the Pacaya-Samiria NR • Redefine the system of incentives of communal resource management. 	<p>TNC-PN INRENA Producer Groups</p>
	<p>Over-exploitation/ reduction of wildlife (flora and fauna) population and of hydro-biological resources.</p>	M	x	x	X	x	FM	<ul style="list-style-type: none"> • Direct support to the PA administration. • Support to local surveillance/park support committees. • Natural resources management plans in critical areas (<i>Acuerdos Azules</i>) • Support to producers groups. • Support to PA Management Committee. 	<ul style="list-style-type: none"> • Reinforce technical and operative capabilities of PA. • Follow-up on approval of plans for resource management. • Systematize experiences on over-exploitation and disseminate. • Implementation of a system of biological monitoring and of threats. 	<p>FM-CIMA and their associates INRENA PA Mgmt. Committee Surveillance Committees Producer Groups</p>
	<p>Illegal hunting, fishing and gathering.</p>	M	x	x		x	FM TNC	<ul style="list-style-type: none"> • Direct support to the PA administration. • Support to local surveillance/PA support committees. • Natural resources management plans in critical areas, PICD (TNC-PN) and <i>Acuerdos Azules</i> (FM-CIMA) • Environmental awareness campaigns 	<ul style="list-style-type: none"> • Reinforce technical and operative capabilities of PA. • Approve plans for resource management. • Reinforce entrepreneurial and market aspects of the management plans. • Implement a system for biological and threats monitoring (cost-benefit analysis). • Disseminate information on the implications of illegal hunting, fishing and logging. 	<p>FM-CIMA and their associates TNC-PN INRENA Local Authorities Surveillance Committees Local population</p>
	<p>Incidental fishing (includes damage to wildlife and fishes).</p>	M	x	x		x	TNC	<ul style="list-style-type: none"> • Change of fishing arts (<i>aparejos</i>). • Use of low-powered engines in boats. 	<ul style="list-style-type: none"> • Follow-up on compliance with legal regulations. • Dissemination of suitable methods beyond critical areas. • Support in the acquisition of user-friendly fishing arts (<i>aparejos</i>). 	<p>TNC-PN INRENA Local Authorities</p>

	Trade of endangered species	Trade of endangered species.	M	x	x	X	x	FM TNC	<ul style="list-style-type: none"> • Direct support to the PA administration. • Support to local surveillance/PA support committees • Awareness and environmental education program 	<ul style="list-style-type: none"> • Provide INRENA, Capitanias de Puertos, Customs, and other responsible agencies technical capacity for control, supervision and law enforcement • Support INRENA in the establishment of bilateral and multilateral agreements on wildlife trade and fisheries • Establish independent monitoring systems. • Establish hubs on real time information in strategic areas. 	<p>FM-CIMA and their associates</p> <p>TNC-PN</p> <p>INRENA</p> <p>Other govt. agencies</p> <p>Surveillance Committees</p>
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Classes of Actions/Types of Interventions/ Implementing Partners	Adverse Environmental Impacts	Causes	Criteria that Qualify Impacts					On-going Mitigation Measures		Recommended Mitigation Measures	
			Impacts are:	On Site	Off Site	Scope of Impact		Actors	Action	Actions	Responsible Actors
						Synergistic	Cumulative				
<i>Class of Intervention:</i> BUSINESS & DEVELOPMENT											
<i>Type of intervention:</i> <ul style="list-style-type: none"> Prepare business plans for local initiatives Find clients for local initiatives Facilitate processes to access to financial credits <i>Implementing Partner:</i> Chemonics-PRA	Conflict between land-use capability and present use	<ul style="list-style-type: none"> Limited consideration of land-use regulations (serious gaps in the application of environmental regulations). Lack of environmental considerations is inherent to Activity's approach (business development, investment promotion, and intensive labor). Economic revenue approach does not consider environmental and social aspects Monitoring system does not incorporate economic nor social variables. 	M	x	x	X	x	PRA	<ul style="list-style-type: none"> Assistance is not provided to production on slopes. Monitoring focuses mainly on Activity targets. Weak dissemination of USG/GOP environmental regulations among PRA operators. 	<ul style="list-style-type: none"> Incorporate use-capability of soils and land-use planning considering the watershed approach. Incorporate use of appropriate soil conservation in the interventions. Incorporation of environmental requirements in business plans. Conduct independent environmental audits on a regular basis in proportion to the intervention scale. Establishment of environmental and social early-warning systems. 	PRA and their associates Supported entrepreneurs and producers
	Habitat fragmentation	Lack or weak follow-up of environmental impacts generated by intervention and/or not proportional to its scale.	M	x		X	x	PRA	<ul style="list-style-type: none"> Monitoring focuses mainly on Activity targets/ results. Weak dissemination of USG/GOP environmental regulations among PRA operators. 	<ul style="list-style-type: none"> Adjust interventions to the legal framework regarding soil capacity. Consider watershed approach and land-use zoning. Conduct independent environmental audits on a regular basis in proportion to the intervention scale. 	PRA and their associates Supported entrepreneurs and producers
	Unplanned settlements	Human settlements in <i>restingas</i> due to promotion of short-cycle agricultural crops.	A	x	x	X	x	PRA	Support in the temporary occupation and land acquisition	<ul style="list-style-type: none"> Application of legal disposition on Ecological Protection Zones in the Amazon Region (DS No. 011-96-AG) Conduct EIA Socioeconomic/ecological 	PRA & their associates Supported entrepreneurs and producers

										diagnosis and mapping to identify current impacts and threats to environment. <ul style="list-style-type: none"> • Cost-benefit analysis of mitigation measures. 	DEVIDA
	Use of chemicals in farming activities	Producers encouraged to achieve higher short-term yields, do not receive appropriate guidance and follow-up.	A	x	x	X	x	PRA	Prohibition to purchase restricted pesticides with USAID funds	<ul style="list-style-type: none"> • Inform and train producers and other beneficiaries in pesticide potential impacts and management. • Do not promote crops high demanding in agrochemicals • Reinforce biological control and promote ecological certification for organic production • Reduce monoculture activities 	PRA & their associates Supported entrepreneurs and producers
	Soil contamination due to inadequate waste disposal	Business plans do not incorporate the adoption of solid waste management practices.	A/M	x			x	PRA	Only GFMP include recommendations on this issue.	<ul style="list-style-type: none"> • Application of legal dispositions about the issue. • Promote the EMS approach in business plans. 	PRA & their associates Supported entrepreneurs and producers
	Water quality alteration from non treated residues, salty water and with sediments	Some mitigation measures are being implemented by some supported entrepreneurs on their own initiative.	A/M	x		X	x	PRA	None	<ul style="list-style-type: none"> • Application of legal dispositions about the issue. • Implementation of a monitoring system of environmental threats/damages + a cost-benefit analysis of mitigation measures. • Promote the EMS approach in business plans. 	PRA & their associates Supported entrepreneurs and producers
	Air contamination	Business plans do not incorporate the adoption of air contamination management practices.	A/M	x		X	x	PRA	Only GFMP include recommendations on this issue.	<ul style="list-style-type: none"> • Increase number of business plans with air considerations. • Extend requirements on air quality to transformation plants. • Promote the EMS approach in business plans. 	PRA & their associates Supported entrepreneurs and producers

Glossary

Bounded Rationality (*racionalidad limitada*): Is the behavior adopted by certain economic agents, not based on their own rationality but on decisions taken by other agents.³⁸

Cost-benefit: Analysis which compares all the significant costs and benefits generated by a project in order to determine if this project option is more favorable in terms of cost-benefit than others.³⁹

Cost-effectivity: Analysis comparing various strategies in order to choose the one which has the lowest cost.⁴⁰

Ecological Economic Zoning (EEZ): Is an instrument of planned land-use. It is of dynamic character and permits, in a region, a special arrangement of relatively uniform units characterized in terms of physical, biotic and socio-economic factors, evaluated in relation to their sustained potential use or their tolerance of human interventions. It is carried-out through multidisciplinary teams.⁴¹

Economic Efficiency: Refers to the assignment of resources and determines that an assignment is efficient to the extent that no other assignment is “better” in the sense that no other alternative is more beneficial to someone without worsening the situation of another.⁴²

Environmental Assessment (EA): Is a formal process for identifying the likely effects of particular activities or Activities on the environment and on human health and welfare.⁴³

Environmental Impact Statement (EIS): A detailed study of the reasonably foreseeable environmental impacts, both positive and negative, of a proposed A.I.D. action and its reasonable alternatives on the United States, the global environment or areas outside the jurisdiction of any nation as described in Reg. 216.7.⁴⁴

Environmental Management: A process oriented to solving, mitigating and/or avoiding environmental problems, contributing to sustainable development.⁴⁵

Environmental Management System (EMS): Is a systematic process for making environmental decisions. Ensures environmental issues have a “voice” in management decisions; addresses environmental issues holistically; provides a feedback loop and continuous learning.⁴⁶

Extraction Quotas: The amounts of a renewable natural resource which should be extracted or withdrawn to permit maximum economic production compatible with biological sustainability.⁴⁷

³⁸ Lucich, Ivan. *F/BEA Economic of Natural Resources Specialist Technical Report*. Lima. July 2004.

³⁹ Ibid.

⁴⁰ Ibid.

⁴¹ Comisión Nacional Permanente Peruana del Tratado de Cooperación Amazónica. 1998.

⁴² Lucich, Ivan. *F/BEA Economic of Natural Resources Specialist Technical Report*. Lima. July 2004.

⁴³ USAID/LAC/RSD/E. 2002.

⁴⁴ Ibid.

⁴⁵ Fernández-Dávila, Patricia. *F/BEA Institutional Specialist Technical Report*. Lima. July 2004.

⁴⁶ Wells, Richard. 2004.

⁴⁷ Lucich, Ivan. *F/BEA Economic of Natural Resources Specialist Technical Report*. Lima. July 2004.

Follow-up (*acompañamiento*): Methodology which consists of training in action for different local actors who are involved in a specific project or activity, either directly or indirectly, for the purpose of generating local capabilities.⁴⁸

Initial Environmental Examination: An IEE is the first review of the reasonably foreseeable effects of a proposed action on the environment. Its function is to provide a brief statement of the factual basis of a Threshold Decision as to whether an Environmental Assessment or an Environmental Impact Statement will be required.⁴⁹

Integrated Watershed Management: Seeks to take into account the technical and administrative aspects of natural resources management, as well as the social and cultural demands and needs of the population, emphasizing participation and generating the so-called “social capital”.⁵⁰

Labor Force: Is the number of person-days which is required to perform a productive activity in terms of labor input.⁵¹

Organization Capacity Strengthening: Is a specific effort to improve the performance of an organization in relation to its purpose, context, resources and viability. The aim is to develop a more efficient, viable, autonomous and legitimate local organization, creating conditions through which change may take place in such organization.

It is an autonomous process of organization change, through which leaders, members and other primary stakeholders learn to diagnose the organization’s strengths and weaknesses, to recognize priority themes and conceive, apply and determine actions for addressing these weaknesses. It requires new skills and changes in individual and in organizational behavior in terms of systems, structures, procedures, culture, strategies and decision making.⁵²

Participation: Is the attitude of individuals towards becoming responsible actors in a future-oriented decision making process through a democratic application of opinion, monitoring and responsibility.⁵³

Systematization of Experiences: Is a process of interpretation and generalization of positive or negative actions, at field level, for the purpose of recording and subsequent dissemination, given their importance in the process of planning a project or activity.⁵⁴

Threshold Decision: A formal Agency decision which determines based on an IEE, whether a proposed Agency action is a major action significantly affecting the environment.⁵⁵

Watershed: Is an area, territory or geographic space delimited by the *divortium aquarum* of the surrounded highest points of the hills and through which flows the water from precipitation and/or run-off, which is deposited in a river or principal lake. It consists of soil, water, plants, animals, micro-organisms, and human beings. These are organized and formed in a natural system or ecosystem. It is also a place where different social actors live, work and use the natural resources.⁵⁶

⁴⁸ Fernández-Dávila, Patricia. *F/BEA Institutional Specialist Technical Report*. Lima. July 2004.

⁴⁹ USAID/LAC/RSD/E. 2002.

⁵⁰ IRG. 2003

⁵¹ Lucich, Ivan. *F/BEA Economic of Natural Resources Specialist Technical Report*. Lima. July 2004.

⁵² Mendiola, Cecilia. *F/BEA Sociology Specialist Technical Report*. Lima. July 2004.

⁵³ IRG. 2003

⁵⁴ Fernández-Dávila, Patricia. *F/BEA Institutional Specialist Technical Report*. Lima. July 2004.

⁵⁵ USAID/LAC/RSD/E. 2002

⁵⁶ IRG. 2003

Zoning: Is the process through which the geographical areas (zones) are determined where strategies for sustainable development (derived by the management needs of the applied area) and generally, are represented visually in a map.⁵⁷

⁵⁷ Fernández-Dávila, Patricia. *F/BEA Institutional Specialist Technical Report*. Lima. July 2004.

List of Acronyms

ADP	Alternative Development Program
ADS	Automated Directives System
AOP	Annual Operating Plan (<i>Plan Operativo Anual</i>)
APAFA	<i>Asociación de Padres de Familia</i>
ATFFS	Technical Administration for Forestry and Wildlife (<i>Administración Técnica Forestal y de Fauna Silvestre</i>)
BD	Biodiversity
CAM	Municipal Environmental Commission (<i>Comisión Ambiental Municipal</i>)
CEDISA	Centro de Desarrollo e Investigación de la Selva Alta
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIMA	Centro de Conservación, Investigación y Manejo de Áreas Naturales
CITES	Convention of International Trade of Endangered Species
CMLTI	Multisectoral Commission against Illegal Logging (<i>Comisión Multisectorial de Lucha contra la Tala Ilegal</i>)
CONAM	National Environmental Council (<i>Consejo Nacional del Ambiente</i>)
DEVIDA	National Commission for Drug-Free Life and Development (<i>Comisión Nacional para el Desarrollo y Vida sin Drogas</i>)
DIA	Environmental Impact Declaration (<i>Declaración de Impacto Ambiental</i>)
ESC	Economic Services Corridor
EEZ	Ecological Economic Zoning
EIA	Environmental impact evaluation
EIA-d	Detailed Environmental Impact Study
EIA-sd	Semi-Detailed Environmental Impact Study
EMS	Environmental Management System
ETD	Environmental Threshold Decisions
FAA	Federal Assistance Act
FENAMAD	<i>Federación de de Nativos de Madre de Dios y Afluentes</i>
FM	The Field Museum of Chicago
FMC	Forest Management Committees (<i>Comités de Gestión de Bosques</i>)
FY	Fiscal Year
GFMP	General Forest Management Plan (<i>Plan General de Manejo Forestal</i>)
GMA	Gerencia de Medio Ambiente y Recuperación de Ecosistemas Degradados
ICDP	Integrated Conservation and Development Projects (<i>Proyectos Integrales de Conservación y Desarrollo - PICD</i>)
IDI	Mission Integrated Development Initiative
IEE	Initial Environmental Examination
INRENA	National Institute for Natural Resources (<i>Instituto Nacional de Recursos Naturales</i>)
IR	Intermediate Result
IUCN	World Conservation Union
JEA	Joint Environmental Agenda
m.a.s.l.	Meters above sea level
M&E	Monitoring and evaluation
MEC	Municipal Environmental Commission (<i>Comisión Ambiental Municipal</i>)
MEDA	Mennonite Economic Development Associates
MinAg	Ministry of Agriculture

MSEIA	Multi-Project Strategic Environmental Impact Assessment
OSINFOR	Supervisory Organism for Forest Timber Resources (<i>Organismo Supervisor de los Recursos Forestales Maderables</i>)
PEA	Programmatic Environmental Assessment
PETT	<i>Proyecto Especial de Titulación de Tierras</i>
PMP	Permanent Monitoring Plots (<i>Parcelas Permanentes de Monitoreo</i>)
PN	Fundación Peruana para la Conservación de la Naturaleza (Pro Naturaleza)
PRA	Poverty Reduction and Alleviation
SFM	Sustainable Forest Management
SINANPE	National System of Natural Protected Areas (<i>Sistema Nacional de Areas Naturales Protegidas por el Estado</i>)
SO	Strategic Objective
SSEIA	Strategic Sector Environmental Impact Study
SS-TOR	Scoping Statement and Terms of Reference
TNC	The Nature Conservancy
WWF-OPP	World Wildlife Fund – Peru Program Office (<i>WWF-Oficina Programa Peru</i>)

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Annexes

Annex A

USAID Legal and Policy Background

Applicable USAID legal and policy provisions are found primarily in Chapter 22 of the Code of Federal Regulations, Section 216 (22 CFR 216) (hereafter referred to as Reg. 216), Chapter 204 of the USAID Automated Directives System: Environmental Procedures (hereafter referred to as ADS 204), and Sections 117-119 of the Foreign Assistance Act (FAA) of 1961, as amended (22 USC 2151) (hereafter referred to as sections 117, 118 and 119).

Tropical Forests, linked Wildlife Habitats and associated Biodiversity Areas.

USAID-funded activities that may result in significant environmental impacts on tropical forest and associated ecosystems are subject to the general environmental review and compliance procedures established under USAID Reg. 216. Additionally, sections 117-119 require application of special environmental review, oversight and management procedures and processes for interventions that may affect tropical forests and associated ecosystems.

Currently, sections 117-119 require that implementing programs and projects “...shall take fully into account the impact of such programs and projects upon the environment and natural resources...” Furthermore, it requires that any program or project “...be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land, and take full account of the environmental impact of the proposed activities on biological diversity, as provided for in the environmental procedures of the Agency of International Development...” [FAA section 118 (c) (13)(A,B)]. Support is denied for actions “...which significantly degrade national parks or similar protected areas which contain tropical forests or introduce exotic plants or animals into such areas...” [FAA section 118 (c) (14)(B)].⁵⁸

The US Congress repeatedly has declared its concern for sustainable management of the world’s tropical forests and associated ecosystems in annual appropriation acts and other legislation.⁵⁹

The 2003 Presidential Initiative against Illegal Logging,⁶⁰ and the inclusion of Caoba, as a CITES listed species⁶¹, strengthens USAID environmental compliance imperatives requiring thorough environmental assessment and review of potential impacts, and formulation of mitigation measures, for activities that may significantly impact on the environmental integrity of tropical forest ecosystems.

Additionally, Reg. 216.5 specifies that it is USAID “...policy to conduct its assistance programs in a manner that is sensitive to the protection of endangered or threatened species and their critical habitats.” IEEs must determine if an activity will jeopardize endangered or threatened species or “...adversely modify its critical habitat...”, and if so, the ETD “...shall be a Positive Determination...”, and an EA completed, “...which shall discuss alternatives or modifications to avoid or mitigate such impact...” This regulation reinforces sections 117-119 within the context of overall Reg. 216 procedures.

⁵⁸ In Peru, such areas are incorporated into the Natural Protected Areas System (SINANPE) as well as other protected areas considered as complementary (regional conservation areas, municipal conservation areas, etc.), and areas which, by reasons of their Major Land-Capability (Regulation on Major Use Capacity of the Soil and corresponding Amendment) are suitable only for protection purposes.

⁵⁹ See for example, FAA of 1961, as amended, Section 103(b)(3) and Section 533(c)(3)

⁶⁰ Announced by the President and Secretary of State in July 2003.

⁶¹ Included under Appendix II of CITES

Since the natural habitat of Caoba (now CITES listed as a threatened species with trade restricted upon scientific and administrative certification) ranges throughout nearly all of the tropical forest areas within the geographic focus of the Mission Integrated Development Initiative (IDI), the provisions of Section 216.5 and section 117-119 apply to all FB-associated activities addressed in the F/BEA and in the Alternative Development Program's Programmatic Environmental Assessment (ADP PEA).

Taken as a whole, the provisions discussed above clearly require application of special environmental design standards and criteria for all relevant FB-associated activities that may affect tropical forests and associated ecosystems. Application is not only to pristine primary tropical forests and selectively harvested primary tropical forests, but also to secondary forests and tropical remnants, as well as to activities on previously forested, but now degraded and deforested, tropical areas of public lands.

Finally, it should be noted that USAID environmental procedures apply equally to competitive and sole-source awards to public and private sector entities, whether based on solicited or unsolicited proposals by private applicant (Reg 216.4). Thus, all USAID partners, and their associates involved in results planning, implementing and/or monitoring for FB-associated programs and activities are obliged to comply with these procedures.

Multi-Project Programmatic Environmental Assessments

A "programmatic assessment" is authorized, instead of preparing individual IEE's and ETD's, for each individual action,⁶² when the purpose is "...to assess the environmental effects of a number of individual actions and their cumulative environmental impact in a given country or geographic area". Under such circumstances, a mission-initiated "multi-project programmatic assessment" of a class or classes of actions is appropriate "...to establish...design standards and criteria for such classes, that will...minimize adverse effects of such actions, enhance the positive environmental effect of such actions, and/or will reduce the amount of paperwork or time involved in these procedures."⁶³ "Subsequent Environmental Assessments on major individual actions will only be necessary where such follow-on or subsequent activities may have significant environmental impacts on specific countries where such impacts have not been adequately evaluated in the programmatic Environmental Assessment."⁶⁴ This same section specifies that, to the extent practicable, this type of assessment will follow the form and content specified for project and activity environmental assessments.⁶⁵

It is the responsibility of the respective Strategic Objective (SO) team to ensure compliance with USAID environmental procedures including monitoring to ensure that the environmental procedures guidance discussed above is followed subsequent to approval of the programmatic assessment.⁶⁶

Other Relevant USAID Policy Directives and Guidance

USAID environmental procedures, as well as results planning, achieving and monitoring of USAID programs and activities, are grounded in a number of explicit and implicit environmental policy directives and guidance. The F/BEA sought to incorporate these policies and guidance in ways that are meaningful and practical, not only to achieve formal compliance with environmental procedures, but also to

⁶² As required for each individual site-specific activity/intervention under general procedures [216.3(a)].

⁶³ Quotes are from Section 216.6(d), titled "Program Assessment" (22 CFR 216).

⁶⁴ This language is found within Section 216.6(d). Although it follows language concerning programmatic assessments carried out by USAID/W, a reading of the entire section suggests the appropriateness of applying this policy guidance to programmatic assessments initiated by missions, where the impacts are on defined regions within specific countries.

⁶⁵ The form and content for Activity environmental assessments are specified in Section 216.6 (c).

⁶⁶ See ADS 204.3 (3) and Reg. 216.3(a)(8).

strengthen the environmental integrity and sustainable development goals of on-going and future results planning, achieving and monitoring within the IDI program, briefly described below, with source references in brackets.

Table No. 4

1.	Use USAID environmental procedural requirements as a vehicle to strengthen host country's environmental management capabilities	[216.1(b) (2)]
2.	Integrate environmental issues/threats, mitigations and effective environmental management into results planning, achieving and monitoring	[ADS 204. 2]
3.	Insofar as possible, assure that environmental consequences are identified and considered by USAID and the host country prior to activity approval and implementation	[216.1(b) (1)]
4.	Incorporate appropriate environmental safeguards into program/activity design and implementation	[216.1(b) (1)]
5.	Strengthen host country public and decision-maker awareness and understanding of potential environmental effects of proposed development strategies and programs	[216.1(b) (2)]
6.	Strengthen Peru's capability to effectively evaluate potential environmental effects of proposed development strategies and programs	[216.1(b) (2)]
7.	Strengthen Peru's capability to select, implement and manage effective environmental programs	[216.1(b) (2)]
8.	Identify impacts resulting from activities supported	[216.1(b) (3)]
9.	Define environmental limiting factors constraining sustainable development	[216.1(b) (4)]
10.	Identify and implement activities to preserve and restore the renewable resource base as a prerequisite to sustained development	[216.1(b) (4)]
11.	Incorporate environmental considerations into results planning, achieving and monitoring to integrate environmental sustainability into USAID's overall goal	[ADS 204.2]
12.	To ensure full compliance with the Agency's environmental procedures, it is the responsibility of SO teams to design, monitor and/or modify all programs, results packages, and activities to ensure that the environmental consequences of all actions taken by USAID are considered and that appropriate environmental safeguards are adopted	[ADS 204.3.3]
13.	Collaborate with the host country in developing environmental assessments, and fully consider impacts of environmental consequences identified; facilitate consultation between USAID and the host country both during preparation and on results and significance of environmental assessments; encourage the host country to consult and share with the public, results of environmental assessments	[216.6 (b)]; [216.6(e)(1); [216.6(3)(1)]

Annex B

GOP Legal and Policy Background

Numerous Peruvian legal dispositions (laws, regulations, administrative resolutions, policy guidances, etc.) shape the body of rules and procedures that govern the management of the environment in general, and of tropical forest ecosystems, in particular.

Under the Peruvian Constitution (Art. 66), all natural resources are the property of the State. Thus, the State owns all tropical forests and other associated so-called “renewable natural resources.” Most of these are located on public lands.⁶⁷ Private sector utilization of state-owned natural resources on public lands is permitted through grants of time-limited concessions.⁶⁸

Five laws (and their respective derivative provisions) constitute the primary legal bases for environmental compliance procedures and environmental management requirements and policies applicable to FB-associated activities and classes of actions in Peru. These five laws are listed below.

Table No. 5

Legislative Decree 613	Environmental and Natural Resources Code (ENR Code)	Sept 9, 1990 (amended several times from 1991 to 1998)
Law 26834	Natural Protected Areas Law (NPA Law)	July 4, 1997
Law 27308	Forestry and Wildlife Law (Forestry Law)	July 16, 2000
Law 27446	National System for Environmental Impact Evaluation Law- (SNEIA)	April 23, 2001
Law 28245	National Environmental Management System Framework Law (SNGA)	June 8, 2004. ⁶⁹

1. Sustainable Management of Tropical Forests

The Forestry Law regulates conservation, protection, management and use of tropical forests. Under specified conditions, long term (up to 40 years) renewable concessions are granted for timber harvesting from tropical forest areas designated as permanent production forests,⁷⁰ subject to compliance with

⁶⁷ If a person occupies public lands undisturbed for several years, and makes certain improvements thereon, that person may acquire ownership rights and may be entitled to obtain a title thereto.

⁶⁸ Although not the focus of this discussion, natural resources on or under privately owned land are the property of the State; these may be the subject of private concession, but state ownership permits close regulation of use, as well as imposition of strict environmental management mandates.

⁶⁹ Basically, the SNEIA and the SNGA laws provide greater specificity to and clarification of the ENR Code of 1990, making the system more operational. Regulations have not yet been approved for the latter two laws. Until that occurs, regulations, policy directives and official guidances adopted pursuant to the 1990 law continue to govern, subject to changes imposed by provisions of these subsequent laws.

⁷⁰ Which in view of their characteristics have been classified as such by INRENA, the responsible entity, within the forestry zoning.

general environmental procedures, as well as with a number of specific environmental management requirements and policies.

In the case of permanent production forests, as well as for other classifications of tropical forests, concessions also may be granted for non-timber uses (such as eco-tourism, conservation, for other non-timber products, etc.) subject to compliance with both general and specific environmental management and sustainable use requirements.⁷¹

Operations of production forest concessionaires must comply with an approved general forest management plan that is required to include environmental management considerations. An annual operating plan that incorporates specific annual environmental management considerations also must be prepared and approved prior to initiating each annual timber harvest cycle. These plans must incorporate harvesting and maintenance technologies that assure sustainable productive use over the full period of the concession, and that leave the natural resource base at the end of the concession at least as intact as it was when the concession was granted.

The Forestry Law also provides for establishment of Forest Management Committees (FMC) in tropical forest areas where concessions have been granted. These are intended to represent the interests of all stakeholders (including the general citizenry) within a naturally inter-connected geographic area (e.g. a watershed). Their purpose is to facilitate local stakeholder participation in managing and ensuring compliance with the provisions of the Forestry Law and with other environmental requirements, and to assist in resolving related local conflicts.

2. Sustainable Management of Associated Critical Habitats and Biodiversity Areas

Peru has been establishing national parks and other protected areas since 1961, when the first national park was established. Since then, over 44 national parks, reserves, sanctuaries, communal reserves, hunting preserves, and other categories of protected areas were established through various legal dispositions.

The NPA Law provides uniform procedures for PA establishment and classification under the National System of Natural Protected Areas (SINANPE), related institutional and management arrangements, and standards of protection and use. PAs are established expressly for purposes of conserving and protecting endangered species, critical wildlife habitats, and biodiversity ecosystems, encompassing areas co-extensive with and/or associated with tropical forests, as well as other natural areas traditionally occupied or used by native communities or that house significant archeological or cultural sites.

The NPA Law, along with derivative legal provisions and policies, establish the rules for preparing and approving master management plans for each protected area, including establishment and orientation for natural resources management of surrounding buffer zones, as well as conditions and plans for public and/or private use and enjoyment of renewable natural resources within protected areas (PA).

A number of PAs and corresponding buffer zones are included in the IDI focus region (see Table No. 1 of this report), covering considerable areas of tropical forests and associated ecosystems. Major USAID funding is being invested in activities that assist in consolidating and effectively managing selected PAs

⁷¹ General environmental procedures are based on the SNEIA Law. In addition to environmental compliance procedures, Peru has been applying environmental management standards and procedures over the past decade. The new SNGA Law is expected to facilitate incorporation of procedural requirements of the SNEIA Law within systematic environmental management plans integrated into enterprise business management plans and into national, regional and local government territorial management planning.

and surrounding buffer zones, as a means to maintain their environmental integrity and also to improve the living conditions of families located therein. In addition to being subject to the provisions of the PA and Forestry laws, IDI program activities related to protected areas and buffer zones also are subject to the environmental procedures and management provisions of the SNEIA and the SNGA, discussed below.

The PA Law authorizes establishment of a management committees for each PA. These committees are to serve as vehicles for facilitating local stakeholder participation in management of the PA and surrounding buffer zone, and for assisting in local conflict resolution.

3. Environmental Procedures under SNEIA

SNEIA establishes comprehensive procedures for assuring compliance with specified environmental management standards and criteria. No public or private sector investment projects or activities involving actions, construction or works that may cause negative environmental impacts may be initiated without an “environmental certification.”⁷²

A “competent authority” (i.e., sector oversight and approval authority) must issue the environmental certification based on approval of environmental impact evaluation (EIA) documentation that varies depending on the categorization of the activity. Competent authorities are designated units within the various sector ministries (sector environmental authority).⁷³ Required documentation must be prepared on behalf of (and at the expense of) the originator or proponent of the activity by a specialist firm registered with the sector environmental authority designated for activities within the jurisdiction of that sector. Additionally the sector environmental authority establishes guidelines for preparation of the documentation required for categorizing activities within the sector.

All investment activities must be classified into one of three categories, based on specified criteria for each. Requirements for obtaining environmental certification (a pre-requisite to initiation) are different for each category.

- *Category I:* Activities will not have significant negative environmental impacts. An Environmental Impact Declaration (DIA) recommending classification as Category I must be prepared on behalf of the proponent by a specialist registered with the sector authority that has jurisdiction. The DIA is submitted to the sector authority for approval. This approval constitutes environmental certification.
- *Category II:* Activities may have moderate negative environmental impacts that can be avoided or minimized through adoption of “easily applied” mitigation measures. In such cases, the DIA will include a recommendation for a Category II classification, along with proposed terms of reference (TOR) for carrying out a Semi-Detailed Environmental Impact Study (EIA-sd). DIA approval authorizes the proponent to contract a registered firm to carry out the EIA-sd in accord with the TOR. Subsequent approval of the EIA-sd by the sector authority constitutes environmental certification.
- *Category III:* Activities are those with characteristics, magnitude and/or location that may have significant negative quantitative or qualitative environmental impacts. Such activities require a Detailed Environmental Impact Study (EIA-d) entailing an in-depth analysis to assess impacts and

⁷² See SNEIA, Articles 2 and 3.

⁷³ The Ministry of Agriculture has designated INRENA as the competent authority for that sector (See DS 002-2003-AG, January 15, 2003). The sector approach to environmental compliance and oversight at times leads to confusion and overlap regarding which sector authority is competent for a particular activity or class of actions. Procedures are being developed by CONAM and sector authorities to manage these situations (verbal communication from CONAM staff on July 13, 2004).

proposing a corresponding environmental management strategy. Subsequent procedures are the same as for activities in category II. However, the TOR must reflect the more detailed and in-depth analysis requirements to assess impacts and design the environmental management strategy, mitigation measures and monitoring plan. Approval of the EIA-d by the sector authority constitutes the environmental certification.

In all cases, the sector authority may reject the application for classification or the subsequent EIA, may request additional information, inclusion of additional mitigation measures, etc, prior to approval, or may approve, subject to compliance with specified conditions.

Each sector authority maintains a register of firms and specialists that have been licensed to prepare DIAs/EIAs. Each sector also has issued guidelines for preparation of these documents.

The SNEIA authorizes the sector authority to establish mechanisms for classification of “common” activities into a class of actions assigned to a particular category and the preparation of standard or “common” terms of reference to be used for completing the activity-level EIA. This “strategic sector environmental impact study” (our designation and hereafter referred to as SSEIA) is appropriate for numerous activities that are sufficiently similar to be included within a single class of actions within the jurisdiction primarily of one sector authority.

INRENA has established such mechanisms for forest concessions as specified in the Forestry Law.⁷⁴ INRENA determined that all forest concessions awarded under the Forestry Law are Category II activities and require an EIA-sd. Further, the EIA-sd will be included as an integral part of the forest management plan for the concession,⁷⁵ and will follow the format and guidelines included in the standard TOR for forest management plans approved by INRENA.⁷⁶

Although not yet fully incorporated into the national environmental impact evaluation system, CONAM is facilitating the use of the so-called Multi-Project Strategic Environmental Impact Assessment (MSEIA) approach. This approach permits one assessment exercise to categorize and develop a comprehensive environmental management plan, the application of which satisfies environmental procedures requirements for a number of on-going and future activities that are encompassed by multiple classes of actions and whose potential impacts may transcend sectors.⁷⁷

4. Systematic Environmental Management Procedures

The provisions of SNGA are consistent with and add another dimension to environmental procedures established under SNEIA. It permits and facilitates voluntary procedural compliance within a broader and more participatory environmental management context. The approach goes beyond formal procedural compliance and enforcement by promoting integration of sustainable environmental management strategies into enterprise business plans and into local government territorial planning and management by governmental bodies, including local (municipal) governments.

Although not a substitute for command and control mechanisms, the SNGA seeks to reduce the enforcement burden by internalizing systematic sustainable environmental management into business management and investment strategies of enterprises (and thereby improving profitability), and into territorial management and investment strategies of government entities. SNGA environmental

⁷⁴ Article 15.1 of the Forestry Law, and detailed in corresponding regulations.

⁷⁵ See Resolucion Jefatural No. 109-2003-INRENA, dated January 15, 2003.

⁷⁶ Ibid, Arts. 1-4 and accompanying documents.

⁷⁷ Verbal communication from CONAM staff on July 13, 2004.

management applications are not mandatory.⁷⁸ However, such applications often are more cost-effective than are command and control alternatives because they integrate compliance procedures into program and activity results planning, achieving and monitoring. In this respect, SNGA is especially attractive as a mechanism for local governments and others to develop and implement mitigation measures responsive to larger scale cumulative and synergistic indirect impacts.

Of particular relevance to the F/BEA are SNGA provisions for local management of environmental functions. Local governments are obliged to develop and implement a local environmental management system (EMS), in partnership with institutions and organizations having environmental functions, and with civil society participation.⁷⁹

To facilitate achievement of this end, municipalities are authorized to establish by ordinance Municipal Environmental Commissions (MEC), specifying their scope, functions and membership consistent with law.

Local governments are authorized to enter into agreements with public and private sector organizations specialized in environmental matters to train neighborhood organizations to defend and protect environmental assets and natural resources.

Additionally, SNGA places special emphasis on environmental information generation, access and dissemination, as well as on environmental education at all levels.⁸⁰ Such initiatives are prerequisites to establishing a culture of environmental awareness and understanding, and to generating public demand and peer group pressures for effective environmental management.

⁷⁸ Enterprises are motivated to adopt environment-friendly technologies and make environment-friendly investments when it is the least-cost means for achieving environmental compliance.

⁷⁹ See SNGA, Art. 24. Support to local governments for improvement of environmental management capacities would be consistent with other USAID support to decentralization and local government strengthening.

⁸⁰ Ibid, Arts. 29-37.

Annex C

Comparative USAID and GOP Environmental Procedures

USAID regulations and policies for environmental compliance and management procedures have not changed significantly since the late 1970's.⁸¹ In contrast, GOP environmental management and compliance procedures have evolved throughout the past decade, and have been consolidated and streamlined within the past three years.

Despite age differences of the two systems, the procedures and processes of each have a lot in common. The following matrix summarizes commonalities, expressed as equivalency levels, between major procedural elements of each.

Table No. 6
Equivalency Levels of USAID and GOP Environmental Procedure Elements

USAID	GOP	Equivalency Level
IEE	DIA	High
ETD	DIA approval	High
Environmental Assessment (EA)	Environmental Impact Evaluation (EIA)	High
Negative Determination (ND)	Category I (C-I)	High
Negative Determination with Conditions (ND/C)	Category II (C-II)	High
Positive Determination (PD)	Category III (C-III)	High
EA for ND/C	EIA-sd	High
EA for PD	EIA-d	High
Programmatic Assessment	Strategic Sector Environmental Impact Study (SSEIA) (for one class of action)	Medium/High
Multi-Project-Programmatic Assessment (Multiple Classes of Actions)	Multi-Activity Strategic Environmental Impact Study (MSEIA) (utilized on a case by case basis)	Potentially High

⁸¹ Recent USAID reports and discussions suggest a need to update USAID environmental procedures and management regulations to become aligned with current worldwide approaches. This would be especially useful to facilitate integration of USAID environmental procedural requirements with the GOP SNGA enterprise and local government integrated environmental management approach.

Annex D

Extracted from USAID/Peru Scoping Statement and Terms of Reference for a Multi-Project Environmental Assessment and Evaluation of Activities Affecting Tropical Forests and Biodiversity Areas (March 18, 2004)

Pertinent Environmental Threshold Decisions (ETD's)

Most if not all ongoing and planned future activities that potentially may significantly affect tropical forests and/or associated biodiversity areas (or that are subject to even more demanding provisions as discussed above) fall under one of three Initial Environmental Examinations (IEE's) and the respective Environmental Threshold Decisions (ETD's); there is one each for SO10, SO12 and SO13.⁸² The referenced ETD's each issued a negative determination with conditions for activities that potentially may significantly affect tropical forests and associated biodiversity areas.⁸³

For the expanded alternative development program (ADP-SO13), the ETD issued a negative determination with conditions for activities in protected areas and for development of forestry management plans, including reforestation activities. The conditions are as follows: "These activities shall be guided by applicable US and Peruvian government environmental regulations, restrictions, and guidelines for the management of tropical forests and for the protection of the biological diversity and the ecological integrity of protected areas. These conditions must be presented in the forest management plans that will be generated for each protected area to be supported by the ADP. The management plans will incorporate an environmental assessment of the potential environmental impacts. The terms of reference for preparation of the management plans shall be submitted to LAC/BEO for approval prior to initiating activities."⁸⁴

For STEM-SO12, the ETD issued a negative determination with conditions for activities involving pilot interventions related to protected areas management and forest concessions. The conditions are essentially the same as those for the ADP (quoted above).

For PRA, the ETD issued a negative determination with conditions for activities and actions designed to achieve three sub-IRs under SO10. These are: 1) support to activities to improve infrastructure development and regulation (sub-IR 1.3), 2) provide capital support to microfinance institutions (sub-IR 2.3), and, 3) support to expand use of environmentally sound production technologies (sub-IR 3.2). The

⁸² i) LAC-IEE-02-36 covers the Expanded Alternative Development Program of SO13 (ADP), and was issued on July 16, 2002 (it also extends and/or replaces certain IEE/ETD'S issued from 1995); ii) LAC-IEE-02-61 covers the Strengthened Environmental Management Program (STEM) of SO12 (ENR), and was issued on September 19, 2002, (it also extends and/or replaces certain activity level IEE/ETD's issued after 1995). iii) LAC-IEE-03-34 covers the program of Increased Economic Opportunities for the Poor (PRA) of SO10 (EGAT), and was issued on June 10, 2003.

⁸³ Road construction and road improvement projects were issued positive determinations. Note that with the inclusion of Caoba (*Swietenia macrophylla*) in Appendix II of CITES, it is likely that these IEE/ETDs require modification to a positive determination for activities affecting caoba populations and its critical habitat.

⁸⁴ Additionally, a positive determination was issued for economic infrastructure and for agricultural extension and information services. For these activities, a programmatic environmental assessment (PEA) was called for. That PEA recently was completed and a revised draft report was submitted in January, 2004, but the report has not yet been accepted by the Mission. Several of the preliminary findings included in the draft report (that are related to tropical forests and biodiversity conservation) will be discussed elsewhere in this scoping statement.

ETD conditions require that: 1) the implementing agency assure that environmental concerns are included as appropriate in policy analyses, and that environmental assessments are included for infrastructure projects as an integral part of the project, 2) monitoring and specific environmental analyses must be conducted by the implementing agency to ensure that appropriate mitigation procedures are in place for environmentally sound production technologies interventions of significant scale and magnitude. Additionally, interventions providing capital support to micro-finance institutions must adhere to environmental guidelines known as “micro-enterprises and the environment in Peru” (adapted from the 2001 LAC Environmental Guidelines). Finally, support to expanded use of environmentally sound production technologies must adhere to relevant portions of the LAC environmental guidelines (Chapter 4: “Environmental Issues and Best Practices for Micro-finance Institutions and Micro and Small-Scale Enterprises”). Some activities under way or being planned under PRA potentially may have significant effects on tropical forests and biological diversity. These will be identified and included in the proposed environmental assessment.⁸⁵

The Case for a Forestry/Biodiversity Multi-Project Environmental Assessment (F/BEA)

Instruments obligating and committing USAID funds under the three referenced SO’s (e.g., SOAG’s, contracts, grants, cooperative agreements, etc.) are required to include language mandating adherence to USAID and GOP environmental review, mitigation, monitoring and reporting rules, regulations and policies. Likewise, all implementing partners are required to include in their reports information about compliance with these provisions. Nevertheless, a sample review of partner progress reports, and conversations with selected implementation managers of activities that potentially may significantly affect tropical forests and biodiversity conservation, indicate that significant knowledge gaps exist about specific requirements for environmental review, mitigation, monitoring, reporting and other environmental mandates and responsibilities.⁸⁶ Thus, a comprehensive “stock-taking” is needed, along with appropriate analysis and recommendations to assure compliance with both the letter and the spirit of USG and GOP environmental policy and mandates related to tropical forests and associated biodiversity areas.

The referenced draft PEA for ADP does not specifically address the environmental effects of most ADP funded interventions sited in or around tropical forests and biodiversity areas. It does include a general analysis of the effectiveness of the environmental process for the ADP during 1995-2002. That analysis is based on a review of documents available in Lima, and on consultations in Lima, the Central Huallaga and Aguaytia. Additionally, the PEA report included the results of field-based case studies of the application of the environmental review process to two infrastructure projects.

Among other important issues considered, the ADP PEA does include short sections that discuss in general terms potential environmental consequences and possible mitigation measures for “Protected Area Management Plans” (pp 24-26), and for “Natural Forest Management” (pp 26-31).⁸⁷ These discussions are largely generic in nature, although some specific environmental issues are flagged. Specifically, a question

⁸⁵ Since wood processing and/or value-added enterprises that may be supported by PRA likely will affect demand for timber, an environmental assessment apparently is necessary, even if the scale of the enterprise being supported is such that the potential for significant impacts is not present.

⁸⁶ The recently completed ADP PEA reached similar conclusions. See “Programmatic Environmental Assessment: Sustained Reduction of Illicit Coca Crops through Alternative Development in Targeted Areas of Peru”, Chemonics International, Inc. (revised draft of January, 2004).

⁸⁷ The ADP PEA team does recommend that environmental review of the private concession component of the expanded ADP be contracted to a qualified organization to evaluate industrial forest concession management plans and practices, applying “Principles and Criteria” of the Forest Stewardship Council (FSC) as benchmark standards (such application a pre-requisite to FSC certification). This also would standardize procedures for meeting the requirements of USG environmental regulations and policies for sustainable management of tropical forests, biodiversity areas and endangered species habitats.

is raised about apparent non-compliance with the ADP ETD requirement to submit for LAC/BEO approval, TOR's for preparing protected area and natural forest management plans, prior to initiating activities (although the question is not expressly answered). Also, some pertinent JEA sub-activities (which will be assessed in this tropical forest/protected area EA) are flagged. These include protected area management plans for Tingo Maria National Park and Cordillera Azul National Park, assistance to concessionaires and indigenous communities to prepare forest management plans, and the Von Humboldt-Aguaytia Integrated pilot Activity for alternative sustainable use of forest resources.

Based on Section 216.6 (d) of 22 CFR 216, the Mission proposes to carry out a Multi-Project Environmental Assessment for on-going and planned site-specific interventions that potentially may significantly affect tropical forests or associated biodiversity areas or that directly or indirectly involve timber extraction for sale. This proposed Forestry/Biodiversity Multi-Project Environmental Assessment (hereafter referred to as F/BEA) will include evaluation of the adequacy and appropriateness of the environmental review and compliance processes being applied to date for forestry/biodiversity interventions being supported under the current Mission strategic plan for 2002-2006, especially as to conformance with (and/or appropriateness of) conditions issued in the relevant ETD's.

The multi-project environmental assessment approach proposed is appropriate to assess the environmental effects of a number of individual actions and their cumulative environmental impact in specified geographic areas. Similarly, it is appropriate where the assessment is intended to establish criteria for classes of actions to eliminate or minimize adverse effects of such actions, to enhance the positive environmental effects of such actions and/or to reduce the amount of paperwork or time involved in adhering to environmental procedures.

The findings and conclusions of the scoping process and the terms of reference presented in this document embrace a class of actions in a defined geographic area of Peru which, separately and/or collectively, potentially may significantly affect tropical forests or associated biodiversity areas. These actions now are being implemented or being planned for implementation under one of the three strategic objectives referenced earlier, and are subject to the conditions of the respective ETD determinations described earlier.

Additionally, carrying out the F/BEA at this time can provide valuable lessons learned to reduce adverse effects of similar future actions on tropical forests and associated biodiversity areas, and especially can contribute significantly to enhance the positive or mitigative effects of these actions. Finally, because of the considerable number of this class of actions to be supported with USAID funding over the strategic plan period, the amount of paperwork and time involved in substantively complying with environmental review requirements and procedures can be expected to be significantly reduced through application of the multi-project EA approach.

Environmental Scoping for the F/BEA

Section 216.3 (a) (4) provides for a scoping process to be carried out after a positive⁸⁸ threshold decision has been made that requires an environmental assessment. Although the proposed F/BEA is not in response to an existing positive determination⁸⁹, the Mission believes that it is more cost effective to carry

⁸⁸ Positive is used the same way the term is used medically. Testing positive may mean the problem will require further diagnosis and involve treatment. (USAID/LAC/RSD/E, 2002).

⁸⁹ Although the question arises as to whether the relevant ETD's should be amended to issue a positive determination. Aside from that issue, the Mission has concluded that a specially focused F/BEA is needed in order to better fulfill the conditions that derive from applicable USG environmental regulations and policies, and which are

out a scoping process as described in section 216 (a) (4), simultaneously with preparation of the terms of reference. The scoping process identifies those issues considered to be potentially significant, as opposed to those considered to be not significant, within the context of the activities being assessed in the F/BEA. Additionally, the scoping process identifies those potentially significant issues that already have been analyzed in earlier environmental reviews and thus need only to be updated or supplemented, as appropriate, in this F/BEA. Carrying out the scoping process simultaneously with preparation of the TOR streamlines the F/BEA process itself by permitting the assessment team to concentrate efforts on major issues and threats that already are identified as requiring further analysis within the context of the class of actions being reviewed. It also permits the team to focus on selected mitigation measures that already have been identified as being addressed and/or as high priority for attention.

Class of Actions and Geographic Scope of the F/BEA

The F/BEA will assess those actions supported by USAID/Peru that potentially may significantly affect tropical forests and associated biodiversity areas, as well as those that directly or indirectly involve timber extraction for sale. It will include the considerable number of site-specific interventions under the three SO programs within the USAID/Peru assistance portfolio that potentially may significantly affect tropical forests, associated biodiversity areas, and surrounding areas of influence. These are located primarily in the geographic area of focus for the Mission's integrated development program to combat illegal coca production and to enhance alternative development.⁹⁰

High priority is placed by USG and GOP regulations and policies on assuring sustainable management of tropical forests and associated biodiversity areas. USAID/Peru supports a large number of site-specific interventions that may impact positively or negatively on sustainable management of these resources, through a number of implementation arrangements. Taking stock of ongoing compliance with environmental imperatives, and taking steps to assure future compliance for these interventions is urgent. For these reasons, in its FY 2004 Annual Report, the Mission committed to prepare in CY 2004 an environmental assessment of forest and protected areas management activities.

This scoping statement and terms of reference constitute the first step in fulfilling that commitment.

Purpose of the F/BEA

The overall purpose of the F/BEA is to determine the adequacy of compliance with USG and GOP environmental requirements and policies in planning, implementing and monitoring results of USAID-supported activities that may significantly affect tropical forests and associated biodiversity areas, as well as those that directly or indirectly involve timber extraction for sale from tropical forests. Additionally, as appropriate, the F/BEA will develop recommendations for practical measures to be applied to assure full future compliance both during planning and implementation, for ongoing activities and site-specific interventions, as well as for new interventions that may be designed or initiated during the remainder of the current strategy period.

Within the context of current environmental conditions within the geographic areas of focus of relevant programs, the F/BEA team will analyze significant environmental issues and threats identified in the scoping process (presented in a later section), and will review identified mitigation measures that can be applied to reduce or ameliorate the impacts of those threats.⁹¹ Based on the results of the analysis and

expressly stated in the negative determinations with conditions statements in the referenced ETD's (See more detailed discussion below).

⁹⁰ The geographic areas of focus are described in another section of this document.

⁹¹ Including impacts on endangered species and their critical habitats (especially Caoba)

review, ongoing interventions will be assessed to determine the adequacy of identification and characterization of significant environmental issues and threats. Additionally, appropriateness of mitigation measures that have been applied to reduce negative impacts from those threats will be examined. Also, available environmental baseline information will be reviewed and its adequacy assessed, and appropriate recommendations will be made for enhancing the data base. Lastly, ongoing monitoring programs, as well as information being generated and its utilization, will be assessed, and, as appropriate, recommendations will be made for improvement.

The classes of actions included in the F/BEA are those site-specific interventions being supported under one of the three strategic objective programs. Interventions studied will be limited to those that were determined during the scoping exercise to potentially have significant positive or negative impacts on the ecological integrity of tropical forests or associated biodiversity areas (or on surrounding areas of influence).

The Scoping Exercise

1. Methodology applied in the scoping process

In addition to review of relevant documents and reports, and consultations with SO12 team members, a site-specific intervention information survey questionnaire was completed by knowledgeable persons, for all such interventions that, in the opinion of the respondent, potentially may have a significant direct or indirect, positive or negative impact on tropical forests or associated biodiversity areas (including protected areas and the respective areas of influence/buffer zones). This information was collated, reviewed by the SO12 team, and choices made for inclusion and review of specific interventions under the F/BEA.

2. Results of the Scoping Exercise

The scoping exercise identified on-going and planned (during the LOA) interventions to be included in the F/BEA. Information about the interventions include actual or planned sites potentially impacted, local contact information for managers/implementers, actual or planned dates of initiation and completion, current status, funding source(s), major elements/actions being or to be implemented, and size of areas potentially significantly impacted (separately for direct and indirect impacts).

Additionally, significant environmental issues and threats applicable to the intervention were identified and prioritized.⁹² Likewise, significant mitigation measures also were identified and priorities assigned, including identification of those measures that were being (or were expected to be) within the scope of the intervention being addressed.⁹³

- a. *Basic Information about Interventions covered by the F/BEA:* The site-specific interventions that are included for review under the F/BEA are based on the results of the scoping information survey questionnaire completed by knowledgeable persons for each relevant intervention.
- b. *Geographic Areas where Site-Specific Interventions are located and main Environmental Characteristics:*

⁹² These were initially identified and prioritized by the responses of knowledgeable persons who completed the questionnaires.

⁹³ A partial generic list of possible mitigating actions is shown in Appendix Four of the SS/TOR of the F/BEA.

- AD Program Area. Section II of the draft ADP PEA (already referenced) explains the geographic range of the ADP. The area encompasses nearly ten million hectares in four geographic regions that include seven Departments⁹⁴ located in the central part of the country, including the eastern slopes of the Andes Mountains (ceja de selva) and table lands and relatively flat low lands to the east (selva): Central Huallaga, Upper Huallaga, Aguaytia Valley, Apurimac-Ene Valley. Small-scale maps, and a CD that accompanies the ADP PEA draft, show the geographic areas delimited by USAID/Peru for ADP activities. The forestry concessions in San Martin are included in the ADP program area, as well as the interventions related to the Cordillera Azul National Park and surrounding buffer zones. That CD will be made available to the F/BEA team.
- Pacaya-Samiria National Reserve. This protected area is located in the Amazon Basin flooded forest eco-region of the Department of Loreto in the northeast jungles of Peru. It is located at the confluence of the Amazon River between the Ucayali and Marañon rivers, and contains the entire watersheds of the Pacaya and Samiria rivers. With over two million hectares, this is Peru's second largest natural protected area and is 1.7% of the total land area of the country. 94 communities, with a combined population of 42,000 live within the boundaries of the Reserve, and another 50,000 live in more than 100 communities in the surrounding buffer zone. USAID is supporting conservation planning and management of the Reserve as a part of the Parks in Peril Program.
- Madre de Dios and Loreto Forest Concession areas and characteristics. In Madre de Dios, natural tropical forest concessions will cover approximately 1.2 million hectares. The concession process already is well advanced. By law, concessionaires must put in place and operate in strict compliance with an approved sustainable management plan. In Loreto, natural tropical forest concessions eventually will put approximately 5.7 million hectares under sustainable management. The concession process is expected to begin in 2004 for 749 forestry concession units (a unit is 5,000 to 10,000 hectares in size) for a total area of approximately 4.6 million hectares of permanent production forest. USAID support, through WWF/CEDEFOR will assist selected concessionaires in preparing sustainable management plans which will include mitigation measures and monitoring arrangements.

c. Major Environmental Issues to be addressed in F/BEA:

⁹⁴ The Departments are: Ayacucho, Cusco, Huanuco, Junin, Pasco, San Martin and Ucayali.

Table No. 7

Technical Issues:

Inventory/Resource Assessment Methods
Forest Management Plans
Protected Areas Management Plans
Best Sustainable Forestry Practices
Best Agro-forestry Practices
Timber Extraction Methods
Inventory/Resource Assessment Methods

Ecological Issues:

Watershed Protection and Stability
Biodiversity Conservation
Threatened and Endangered Species/habitats

Socio-Economic Issues:

Consensus Building/Conflict Avoidance and Resolution
Local Participation in Economic Benefits
Population Migration/Dislocation
Social and Economic Costs and Benefits of Interventions (including valuation of environmental costs)

Institutional Issues:

GOP environmental mandates/policies; compatibility with USG mandates/policies
Institutional Capabilities
Other Stakeholders

Annex E

Methodology of the F/BEA

The F/BEA scoping statement and terms of reference (SS-TOR) specify the methodology for carrying out the assessment. The final step in the scoping exercise was a survey questionnaire completed by USAID partners and their associates.⁹⁵ The results of this exercise provided assessment parameters, as understood and perceived by partners and their associates, in terms of characteristics of activities encompassed, relevant environmental threats upon which these activities impact, impact mitigations under way or planned, and additional mitigations needed. A summary and discussion of completed survey questionnaire information is included in this report.⁹⁶

A team of six-persons, representing a range of environment-related specialties, was constituted by USAID and its IDI partners (except Chemonics-ADP).⁹⁷ Cooperating partners (and their associates) also provided logistic support and assistance for site visits, field interviews and discussion meetings. Without this valuable support from partners/associates, the F/BEA would not have been possible.

The large number of discrete site-specific activities and interventions being assessed (both on-going and planned), and travel limitations (due to political unrest and accessibility) to some sites, obliged the team to opt for a case study approach, limiting visits to carefully selected representative sites. Using information about threats and mitigation measures from completed survey questionnaires and in consultation with implementing partners, the team prepared a working list of classes of actions and an initial list of activity intervention sites for field visits, interviews, discussion meetings and document reviews. Based on this process, reasonably representative case study sites were selected.

Complementing site visits and on-site interactions with field personnel and beneficiaries, meetings, interviews and discussions were held with personnel at regional and local field offices of implementing institutions and their associates, thereby obtaining multiple perspectives by knowledgeable persons of activities and interventions within classes of actions and within environmentally similar sub-regions.

In order to generate a reasonably uniform information starting-point and using parameters based on the summary of data from the survey questionnaires, the team prepared guides and checklists for this information gathering phase. Subsequently, using a common format, each team member prepared an individual site report⁹⁸ for each site visited that also incorporated information and findings from associated field meetings, interviews and document reviews.

Utilizing information from site reports, additional document reviews, team discussions, and subsequent interviews/meetings with knowledgeable persons located in Lima, the team prepared a consolidated matrix of findings/conclusions (please, refer to **Volume II** of this report) related to:

- Problems/gaps in activities (design, implementation and/or monitoring), including those that cause increased negative impacts to environments of tropical forest ecosystems;
- Observed measures being taken to correct those problems/gaps;

⁹⁵ The questionnaire and guidance were prepared in February, 2004, and the completed questionnaires were returned in early April. The results were summarized and made available to the assessment team at the beginning of the assessment (late April).

⁹⁶ See **Annex G**.

⁹⁷ Team members (and advisors), their specialties and qualifications, and respective sponsoring institutions, are shown in **Annex F**.

⁹⁸ The site reports are collected into Unattached Volume III, on file in USAID/Peru/ENR

- Additional suggested measures to strengthen performance.

The information in this matrix served to confirm, adjust and expand on information from the completed survey questionnaires. Subsequently, using a uniform format and common guidelines, each team member prepared a comprehensive technical report focused on his/her particular specialty. These technical reports are also included as appendices to this document in attached Volume II.

The final step of the aforementioned first phase of the process, included the preparation of a draft consolidated report, which provided a synthesized collective interpretation of the considerable amount of information, analyses and expert opinions assembled during this team effort. The draft report was prepared by the F/BEA Team Leader.

The second phase was the preparation of this report that integrates, from the five technical reports and the draft report prepared by the F/BEA Team Leader, the key findings and specific recommendations to serve as guidance for USAID on-going activities.

Annex F

List of Preparers, Professional Discipline and Experience

Patricia Fernandez-Davila - Institutional, Organization and Methods Specialist (made available by IRG). Twenty years experience working with USAID-funded institution-building programs, and 15 years experience working with Peruvian national, regional and local environmental institutions and organizations active in tropical forests, protected areas and associated natural ecosystems.

Fernando Ghersi - Biodiversity Conservation and Critical Habitat Specialist (made available by USAID/Peru). Graduate studies in conservation of Forest Resources. Twenty-plus years of experience in Peru and internationally in natural resources conservation, management and protection of natural ecosystems. Several years experience as an independent consultant for national and multilateral institutions in these areas of expertise.

Ivan Lucich - Resource Economics-Enterprise Development Specialist (made available by Chemonics-PRA). MS in Environment and Natural Resource Economics from the Universidad de Concepcion, Chile. For the past 5 years, has specialized in economic valuation of environmental damage, environmental services, biological diversity, and other values associated with environmental values of tropical forests and natural ecosystems.

Cecilia Mendiola - Socio-Cultural and Local Participation Specialist (made available by WWF). Sociologist with specialized studies and training in environmental education and communication sciences. Twenty years of Peruvian and international experience in socio-cultural aspects of environmental management and conservation of natural resources, and in environmental education.

Carlos Reynel - Tropical Forestry Management Specialist (made available by WWF). Doctorate in plant biology majoring in tropical ecology and systems. Twenty years of experience in research, teaching and consulting in forest management, conservation, forest botany and related environmental matters.

Fred L. Mann - Team Leader (made available by USAID/ENR). Doctorate in resource economics; extensive experience in Peru and internationally in natural resource policies, environmental management and institutional systems; has served as team leader in several USAID activity evaluations and assessments in Peru and in other countries.

Marcia Toledo - USAID/ENR Tropical Forestry and Biodiversity Specialist (made available by USAID/ENR). Master in Environmental Management and Master in Forestry; provided technical expertise to the assessment team, as well as invaluable liaison and coordination between the team, USAID, USAID partners and associates; managed the environmental survey questionnaire process, participated in site visits and team meetings thereby assuring awareness of the USAID perspective.

Additionally, the following persons provided expert assistance and guidance in Peru:

E. Jean Brennan, Forest Biodiversity and Natural Resource Science Advisor, USAID Office of Environment, provided invaluable advice and assistance in matters related to protected tropical areas, endangered species and critical habitats.

Stephen M. Smith, Environmental Management and Information Specialist (and COP of the USAID/STEM-TMA), provided advice related to environmental organizational management, strategy and risk management issues, especially focused on application of systematic approaches to environmental management and stakeholder participation.

Annex G

Summary of Returned Questionnaires

Table No. 8
Column Code Definitions for F/BEA Questionnaire Summary Tables and Matrices

The Nature Conservancy-ProNaturaleza	
TNC/ProN 1	Parks-in Peril Selva Central
TNC/ProN 2	Parks-in-Peril Pacaya-Samiria
The Field Museum of Chicago-CIMA	
TFMC/CIMA 1	Park Values Protection
TFMC/CIMA 2	Agroforestry
TFMC/CIMA 3	Farm Diversification
TFMC/CIMA 4	Reforestation Degraded Areas
World Wildlife Fund	
WWF 1	CEDEFOR-Assistance to Forest Concessions
WWF 2	Pilot Project Aguaytia-Von Humboldt
Chemonics PRA and PRAplus	
T1. Tarapoto	Rice production in 8 provinces (5,000 hectares).
T2. Tarapoto	TA to Café Mujer (Alto Mayo)
T3. Tarapoto	Sugar cane production (Carhuapoma)
T4. Tarapoto	Sugar Cane Production (Tocache)
T5. Tarapoto	Cotton production in several provinces (up to 10,000hectares)
J6. Jaen	Café Mujer in 4 provinces (Sustainable agricultural based on coffee production)
J7. Jaen	Café de Calidad in (sustainable agricultural based on coffee production)
J8. Jaen	Sustainable rice production in Jaen and Bagua (up to 1,000 hectares)
H9. Huancayo-La Merced	Café Mujer in 5 provinces: coffee quality improvement/marketing
H10. Huancayo-La Merced	Maracuya production/processing in 3 provinces
A11. Ayacucho	Production/marketing assistance in Anco-San Miguel
P12. Pucallpa	Production of up to 600 hectares of maiz, 200 hectares of pulses (frijol Caraota) and 100 hectares of sesame using biodegradable/green pesticides, biological controls and/or other sustainable technologies (in marginal uplands and midlands around Pucallpa)
P13. Pucallpa	Lumber extraction applying low-impact technologies and sustainable forest management systems that can lead to forest certification (in Aguaytia)
TA to concessionnaires	Sinchi-Roca/NCS in Aguaytia; Maderera Peruana in Pucallpa; Consorcio Forestal Amazonico in Atalaya; Alpi Rosa in Breu-Atalaya

Table No. 9
Summary of Returned Questionnaires

**Table No. 10
Sites Visited and Team Members Meetings with Institutions**

Name of Institution (include Branch)	Place of Meeting	Date/Time	Attendees		Primary Purpose of Meeting	
			Institution (Name/Position)	From F/BEA Team		
WWF-CEDEFOR	WWF-OPP	04/26/2004	Roberto Kometter (Manager of the Sustainable Forest Management Program); Victor Gonzales (Entrepreneurial and Market Management Specialist)	FM, CM, IL, FG, PFD	Background information of the Activity prior to site-visits and logistic coordination	
PRA-MEDA Economic Services Center (ESC) Pucallpa	Sol del Oriente Hotel, Pucallpa	04/28/2004	Juan Muñoz (Head of the Pucallpa ESC); Andrés Flores (Head Aguaytia Office); Carlos Trujillo (Business Promoter)	CM, IL, CR, PFD	General information of PRA-MEDA activities in the Pucallpa ESC and coordinate field visits.	
WWF-CEDEFOR	WWF Pucallpa		José Carlos Minaya, Roberto Kometter, and concessionaires	IL, PFD, CR, CM.	Interview to forest concessionaires that are being supported by WWF-CEDEFOR	
Oleaginosas Amazónicas S.A. (OLAMSA)	OLAMSA, Carretera Federico Basadre Km. 59.800 Neshuya	04/29/2004	Percy Pacheco Diaz (General Manager); Eng. Galván (Plant Manager)	CM, IL, CR, PFD	Visit OLAMSA's plant and interview personnel	
Mesa de Diálogo y Concertación Forestal	FONDEBOSQUE in Pucallpa		Pepe Vásquez Dávila (Chairman), Walter Nalvarte (Technical Secretary), José Dance and concessionaires	IL, PFD, CR, CM, FG	Attend local meeting and presentation of Eng. Jose Dance of the National Table	
Maderas Peruanas SAC MAPESAC	Concesión en Callería	04/30/2004	Responsible personnel	IL, FG	Site visit	
WWF-CEDEFOR	WWF Pucallpa		Jose Carlos Minaya (Project Coordinator) and his technical team	PFD	Insights of CEDEFOR's management in the region	
PRA-MEDA ESC Pucallpa	Hotel Santa Rosa Pucallpa		Juan Muñoz; Javier Soto (Business Promoter)	PFD	OLAMSA's strategic plan and overall business performance	
INRENA ATFFS Pucallpa	INRENA, Carretera Federico Basadre Km. 4.2 Pucallpa		Guillermo Pastor (Administrator); Alex Bramonte; Raul Vasquez (technical personnel)	PFD	Forest concession process, ATFFS management constraints and opportunities	
MAPESAC	Hotel Santa Rosa Pucallpa		Giacomo Franchini	IL, FG	PRA-MEDA and MAPESAC working relationship	
COPASO and PRA-MEDA Pucallpa	Hotel Santa Rosa Pucallpa		Martín Quispe (COPASO's Coordinator); Marcos Rivera (Resident Engineer of PRA-MEDA); Andrés Soto (Head Aguaytia Office)	PFD	COPASO cotton activities supported by PRA-MEDA	
FM-PRADERA	PRADERA's Office in Banda de Chazuta, San Martin		04/30/2004	Hugo Ruel Chota (Field Coordinator); Sherezade Santillana (Field Technician); Reyes García Díaz (Field Technician); Alaka Wali (FM)	IL, PFD	Intervention activities in Chazuta as FM partner

Asociación de Productores de la Microcuenca del Valle de Chazuta (APMVCHBH)	Parcela de Cesar Llaicurima and son Tadeo, Canayo, Chazuta.	05/10/2004	Carlos Alberto Vega (PRA-MEDA); Cesar Llaicurima and son Tadeo (farmers and members of the association), Alaka Wali (FM); Hugo Ruel Chota; Sherezade Santillana and Reyes Garcia Diaz	IL, PFD	Intervention activities of PR <i>Aplus</i>
FMC of Shamboyacu	Municipality of Shamboyacu		Mayor and municipal authorities	MT, FG	Insights of the FMC
PRA-MEDA Tarapoto	PRA-MEDA Office Jr. Rioja 296, Tarapoto	05/11/2004	Carlos Alberto Vega (PRA-MEDA)	IL, PFD	Logistic coordination for field trip and information about cotton/sugar-cane activities to be visited
Coler & Colantonio	Centro Piloto in Carhuapoma, Bellavista		Rolando Chavesta (In-charge of the Field Unit of Coler & Colantonio); Adan Diaz Vergara and Samuel Laisa (farmers and members of the Asociación de Cañicultores of Carhuapoma); Francisco Esquen Taboada (Mayordomo de Campo of Coler & Colantonio)	IL, PFD	
Asociación de Productores Agropecuarios Protectores del Medio Ambiente e Industriales de Pachiza (APAPMAIP)	Hostal Capricornio, Juanjui		Luis Lopez Pinedo (President) and Anibal Hidalgo (Administrator)	MT, IL, PFD	Working relationship with PR <i>Aplus</i>
Cooperativa Agraria Cacaotera (ACOPAGRO)	ACOPAGRO Jr. Arica 203, Juanjui	05/12/2004	Gonzalo Rios (General Manager)	PFD	Learn about their rejection to PR <i>Aplus</i> offer to become local operator
Rio Abiseo NP Administration	Rio Abiseo NP Offices Jr. Leticia 777, Juanjui		Cesar Bartra (Head) and part of his team (Mari del Aguila, Fernando, Freddy and Guillermo)	PFD	Park's relationship with WWF-CEDEFOR and forest concessionaires, PR <i>Aplus</i> and the Cordillera Azul activities.
ATFFS INRENA	ATFFS INRENA in Juajui Jr. Leticia 777, Juanjui		David Sologuren (Representative)	PFD	ATFFS relationship with WWF-CEDEFOR and concessionaires and local FMC situation
Cordillera Azul NP Activity	Restaurant in Tarapoto	05/13/2004	Luis Benites (Head of the Park) and Luis Ramirez (Participation Coordinator of CIMA)	PFD	Park's relationship with Cordillera Azul partners.
WWF – CEDEFOR	Hotel Río Shilcayo, Tarapoto		César Rengifo (CEDISA), Elizabeth Arévalo (CEDISA), A. Villacorta (CRSM), Humberto Bartolini (Asociación de Concesionarios Forestales de San Martín)	FM, IL, MT, FG	Working experiences and credit process.
Asociación de Concesionarios Forestales de la Región San Martín (ACOFORSAM) and WWF-CEDEFOR	Hotel Río Shilcayo, Tarapoto		J. Malleux (Director of CEDEFOR) and P. Yance (Sub-Regional Director), Humberto Bartolini (President); Javier Ramirez (Treasurer) and Emeterio Nogales (Vocal) and others	FM, MT, FG, IL, PFD	WWF-CEDEFOR presentation with local partner institutions
Asociación de Municipalidades de la Región San Martín (AMRESAM) with WWF-CEDEFOR	Hotel Río Shilcayo, Tarapoto	J. Malleux (Director of CEDEFOR) and P. Yance (Sub-Regional Director); Marco Leon (AMRESAM Coordinator) and Neiser Bartra (AMRESAM)	FM, MT, FG, IL, PFD	WWF-CEDEFOR presentation with local partner institutions	

FM; CIMA-Cordillera Azul; Choba Choba; PRADERA; CEDISA	Hotel Río Shilcayo, Tarapoto		Marta del Castillo, Luis Ramirez and Alvaro del Campo from CIMA, Alaka Wali (FM), Mario Arévalo (PRADERA), Rider Pandero (Choba Choba), Rafael Linares and César Rengifo (CEDISA)	FM, IL, MT, FG, PFD	Working approach in Cordillera Azul NP and Buffer Zone
Cordillera Azul NP - INRENA	Hotel Río Shilcayo, Tarapoto	05/13/2004	Luis Benites (Head of the Park) and others	FM, IL, MT, FG, PFD	TFM-CIMA and local partners relationship
PRA-MEDA	PRA-MEDA Office Jr. Rioja 296, Tarapoto	05/14/2004	Carlos Alberto Vega and Flavio Vera (Business Specialists)	FM, IL, FG, PFD, MT	PRA-MEDA Tarapoto environmental perspective according to intervention
Comités de Manejo de Palmeras (Comapa)	Yarina and Veinte de Enero in the Pacaya-Samiria NR	05/21 – 05/24/2004	Members of the COMAPAs and Women Associations	MT, IL, FG	Get information about TNC's partner activities on the field
INRENA	Puesto de Vigilancia 1 Samiria	05/24/2004	Pacaya-Samiria NR and ATFFS personnel	MT, IL, FG	Illegal logging
INRENA	INRENA's Office in Iquitos		Javier del Aguila	MT, IL, FG	INRENA's work in the Pacaya-Samiria NR
Pro Naturaleza - Iquitos	Local Pro Naturaleza, Iquitos		Sandra Isola - TNC Personal de Pro Naturaleza	MT, IL, FG	PN's work in Pacaya-Samiria NR
Centro de Datos para la Conservación (CDC-Perú)	Universidad Nacional Agraria La Molina	05/26/2004	Pedro Vásquez	MT, IL, FG	Get information about the monitoring program of "conservation objects" of the Pacaya-Samiria NR
USAID and Chemonics	USAID	05/28/2004	William Cordero (Chemonics); Tommy Fairlie (USAID/ADP)	IL, PFD, FG, MT, CM	ADP PEA's implications in PRA and status of implementation
Pro Naturaleza	Pro Naturaleza, Lima	06/02/2004	Jorge Ugaz (Executive Director, a.i.); María Gracia Morán; Luis Salerno	IL, PFD, FG, MT.	PiP interventions in Pacaya-Samiria and Central Selva
Centro para la Investigación Forestal Internacional (CIFOR)	INRENA, Lima	06/04/2004	Violeta Colan	FG	Auditing proposal for FC monitoring
INRENA - IANP	INRENA, Lima	06/14/2004	Yanachaga-Chemillén NP + Pacaya-Samiria NR Coordinators	FG	Gather information about PA management
INRENA - IANP	INRENA, Lima		Jessica Morales	FG	IANP's position about sub-national PAs
DEVIDA/GMA	DEVIDA, Lima	07/07/2004	Lucio Batallanos (GMA Manager); Julio Ocaña (Advisor)	FM, MT, PFD	ADP PEA's and status of implementation
CONAM	CONAM, Lima	07/13/2004	César Cervantes; María Luisa del Río; Ivan Lanegra; Raul Roca	FM, PFD, MT, FG, CR	DEVIDA'S SEIA legal implication.

Table No. 11
Other Persons and/or Groups Contacted and Interviewed

Persons and/or Groups Contacted	Location of Interview
Pepe Vásquez Avila, ECOFU SAC Director (forest concessionaire)	Pucallpa
Tito Alomia, Member of Empresa Forestal BTA SAC (forest concessionaire)	Pucallpa
Carlos Vásquez, Legal Representative and General Manager of MANEX SAC (forest concessionaire)	Pucallpa
Jorge Acosta Zárate, forest concessionaire	Pucallpa
Wilder Vásquez, Legal Representative and General Manager of Forestal Imiría SRL (forest concessionaire)	Pucallpa
Jose Estrada, Legal Representative and General Manager of Empresa Ecoforestal Tamaya SAC (forest concessionaire)	Pucallpa
Rosalini Pipo, Legal Representative of Empresa Horacio Pipo Muñoz (forest concessionaire)	Pucallpa
Eng. Rebeca Dumet	Pucallpa
Otilia Hernandez, wife of auto-eradication beneficiary and COPASO member	Neshuya
Members of the Santa Rosa de Sheshea Native Community	Santa Rosa de Sheshea Native Community, Ucayali
Tomás Rodríguez Rojas, President of the APAFA	Santa Rosa de Sheshea Native Community, Ucayali
Andrés Cenepo, Ranger of the Cordillera Azul NP and member of the Sta. Rosa de Mushukllaqta de Chipoata native community	Sta. Rosa de Chipoata, Chazuta
Miguel Panduro and son Renan, farmers	Centro Poblado Menor Consuelo, San Pablo, Bellavista
Guillén Flores Murrieta, farmer	Centro Poblado Menor Consuelo, San Pablo, Bellavista
Segundo Tapullima, farmer	Centro Poblado Menor Consuelo, San Pablo, Bellavista
Victor Manuel López Villacorta, Mayor of Saposoa	Juanjui
Sumner Trejo, WWF-CEDEFOR Madre de Dios	Puerto Maldonado
Claudia Coronado, WWF-CEDEFOR Madre de Dios	Puerto Maldonado
Héctor Vílchez, WWF-CEDEFOR Madre de Dios	Puerto Maldonado
Fortunato Barrera, forest concessionaire of Tahuamanu assisted by WWF-CEDEFOR	Puerto Maldonado
Walter Hilario, forest concessionaire of Tahuamanu assisted by WWF-CEDEFOR	Puerto Maldonado
Lucio Miranda, forest concessionaire of Tahuamanu assisted by WWF-CEDEFOR	Puerto Maldonado
Pedro Barrera, forest concessionaire of Tahuamanu assisted by WWF-CEDEFOR	Puerto Maldonado
José Dianderas, forest concessionaire of Tahuamanu assisted by WWF-CEDEFOR	Puerto Maldonado
Miguel Guerra, forest concessionaire of Tahuamanu assisted by WWF-CEDEFOR	Puerto Maldonado
Marcial Lazo, forest concessionaire of Tahuamanu assisted by WWF-CEDEFOR	Puerto Maldonado
Fernando Quesada, forest concessionaire of Iberia assisted by WWF-CEDEFOR	Iberia
Rosalía de Fernández, forest concessionaire of Iberia assisted by WWF-CEDEFOR	Iberia
José Espinoza, forest concessionaire of Iberia assisted by WWF-CEDEFOR	Iberia
Deuso Sousa, forest concessionaire of Iberia assisted by WWF-CEDEFOR	Iberia
Gilmer Gibaja, Emforportillo S.R.L (forest concessionaire)	Chilina, Iñapari, Tahuamanu
Mr. Sahuanay, farmer who's land overlaps with Emforportillo forest concession	Chilina, Iñapari, Tahuamanu
Local authorities and community members with land overlapping problems with Emforportillo forest concession	Chilina, Iñapari, Tahuamanu
Jaime Málaga and Liliana Flores, technical team of FENAMAD	Puerto Maldonado
Benjamín Kroll, PN	Oxapampa
Zully Roncal, PN	Oxapampa
Ignacio Larco, PN	Oxapampa
Luis Berrospi, PN	Oxapampa
Edson Albegrin, PN	Oxapampa
Ricardo Gutierrez, Environmental Affairs Office of INRENA	Lima
Victor Bullen, USAID Regional Environmental Officer	Lima
Timothy Miller, ENR/USAID	Lima
Dra. Sonia Lou, Defensoría del Pueblo	Lima
Dra. Lily Rodríguez, President of CIMA	Lima

Annex H

Affected Environment

In the framework of the F/BEA, the following describes some characteristics of the environment affected, which may be significant from the viewpoint of the environmental impacts of the activities carried-out.

First, information is presented from the **ecological perspective**,⁹⁹ which has been subdivided in the three major strata that correspond to the area of influence of the interventions, the flood-plain or *Selva Baja*, the premontane and montane strata. For each of these strata information is presented on climatology, physiography and soils, as well as forest and other vegetation, level of deforestation, present level of prospecting in the forestry component, biological diversity and level of singularity and endemism.

1. Flood-plain or *Selva Baja* Stratum (0-800 m.a.s.l.)

This stratum, in spite of serious gaps in biological information in large areas, is among the three areas studies here, the best documented (physical attributes, ecological functioning of the forest and diversity content).

- **Climate:** The pattern of climate is hot and humid. The mean-annual temperature range from 24-26° C. Precipitation is heavy, volume and continuity of rains usually large (mean-annual rain for 3000 mm).
- **Physiography and soils:** Physiography is essentially flat, with local deposits of alluvial material and river terraces. Although the soils are predominantly clayey there is a recognized variety of soil types and nutrient contents, forming soil mosaics which are well defined in some areas and which bear a close relation to the specialization and diversity of vegetation. In the flood-plain the levels of biological diversity observed in different forest types are closely related to the behavior of the meanders of the rivers and the nature of flooding which occurs in some areas.
- **Forest and vegetation characteristics:** The plain cover is dense and closed, being formed by Amazon rainforest with high canopy. Commercial timber volumes are medium to high, ranking between 40-100m³/ha. Some commercial important species are predominant in the forests of the *Selva Baja*, including Caoba (*Swietenia macrophylla*) and Cedar (*Cedrela odorata*).
- **Deforestation:** In this stratum deforestation is wide-spread, however, in spite of intensive deforestation, compared to the premontane and montane strata has suffered less alteration.
- **Level of biological prospecting in the forest component:** There is notable little biological prospecting of flora and fauna species.
- **Tree diversity:** The Amazon flood-plain holds world records in tree diversity up to 300 species/ha in the Iquitos area.
- **Level of biological singularity:** Although diversity is very high in this stratum, the relative proportion of endemic species seems to be less than the one observed in the montane stratum.

2. Premontane Stratum (800-1500 m.a.s.l.)

⁹⁹ Extracted from the Forestry Specialist Technical Report.

Table No. 12
**Characteristics of Ecological Strata of the Peruvian Humid Forests with Implications
in management and conservation of Forest Resources**

Ecological Stratum Attributes	Flood-plain or <i>Selva Baja</i> (80% of the area) 0-800 m.a.s.l.	Ceja de Selva (20% del área)	
		Premontane Stratum 800-1500 m.a.s.l.	Montane Stratum 1500-3800 m.a.s.l.
Climate	High and continued precipitation	Relatively high precipitation; frequently with several months of scarce precipitation.	Relatively high precipitation; high and permanent humid in the cloud forest.
Physiography	Flood-plains and terraces; river dynamics influenced diversity	Hills and upper terrace; possible micro-topography influence diversity patterns.	Mountains
Soils	Clayey and acid in general, but with mosaics of different soils which affect ecology	Clays or loams, acid to neutral; soil characteristics very influenced by micro-topography	Clays or loams, acid to neutral; soil characteristics very influenced by micro-topography
Timber potential of the forest	High	Moderate to high	Usually restricted by excessive gradient (protection zones)
Composition of the tree flora	Dominance of Leguminosae, Moraceae, Miristicaceae, Bombacaceae	Similar to the flood-plain	Dominance of Lauraceae (Laurisilvae) and families exclusive to the montane stratum.
Relative level of alteration and deforestation	Moderate	Very high	Very high
Tree diversity	Very high	Moderate	High
Content of rare species	Moderate to high	Moderate	Very high
Level of knowledge of biological content	Low	Low	Very low

- **Climate:** The climatology of this stratum is better documented than the previous one. The climate pattern is hot and humid, although in some areas it may acquire characteristics of dry forest (e.g. Tarapoto). Temperature is usually consistently high with an annual mean between 22-24° C. Precipitation is high but well below the levels of other parts of the Peruvian Amazon (e.g. Iquitos). Total annual rainfall is around 2000 mm.
- **Physiography and soils:** This landscape is characterized by dominance of hills with steep or shallow slopes and, in lesser degree river terrace areas. It has superficial soils whose depth is limited by strata of hard and cohesive rock at a depth of 10 cm. The micro-topography is determinant in soil characteristics and relates to the characteristics of the forest as a source of timber and of biological diversity. In this connection, three types of soils may be distinguished: 1) those situated on river banks and its terraces with moderate fertility; 2) soils found along narrow *quebradas*, these are of an extremely acid reaction; 3) residual soils on mountain and hill slopes typically acid, low fertility and low productivity capacity.
- **Forest and vegetation characteristics:** The plant cover is very dense and is formed by humid Amazon forest. In terms of dasonomic characteristics commercial timber volume are medium to relatively high, between 60-100m³/ha and canopy height is around 14-18 m.

- **Deforestation:** This stratum is one of the most affected by deforestation (most notable in San Martin, Pasco, Junín and Huanuco). Destruction of forest is mainly associated with shifting agriculture.
- **Level of biological prospecting in the forest component:** There is a notable lack of biological prospective among the fauna and flora species present.
- **Tree diversity:** Compared to the flood-plain, the premontane stratum shows less diversity (130 species/ha).
- **Level of biological singularity:** The premontane stratum contains apparently greater endemic species compared to the previous stratum, which is larger in extension.

3. Montane Stratum (1500-3500 m.a.s.l.)

- **Climate:** Information on climatology of this stratum is scarce and the values assigned to many montane species are extrapolations. One of the characteristics of this ecological space is the continued presence of clouds in some areas, sometimes of a permanent nature, generating increased relative humidity, which is reflected in the nature of the vegetation. Rainfall values should be interpreted considering that the ability of the vegetation to catch mists may double the basic volume. In this case, and with the observation just made, the basic temperature and rainfall parameters appear to be between the following values: 1) for altitudes between 1500-2500 m.a.s.l. the mean-annual temperature ranges between 15-19° C and total annual precipitation between 1500-3000 mm; and 2) for altitudes between 2500-3500 m.a.s.l. the mean-annual temperature varies from 7-15° C. Mean-annual precipitation is between 400-7000 mm. In this stratum due to the permanent presence of clouds, epiphytic plants and tree-ferns are observed.
- **Physiography and soils:** Physiography is characterized by predominant of mountainous landscapes with steep slopes and a very limited proportion of level areas. Soils tend to be like those of the premontane stratum. One notable characteristic in this stratum is its high degree stoniness. Most of the soils in this stratum, according to the major-use capability, are classified as protection and unsuitable for production forestry activity.
- **Forest and vegetation characteristics:** The tree-cover is dense and closed, being formed by humid Amazon forest. In terms of its vegetation, this stratum is distinct from premontane and flood-plain soils of low altitudes. Dasonomic characteristics show lower timber values, around 30-60 m³/ha, and as indicated previously the proportion fit for commercial forestry activities is severely limited by the steep gradients.
- **Deforestation:** This stratum is possibly the most heavily affected by deforestation, especially in San Martin, Pasco and Junin, where forests have being almost completely destroyed as a result of shifting agriculture. Fires in the dry season play an important part in this destruction, being generated by farmers in the lower mountain areas and, uncontrolled, sweep uphill to the hillsides.
- **Level of biological prospecting in the forest component:** This is probably the area with least biological prospecting of flora and fauna species considering the estimated enormous diversity.
- **Tree diversity:** The diversity of the montane forests may be even greater than that of areas situated immediately below them, and in comparison with the Amazon flood-plain

- **Level of biological singularity:** This is probably the stratum with the greatest endemic content even greater than the Amazon flood-plain which is more extensive.

Table No. 12 summarizes what has been stated.

From the **protected area perspective**,¹⁰⁰ the mountainous landscape characterizes the Yanachaga-Chemillen y Cordillera Azul national parks, which consist of very steep *quebradas* and areas of rolling topography very susceptible to erosion. In upper parts there are areas of cloud forests and even pastures with high-altitude wetlands.

The Pacaya-Samiria NR is situated in the so-called *Ucamara* depression, between the Marañon and Ucayali rivers with characteristics typical of flood plain, with terraces seasonally flooded, alternating with hydromorphic soils dominated by stands of *Aguaje* (*Mauritia flexuosa*), lakes, *quebradas* and swamps.

The description of the affected environment from the viewpoint of the natural resources economics¹⁰¹ refers to the dysfunction (breakdown) of the ecosystems of economic exploitation of their environmental services. Thus, the principal potential impacts of the economic activity have been identified in terms of restrictions on the availability and quality of the exploitable natural resources and the principal sources of pressure associated with those impacts, and the pressure which these threats exert. Thus, in Table 13, the variables of F/BEA are shown from the economic perspective.

At a general analytical level from the **institutional and social viewpoint**,¹⁰² it found that:

1. In the intervention areas more than 80% of the population has emigrated from Sierra or Selva Alta regions. These persons not only bring their customs, culture, life-style and way of relating to their environment but also maintain economic, religious, social and cultural links with their place of origin.
2. A significant percentage of forest concessionaires are unable to fulfill the payment of the forestry exploitation tax or “*derecho de aprovechamiento*” (25% in Madre de Dios and 90% in Ucayali). According to the Law, this non-compliance leads to immobilization of wood and in the ultimate instance, the reversion of the concession to the State. This problem becomes a perverse vicious circle in which other variables intervene, such as:
 - Excessive delay of INRENA in approving GFMP and AOP causes time-lags in the management of the concessions (e.g. concessionaires cannot remove timber without such approvals and in many cases, for climatic reasons, have to postpone this until the following season, therefore they cannot pay the forestry exploitation tax for the current season).
 - A significant proportion of concessionaires cannot set foot on their concessions due to problems of overlapping territorial rights with farmers, mining concessions and/or native communities. Physical-legal clearing is very delayed causing social conflicts which adversely affect the image of the forest entrepreneurs among local population.
 - An appreciable proportion of forestry enterprises have been constituted on the basis of “forced” groupings of persons with very limited social capital and with little or no knowledge of their responsibilities as forestry entrepreneurs.

¹⁰⁰ Extracted from the Biodiversity and Critical Habitat Specialist Technical Report

¹⁰¹ Extracted from the Economic of Natural Resources Specialist Technical Report

¹⁰² Extracted from the Institutional and Sociology Specialists Technical Reports.

- Lack or weak perception on part of concessionaires concerning responsibilities assumed, appropriate ecological sustainability and social responsibility management of the forestry heritage of the Nation.
- Lack of judicial identity limits access to a series of advantages such as funding sources for the operation of the concession, but the National Register of Forestry Concessions has not yet been implemented.

Table No. 13
Potential Environmental Impacts and Sources of Pressure

Threats / Problems		Grade of Pressure	Location	USAID Intervention
Sources of pressure on natural resources	Impact on Resources			
Indiscriminate logging and burning for shifting agriculture and livestock raising	<ul style="list-style-type: none"> • Loss of tree cover and climate changes • Habitat fragmentation – loss of species 	High	Cordillera Azul NP and BZ	FM-CIMA Chemonics-PRA
Excessive selective logging of commercial species	<ul style="list-style-type: none"> • Changes in the structure of the communities of species • Extinction of species • Loss of diversity. 	High	Pacaya Samiria NR Forest concessions (Ucayali, Madre de Dios, San Martín)	TNC-PN WWF-CEDEFOR
Unsuitable fishing and hunting practices.	<ul style="list-style-type: none"> • Loss or elimination of fish. • Impact on fauna 	High	Pacaya Samiria NR	TNC-PN
Introduction of exotic species	Expansion of introduced exotic species	Low		
Unsuitable agricultural practices: monoculture on slopes	<ul style="list-style-type: none"> • Degradation of agriculture soil • Slopes erosion 	High	BZ of the Cordillera Azul NP	
Use of pesticides and agrochemicals	<ul style="list-style-type: none"> • Diversity reduction on soil and water • Greater resistance to pests 	Moderate	Economic Corridors (Tarapoto, Pucallpa-Aguaytia).	FM-CIMA Chemonics-PRA
<ul style="list-style-type: none"> • Indirect encouragement of unplanned immigration • Unsuitable roads • Discharge of untreated liquid wastes 	<ul style="list-style-type: none"> • Deforestation • Unplanned colonization • Water contamination 	Moderate		
Overlapping of projects	Restriction in the availability of labor force	Moderate	BZ of the Cordillera Azul NP	

3. Lack of a competent authority for supervision and administrative sanction or breaches of concession contracts for logging purposes and the respective forest management plans. Delay in creating the supervisory agency for forest timber resources (OSINFOR). Supervision has been assumed by INRENA and its ATFFS with insufficient trained personnel and no funds for conducting this activity. Thus, supervision and control aspects of the environmental impacts and their mitigation established in GFMP and AOP are not being supervised.
4. Personnel of the competent authorities at local level is scarce for dealing with responsibilities assigned (control, surveillance, sanctions); is poorly trained for confronting the complex problems which occur. They have little mobility due to budget and logistic problems. Additionally, there is incompatibility between the functional dynamic of INRENA and that of a forest enterprise. This incompatibility causes operational bottlenecks originating problems for the operation and efficient conduction of the concession and creating dangerous imbalances in the forest concession process at national level.
5. There is corruption at different levels of the forestry activity. Examples are illegal logging, laundering of timber through improper manipulation of forestry control and management documents. There appears to be a network of corruption, which includes authorities in different levels of decision. In cases like Madre de Dios, the reasons for open and public opposition of the system of concession on the part of the highest regional authorities are known to all the social actors.
6. The land-tenure problem continues to exist, the complicated and costly process of land-titling and the application of inappropriate agricultural techniques hinder improvements in local economies, limiting options for many rural inhabitants to monoculture, food production and/or illegal activities which yield some kind of income.
7. The State has made some efforts to bring about ordered, planned and sustainable land development. However, during the last decade there have been some successful experiences with crop diversification and zoning, some of which have used as approach the watershed as the management unit. These experiences may serve as a reference to encourage change; unfortunately, there has been no continuity and the results of these experiences have been rarely systematized and disseminated.
8. Local governments suffer from similar institutional weaknesses, and these are the basic entities for local territorial organization and constitute the first stage in neighborhood participation. Regional governments are still in their early stages and should perform key functions for integrated and sustainable development for the local rural population.
9. Personnel of the protected areas meet repeated conflicts with local population due to pressure, which the latter exert to natural resources of because they develop activities incompatible with the conservation objectives of the protected areas. Some development projects perform actions without considering the effects they may cause to nearby protected area.
10. INRENA exercises an important role and management of SINANPE, as well as national and international NGOs, academic and research institutions and international cooperation, providing technical, financial, scientific and management support to the protected areas.
11. Populations in these intervention areas have formed different types of social-based organizations. However, these are weak, have little cohesion or articulation, they lack of organic structure and are plagued by inter and intra-institutional conflicts.
12. A general weakness in the local enterprises – with some exceptions - has been observed. These weaknesses are present from the creation of the enterprises. Some of these are composed of small

producers or extractors who lack the capital needed to develop their businesses, the entrepreneurial experience and a common vision, as well as clear and agreed objectives. Capabilities for generating and incorporating added-value in the productive chain and establishing links among sectors are very limited.

13. The level of application of environmental management systems (EMS) is practically no existing.

Annex I

Synthesis of the Guide for the Prevention of Losses of Biodiversity caused by Biological Invasion (IUCN, 2000)

Síntesis de los Principios Orientadores de la Guía para la Prevención de Pérdidas de
Diversidad Biológica ocasionadas por Invasión Biológica

1. DEFINICIÓN DE TÉRMINOS

Por “**diversidad biológica**” (biodiversidad) se entiende la variabilidad de organismos vivos de cualquier fuente, incluidos entre otras cosas, los ecosistemas terrestres y marinos y otros ecosistemas acuáticos y los complejos ecológicos de los que forman parte; comprende la diversidad dentro de cada especie, entre las especies y de los ecosistemas.

Por “**especie nativa**” (autóctona) se entiende una especie, subespecie o taxón inferior, que ocurre dentro de su espacio natural y de dispersión potencial (p.e. dentro del espacio que ocupa de manera natural o puede ocupar sin la directa o indirecta introducción o cuidado humano).

Por “**especie exótica**” (no-nativa, no-autóctona, foránea) se entiende la especie, subespecie o taxón inferior que ocurre fuera de su espacio natural y de dispersión potencial (p.e. fuera del espacio que ocupa de manera natural o que no podría ocupar sin la directa o indirecta introducción o cuidado humano) e incluye cualquier parte, gameto o propágulo de dicha especie que puede sobrevivir y reproducirse.

Por “**especie invasora**” se entiende una especie exótica que se establece en un ecosistema o hábitat natural o semi-natural; es un agente de cambio y amenaza la diversidad biológica nativa.

Por “**introducción**” se entiende el movimiento, por un agente humano, de una especie, subespecie o taxón inferior (incluyendo cualquier parte, gameto o propágulo de dicha especie que puede sobrevivir y reproducirse) fuera de su espacio natural históricamente conocido, dentro del mismo país o en otro.

Por “**introducción no intencional**” se entiende una introducción que resulta del uso que una especie hace de los humanos o de sus sistemas de distribución como vectores de dispersión fuera de su espacio natural. (La introducción es incidental para el principal intercambio que se realiza (comercio frecuentemente), pero puede tener consecuencias importantes sobre el medio ambiente).

Por “**introducción intencional**” se entiende una introducción hecha de forma deliberada por los humanos, incluyendo el desplazamiento deliberado de una especie fuera de su espacio natural y de dispersión potencial. (Estas introducciones pueden ser autorizadas y no autorizadas)

Por “**ecosistema natural**” se entiende un ecosistema en el cual no se percibe la alteración humana.

Por “**ecosistema semi-natural**” se entiende un ecosistema que ha sido notablemente transformado por las acciones humanas, pero es auto-sostenible.

Por “**amenazas de bioseguridad**” se entiende aquellos asuntos o actividades que, de manera individual o colectiva, pueden constituir un riesgo biológico para la riqueza ecológica o el bienestar de los humanos, los animales y las plantas de un país.

Por “**reintroducción**” se entiende un intento para establecer una especie en un área que fue en algún momento parte de su distribución histórica, pero de la cual ha sido extirpada o de la cual se extinguió.

El término “**gobierno**” incluye los agrupamientos de gobiernos para la cooperación regional sobre asuntos que caen dentro de sus áreas de competencia.

2. OBJETIVOS

- Aumentar la conciencia sobre la importancia de las especies invasoras como agentes que afectan la diversidad biológica nativa en los países desarrollados y en vías de desarrollo y en todas las regiones del planeta.
- Alentar la prevención de la introducción de especies invasoras como un tema de prioridad que requiere acciones nacionales e internacionales.
- Reducir a un mínimo el número de introducciones no intencionales y no autorizadas.
- Asegurar que las introducciones intencionales, inclusive aquellas con fines de control biológico, son evaluadas de manera adecuada y anticipada tomando total consideración de los potenciales impactos sobre la diversidad biológica.
- Animar el desarrollo y aplicación de campañas y programas de control y erradicación de especies invasoras, y aumentar su efectividad.
- Proveer un marco para la legislación y la cooperación internacional para prevenir la introducción de las especies invasoras, y promover su erradicación y control.

3. ENTENDIMIENTO Y CONCIENCIA

3.1 Principios orientadores

- El entendimiento y la conciencia, basados en la información y el conocimiento, son esenciales para determinar que las especies exóticas invasoras constituyen un tema de prioridad que debe y puede ser tratado.
- Una mejor información y educación en todos los sectores de la sociedad sobre las especies invasoras, aunados con una mayor conciencia pública, son fundamentales para reducir los riesgos de introducciones no intencionales.
- El control y la erradicación de especies invasoras tienen más posibilidades de éxito si son apoyadas por comunidades locales y sectores que cooperan y cuentan con información.
- La información y la investigación relevantes son requisitos vitales para el entendimiento y la conciencia.

4. PREVENCIÓN

4.1 Principios orientadores

- La prevención de la introducción de especies invasoras es la opción preferida y la más económica, y en consecuencia, debería recibir la mayor prioridad.
- Actuar de manera rápida para evitar la introducción de especies exóticas potencialmente invasoras, inclusive si existe una incertidumbre científica sobre los resultados a largo plazo de la potencial invasión.

- Dada la imposibilidad de predecir los impactos que muchas especies exóticas tendrán sobre la diversidad biológica, cualquier introducción intencional y esfuerzo para identificar y evitar las introducciones no intencionales, debería basarse en el principio de precaución.
- Sólo se debería permitir la introducción de especies exóticas en el caso que los efectos positivos de la introducción contrarresten sus actuales y potenciales efectos adversos. Este principio es particularmente importante cuando se aplica a ecosistemas y hábitats aislados, tal como islas o centros de endemismo.
- Sólo debería considerarse la introducción intencional de una especie exótica cuando ninguna especie nativa es adecuada para los propósitos por los cuales la introducción ha sido realizada.
- Las invasiones biológicas actúan como "contaminantes biológicos" que pueden afectar de forma negativa al desarrollo y la calidad de vida. Por lo tanto, parte de la respuesta reguladora a la introducción de especies invasoras debería ser el principio de "el contaminador paga", en donde la "contaminación" es representada por el daño a la diversidad biológica nativa.
- Las invasiones biológicas pueden afectar seriamente el desarrollo nacional. Los marcos legales e institucionales deberían tratar en toda su envergadura, la variedad de amenazas a la bioseguridad que cada país enfrenta.
- Las islas y los ecosistemas aislados como lagos y ecosistemas de montaña, son particularmente vulnerables a las invasiones biológicas, ya sea que estas provengan de otros países o del mismo país, y deberían recibir la más alta prioridad para la acción, especialmente para medidas preventivas y en particular, cuando se arriesgan los valores de la diversidad biológica.

5. ERRADICACIÓN Y CONTROL

5.1 Principios orientadores

- Actuar rápidamente para erradicar o controlar nuevas especies exóticas invasoras, inclusive si existe una incertidumbre científica sobre los efectos de la invasión en el largo plazo.
- La erradicación de nuevas o existentes especies exóticas invasoras es preferible y financieramente más efectiva que el control a largo plazo, particularmente para los nuevos casos. Sin embargo, no debería intentarse al menos que sea ecológicamente factible y se cuente con los recursos financieros y el compromiso político necesarios para su culminación.

6. CONOCIMIENTO E INVESTIGACIÓN

6.1 Principio orientador

- Un elemento esencial en la batalla contra las especies exóticas invasoras en todos los niveles (global, nacional, local), se refiere a la colección y distribución efectiva y oportuna de información y experiencias relevantes, lo cual contribuye a su vez, al progreso de la investigación y al mejor manejo de dichas especies.

7. NECESIDADES LEGALES E INSTITUCIONALES

7.1 Principios orientadores

- Un enfoque legal e institucional holístico sobre las amenazas de bioseguridad en cada país, junto a una apropiada identificación de los elementos que comparten los enfoques reguladores respecto a las especies exóticas, es requisito para el éxito en el largo plazo de las acciones contra la introducción de especies invasoras en los niveles nacional y global.

- Las respuestas efectivas de las instituciones requieren de una clara definición de responsabilidades, una completa cobertura operacional para todos los aspectos relacionados con los temas actuales y potenciales que se asocian a las especies exóticas invasoras, y una efectiva integración entre las diferentes instituciones y sectores de responsabilidad.

Annex J

This section is taken from the Programmatic Environmental Assessment (PEA) of the Sustained Reduction of Illicit Coca Crops through Alternative Development in Target Areas of Peru Activity, dated September 30th, 2003 and its revised version of June 2004.

1. Protected Area Management Plans

Summary of the Proposed Actions

The Expanded ADP will finance protected area management projects as part of an expanded set of activities that were originally defined as the 'Joint Environmental Agenda'. According to the version of the Joint Environmental Agenda made available to the PEA Team, the Nature Conservancy and its Peruvian partners have responsibility for preparing and implementing protected area management plans for the Tingo María National Park, the Yanasha Communal Reserve, the San Matías-San Carlos Protection Forest and for preparing a proposal for the declaration of a Central Selva Biosphere Reserve. No additional information, however, was made available to the PEA Team regarding these proposed management plans. Nor was the PEA Team able to visit these protected areas. It cannot, therefore, comment more on the protected area management activities.

The Expanded ADP is financing the Chicago Field Museum to prepare a management plan for the Cordillera Azul National Park, which includes boundary demarcation and protection as well as small, income generating activities with communities in the western part of the park's buffer zone.

Potential Negative Environmental Impacts and Mitigation Measures

Direct Negative Impacts:

The preparation of management plans for a protected area involves consultations, studies, mapping, and report writing. These actions will not in themselves cause negative environmental impacts. A protected area management plan may, however, recommend actions that could cause direct and indirect negative environmental impacts. It may include, for example, the construction of infrastructure for administration and tourism, such as buildings, roads and docks. Such construction could cause short-term direct negative environmental impacts through the elimination of vegetation, the movement of earth, changes in drainage patterns, and contamination of air, water, and soil. The subsequent use of infrastructure may generate wastes that contaminate water, soil and air, trash and contamination of water bodies. Motorized vehicles may create water, air and noise contamination and directly kill slow moving animals. Increased movement of people through a protected area could result in the introduction of exotic species and affect the habits and habitats of wild animals. The waves created by fast boats in narrow waterways can cause bank soil erosion and change the natural habits of wildlife. The protected area management plan can itself identify such potential negative direct impacts and specify measures to avoid or mitigate them.

Indirect Negative Impact:

The establishment and management of a protected area may stimulate additional tourism. The principal indirect impacts of increased tourism are likely to be on populations of indigenous peoples. Contact with tourists could expose indigenous peoples to new diseases. On the other hand, hunting pressure on wild animals may decrease and their populations may expand in numbers.

The indirect negative impacts from the existence of a managed protected area can generally be avoided or mitigated. The protected area’s management plan must take such potential indirect impacts into account and provide effective avoidance or mitigation measures. It should, for example, consider the need for inoculation and other health programs. Indigenous peoples can be prepared to understand, absorb, and take advantage of the establishment and management of a protected area without suffering significant negative impacts to their own health.

The following table summarizes the potential adverse impacts of the forest management plans and avoidance or mitigation measures.

Table No. 14
Potential adverse impacts and mitigation actions for protected area management plans

Potential Adverse Impact	Avoidance/Mitigative Actions
Direct	
<ul style="list-style-type: none"> • Construction site located in agricultural or natural vegetation. • Removal of soil and plant cover at and near construction sites and deforestation in the vicinity of the structures. • Improper disposal of excess and waste construction materials, items required for operation and maintenance of equipment and solid and liquid waste. • Operation of equipment causes soil, water and air contamination 	<ul style="list-style-type: none"> • Avoid construction projects in agricultural lands or where there is natural vegetation. • Separate topsoil during site preparation. • Replace topsoil after construction. • Re-vegetate construction sites. • Dispose waste in suitable sanitary fills. • Prevent spills of oil, fuel and cement. • Avoid disposition of waste in water bodies. • Select suitable equipment. Prevent spills of oil, fuel and cement.
Indirect	
Increased tourism brings indigenous peoples into contact with infectious diseases to which they do not have resistance.	Plan and control contacts between tourist and indigenous communities

Specific Environmental Issues

The Threshold Decision requires that the protected area management plans include an environmental assessment of their potential environmental impacts and that the Terms of Reference for their preparation be submitted to LAC/BEO for approval prior to initiating activities. No new TORs for protected area management plans have been developed since the Threshold decision was made. However, the Field Museum of Chicago activity in the Cordillera Azul National Park is currently being implemented based on an area management plan that includes an assessment of potential negative environmental impacts and appropriate mitigation measures.¹⁰³

One of the principal threats to the integrity of the national parks comes from the construction, improvement or rehabilitation of roads up to or close to their boundaries. Such roads often permit agricultural less expensive and easier access to unoccupied forestlands along the boundaries of the protected areas. Once the human populations outside of the park boundaries increase due to agricultural colonization, the park’s integrity is no longer protected simply by their remoteness. When it is no longer so difficult to reach the park, it may become subject to agricultural colonization also. It will generally be difficult to control colonization. The small populations of existing inhabitants will have little power or even desire to control agricultural colonization on land that does not belong to them. Therefore, protection of the protected areas from agricultural colonization will depend on the cooperation of adjacent municipal governments and restriction of road building up to the park’s boundaries. The PEA Team,

¹⁰³ Interview with Tim Miller, ENR Office Chief

however, did not identify a clear link between the planned road construction, rehabilitation or improvement activities to be financed with Expanded ADP funds and the park management activities to be financed under the Joint Environmental Agenda, also with Expanded ADP funds. It recommends, therefore, that the link between these two components of the Expanded ADP be explicitly identified and strengthened.

Assessment of Potential Environmental Impacts of Protected Area Management Plans

The preparation of management plans for protected areas will in general bring positive, long-term environmental benefits. Protected area management plans will positively influence the protection and management of these areas for many decades and will help to protect large areas of tropical forest and biodiversity. Indeed, it is the express purpose of these activities to protect important biodiverse areas from the colonization which presently threatens them. Therefore, by definition, the small and avoidable environmental impacts that may be incurred by these projects are insignificant when compared with massive environmental degradation that the alternative of not taking action threatens.

The management plans could be made more effective, however, if they specifically include actions to gain the support of the municipalities along their boundaries. If these adjoining municipalities control agricultural colonization and restrict road building up to the park boundaries, then the influx of agricultural colonists could be reduced. Establishment of municipal local and protected forests, as permitted in the Peruvian Forestry Law and Law for Protected Areas, along the park boundaries would be a practical expression of municipal support for park protection.

2. Natural Forest Management

Summary of the Proposed Actions

The Expanded ADP will finance the preparation of forest management plans, and forest management itself, through three mechanisms: the Principal Contractor, the World Wildlife Fund (WWF) and the Poverty Relief and Alleviation Project (PRA). As of mid-September 2003, all three institutions had begun to assist concessionaires and indigenous communities to prepare forest management plans. It was not possible, however, for the PEA Team to investigate thoroughly the status or content of these management plans.

In 2003 USAID/Peru also began financing the WWF proposal, “Von Humboldt Aguaytía Integrated Pilot Project –Alternative Sustainable Forest Resource Use”. This three year project includes (1) the preparation of forest management in the Von Humboldt Forest that meet the criteria for certification under the criteria of the Forest Stewardship Council (FSC) for 163,212 ha of primary forest and maintenance of 63 km of roads over two years; (2) reforestation of a 90 km strip along both sides of the San Alejandro-Aguaytía road with fast growing native commercial tree species; (3) community-based secondary forest management, agroforestry systems, and Local Forests in 50,000 ha of primary forest and 100,000 ha of secondary forest as well as reforestation and establishment of agroforestry practices on an additional 60,000 ha.; (4) a small loan financial service that will provide short-term loans for working capital to develop and manage primary forest under forest concessions, secondary forests and agroforestry production systems

According to the Joint Environmental Agenda document, the forest management component of the Expanded ADP will mitigate the negative indirect impacts on tropical forests from road improvement projects and provide income to former coca growers. The forest management component will provide training and technical assistance for community forest management including forest certification, award

and management of forest concessions; identification, reforestation of degraded areas, and planning for forest management in selected watersheds.

Potential Negative Environmental Impacts and Avoidance/Mitigation Measures

Direct Negative Impacts

Non-technical harvest of forest products may cause a variety of direct negative environmental impacts. Logging practices can augment erosion and cause sedimentation in water bodies, especially at the points where skidding trails or logging roads cross water bodies. If logging is so intense that the flow of superficial water augments then the variations in the flow levels of streams and rivers can increase. Such changes in water flow patterns can affect aquatic organisms. The construction of roads and skidding trails through the forest can cause soil compaction. Forest workers may hunt wildlife for food, causing significant impacts on species variety and total number of animals. The felling of a few of the larger commercial trees may cause damage to many smaller, non-commercial plants. Cutting of only a few species or only the most valuable stems of a few species may cause changes in the species and genetic floral composition of the forest. Over-harvesting of non-timber forest products may result in drastic reductions in populations of certain commercial species. Logging camps may cause direct negative environmental impacts on the surrounding environment both in their construction and operation, through earth movements and discharge of waste products. Forest workers may not come from the local area and therefore may introduce diseases that affect the local people.

It is precisely these negative impacts that these projects are designed to avoid through technical assistance to concessionaires. The magnitude and permanence of the direct negative impact is a function of the site conditions, the type of forest, the frequency of commercial species and the relationship between these species and the reproduction of the forest's fauna. Most of these direct negative impacts from forest management can be avoided through the application of adequate forest management practices as established in forest management standards. Technical standards include requirements for information basic to adequate forest management. Such information includes maps with an appropriate scale and essential information, such as topography and the location of water bodies. Forest resource inventories carried out at a technically adequate intensity underlie sound forest management planning. Infrastructure, such as logging roads, landings, skidding trails, and buildings, must meet adequate technical specifications. Silvicultural information on the species to be harvested should be sufficient to ensure adequate regeneration and the maintenance of the forest's range of species.

Indirect Negative Impacts

The largest, most widespread and irreversible indirect negative impact associated with logging is the colonization and deforestation that frequently occurs after the construction of logging roads and skidding trails into the forest. Throughout the Amazon basins colonists have followed logging roads and trails into the forest. In most situations, loggers and the government have been unable to control or prevent this process of spontaneous colonization. Colonization and deforestation has eliminated the possibility for permanent, technical forest management over large areas in eastern Peru. On the other hand forest management carried out according to technical standards and procedures provides a land use that if widely adopted would provide an alternative to deforestation. The maintenance of forest cover would preserve multiple forest environmental services such as regulation of the water flows, and preservation of habitats for plants and animals.

Table No. 15

Potential negative environmental impacts and mitigative actions for forest management plans

Potential Adverse Impact	Avoidance/Mitigative Actions
Direct	
<ul style="list-style-type: none"> • Use of logging equipment and construction of access roads causes soil erosion that affects aquatic organisms, loss of soil nutrients, and soil compaction. • Selective logging diminishes species variety, causes genetic erosion, affects habitat for plants and animals. Excessive removal of large stems opens forest to the invasion of weed species and increases the risk of fire. • Forest exploitation operations leave solid and liquid wastes in the forest. • Operation of noisy extraction equipment changes wildlife habits. • Logging slash increases risk of fire. • Increased human presence in the forest increases hunting pressure on wild game animals. • Workers in forest exploitation introduce diseases. 	<ul style="list-style-type: none"> • Avoid logging in rainy season, use technically appropriate logging equipment, plan logging roads and skidding trails based on technical standards, and provide adequate supervision. • Leave adequate representation of reproducing stems of each species. Assure adequate regeneration through proven silvicultural techniques. Leave well-located reserves with the full complement of species, control intensity of extraction through adequate inventories and supervision. • Establish and enforce regulations for disposal of liquid and solid wastes. • Make logging operations as efficient as possible through the use of technical standards, appropriate equipment and adequate supervision. • Evaluate fire potential and take appropriate action to reduce logging slash. • Prohibit hunting by logging crews and enforce prohibition. • Use local workers • Provide adequate training and supervision of logging crews.
Indirect	
<ul style="list-style-type: none"> • Uncontrolled access to the forest by colonists through the opening of logging roads. • Deterioration of local roads through the use of over-weight logging trucks. 	<ul style="list-style-type: none"> • Assignment of private property rights for forested areas through sale by auction. Establishment of local forests under the control of local governments or organizations that ensure a significant flow of benefits from the forest to local populations. • Enforce weight limits on logging trucks.

Specific Environmental Issues

The forest management component of the Expanded ADP will utilize USAID funds to plan and promote logging in highly biologically diverse tropical forests, a specific concern of Sections 118 and 119 of the Foreign Assistance Act. For that reason, the Threshold Decision specifically requires that the forest management plans include an environmental assessment of their potential direct and indirect environmental impacts and that the Terms of Reference for their preparation be submitted to LAC/BEO for approval prior to initiating activities. As of mid-September 2003, a number of forest management plans had been prepared with financing from Expanded ADP funds. These forest management plans were prepared using the official Terms of Reference that have been prepared by the Institute of Natural Resources (INRENA) of the Peruvian government. While the LAC/BEO has not officially approved these terms of reference, the ENR office is conducting a Program Environmental Assessment of all forest management activities across the Mission.

The Expanded ADP funding will finance assistance to INRENA in establishing a forest concession system based on technical forest management practices. The use of technical forest management practices will produce positive environmental impacts. Rather than the present haphazard planning of roads and skidding trails, roads will be laid out and constructed based on technical standards. Directional felling will reduce damage to the residual stand. The application of silvicultural techniques will stimulate adequate regeneration of the species that are removed and thus maintain species composition. By restricting logging in areas adjacent to water bodies or which contain habitats that are important for endangered plant or animal species water quality will be protected. If the concessionaire can control access to the forest along logging roads by agricultural colonists, then large areas of forest will be kept under forest cover, rather

than being converted to other land uses. The production and commercialization of forest products could create jobs that will provide an alternative to coca production and provide incentives for local people to protect and manage forest rather than eliminate it to use the land for agriculture and pasture.

The control of the negative direct impacts from the industrial forest concessions, however, depends on adherence to adequate technical standards for forest management plans and the ability to control access and colonization in the forested areas. The Forest Stewardship Council's standards for forest management have guided the preparation of forest management plans because certification is one aim of the Expanded ADP's forest management program. The Natural Forest Management PEA that USAID/Peru is preparing for all forest management activities will define how all activities will be measured for their compliance with forest management standards. The Expanded ADP should use the results of this monitoring to improve the overall support provided to Peru's system of industrial forest concessions.

Forest management often requires road construction in order to allow less expensive access to the forest for management activities. Such road construction lowers the cost of forest management, making it a land use that is more competitive with alternatives, such as agriculture or pasture. On the other hand, the construction of roads into forested areas could stimulate an influx of agricultural colonists.

Successful forest concessionaires will be able to establish their control over forest management units and avoid their invasion by agricultural colonists. In doing so, forest concessions could mitigate the potential negative environmental impacts of road improvement and coca eradication financed by the Expanded ADP in forested areas. Furthermore, the establishment of forest concessions in large areas of forest may deter farmers seeking to establish coca farms.

The effectiveness of forest concessions in preventing agricultural colonists, especially those seeking to establish coca plots, depends greatly on the choice of forest concessions that the Expanded ADP assists. Therefore, the Expanded ADP will specifically target assistance to forest concessions that are within the area of influence of the roads that it improves as an impact mitigation measure.

Summary Assessment of Likely Environmental Impacts of Forest Management Plans

Organized, technical forest management mitigates the direct negative impacts on tropical forests and biodiversity of extraction of forest products while increasing their quantity, quality and reliability of production. Forest management will also serve as an effective mitigation measure for the indirect negative impacts of other Expanded ADP activities, such as road improvement and coca eradication. If properly planned, implemented, and monitored, therefore, the Expanded ADP's forest management component will produce significant positive environmental impacts. Extraction of forest products without the application of professional practices and standards, however, risks long-term, irreversible impacts on tropical forest ecosystems and their biological diversity. Also, the forest concessionaires must have the means to control invasions by agricultural colonists.

3. Agricultural Extension and Information Services

Summary of the Proposed Actions

The Expanded ADP will provide agricultural extension and information services to both poorer farmers and to better-off farmers. The poorer farmers produce crops and livestock for both cash and home consumption. The better off farmers tend to produce mostly for the market. Under the Expanded ADP approximately 50,000 families will benefit from extension services. These will include demonstration plots and information oriented to proper techniques to control soil erosion, the use of trees for crops

requiring shade, composting as a natural fertilizer, pest management by proper spacing and pruning and simple processing techniques that avoid contamination of water supplies. Information will be provided to farm families about market opportunities and about the environmental damage caused by coca leaf production and processing.

Potential Negative Environmental Impacts and Avoidance/Mitigation Measures

Direct Negative Impacts

Agricultural activities in the Expanded ADP area fall into two general categories: agriculture in the valley bottoms, often using irrigation, and rain fed agriculture at higher elevations. Each type of agriculture has its own type of potential agricultural impacts. In the flat, lowland, irrigated agriculture the potential impacts largely stem from the use of irrigation and agrochemicals. In rain fed agriculture, the environmental problems concern soil erosion, loss of soil fertility, watershed degradation, and deforestation. In both situations, however, good agricultural practices can reduce or eliminate the negative impacts of agriculture and increase productivity. The extension and information services that the Expanded ADP will provide would promote better use of land, forest and water resources as well as technologies, such as composting, control of soil erosion and use of trees for shade, which would protect the environment.

The Expanded ADP might stimulate agricultural and livestock production without concurrent adoption of production technologies that would protect the environment. Thus the stimulus of an increased market demand might be met through an expansion in the area under production rather than through intensification of production using improved technologies. The expanded area of production might come from the elimination of conversion of natural vegetation, including primary tropical forests, agricultural use or from increased use of agricultural chemicals without concomitant environmental protection measures.

Indirect Negative Impacts

If the agricultural extension and information services were to be successful in increasing the demand for an agricultural product, without concurrently promoting on-farm conservation technologies, then indirect negative impacts could result. The promotion of coffee or cacao cultivation, for example, without concurrent protection of remaining forest areas could promote deforestation in order to expand the area under production of these crops.

Specific Environmental Issues

DEVIDA and USAID give considerable attention to the possibilities of large-scale production of agricultural crops in the valley bottoms of the Central and Upper Huallaga Valleys such as sugar cane, rubber and African oil palm. The Expanded ADP's IEE, however, does not specifically mention these crops, since their promotion will be financed under the PRA project.

Yet the conversion of large Areas of valley bottom-lands has the potential to cause significant negative environmental impacts. The relatively small areas of natural vegetation that remain in the valley bottoms could be reduced. The use of agrochemicals could increase. The cultivation of monocultures of such crops as cotton, African palm, rice and sugar cane frequently requires the use of agrochemicals, such as fertilizers and pesticides. USAID Regulation 216 specifies that if USAID funds are to be used to purchase or promote the use of pesticides a separate pesticide Environmental Assessment must be prepared. In fact the Economic Growth office is preparing a pesticide Environmental Assessment that will set the standard for all productive and agricultural extension activities, including those funded with ADP resources.

Table No. 16
**Potential adverse impacts and mitigative actions for
 agricultural extension and information services**

Potential Adverse Impacts	Avoidance/Mitigation Measures
Direct	
<ul style="list-style-type: none"> • Environmental degradation (soil erosion and compaction, soil and water contamination with chemicals) due to the intensive, monoculture crop production. • Farming in ecological unsuitable areas without soil conservation practices. • Loss of soil fertility and structure. • Soil erosion due to removal of protective organic material from soil surface as forests are cleared. • Erosion risks increase after crop harvest. 	<ul style="list-style-type: none"> • Adopt environmentally sound crop production practices, including agroforestry and minimize the use of toxic agrochemicals. Include organic production and Integrated Pest Management practices. • Promote crop production on the basis of crop requirements and land suitability and land conservation practices. • Promote use of organic fertilizers (compost, humus, manure) and the rotation or interplanting of principal crops with legumes. • Avoid clearing of vegetation during the rainy season and promote a rational forest clearing policy that prohibits clearing of legally defined protective forests. • Promote agricultural systems that keep ground covered with vegetation and harvest during the dry season.
Indirect	
<ul style="list-style-type: none"> • Increase in market demand stimulates clearing of natural forest in order to convert land use to agriculture and pasture. • Expansion of agroindustry causes increased contamination of water bodies with processing wastes. 	<ul style="list-style-type: none"> • Promote policies that stimulate intensification of agricultural production on the most suitable soils rather than expansion of area under agricultural production at the expense of natural vegetation. • Promote processing systems that minimize production of toxic wastes, control discharge of toxic wastes into water bodies, and stimulate use of waste products for improvement of agricultural soils, energy, feed products, or other commercial uses.

Source: 1994 PEA for AD PEA Team and World Bank (1991)

Summary of Potential Environmental Impacts of Agricultural Extension and Information Services

The agricultural extension and information services to be provided by the Expanded ADP will be more likely to result in positive than in negative environmental impacts. The services themselves will provide farmers with information and techniques that will improve their agricultural productivity while conserving the environment on their properties. Increased productivity on the better agricultural soils in the valley bottoms will decrease pressure to produce agricultural crops on the poorer soils at higher elevations and steeper slopes, where soil erosion and deforestation is more likely to occur. The potential negative impacts of farming and livestock production can be avoided or mitigated through proper technical practices. The Pesticide Environmental Assessment will define the specific mitigation measures for actions that the Expanded ADP might take that would finance or promote the use of pesticides.