

## Proposal for Review

**Project Title:** Global: Alternatives to Slash and Burn Agriculture (ASB), Phase II

**GEF Focal Area:** Climate Change

**Country Eligibility/  
Date of Ratification:** Indonesia 22.8.94; Cameroon 19.10.94; Brazil 28.2.94; Thailand 28.12.94; Peru 7.6.93

**Total Project Costs:** \$7,700,000

**GEF Financing:** \$3,000,000

**Government Counterpart Financing  
of GEF Component:** \$2,500,000

**Cofinancing/  
Parallel Financing:** \$2,200,000

**Associated Project:** None

**GEF Implementing Agency:** UNDP

**Executing Agency:** UN/OPS with ICRAF

**Local Counterpart  
Agencies:** EMBRAPA, Brasil; AARD, Indonesia; IRA, Cameroon; INIA, Peru; MAC, Thailand and NGOs

**Estimated Starting Date:** 01 June, 1995

**Project Duration:** 12 months

**GEF Preparation Costs:** None

## GLOBAL: ALTERNATIVES TO SLASH AND BURN AGRICULTURE

### SECTOR/BACKGROUND/CONTEXT

1. One of the major global environmental concerns is tropical deforestation. The following estimated changes have been attributed to it: (1) global warming (23% of the total carbon emissions to the atmosphere), (2) reduction of plant and animal diversity (5,800 higher plant species lost annually), and (3) watershed instability (erosion rates as high as 200t/ha/yr of soil have been measured in recently deforested lands). In addition, policies leading to declines in agricultural productivity and increased migration have resulted in exacerbated rural poverty near the forest margins of the humid tropics. Rates of deforestation have doubled over the last two decades and are likely to continue increasing as population pressures mount and development at the forest margins increases.
2. The Alternatives to Slash-and-Burn (ASB) Initiative involves interdisciplinary research and dissemination at global, regional and local levels. The mode of operation is a joint strategy by several international institutions at eight benchmark sites in partnership with NARS and NGOs. These sites were identified by the scientific community at a UNDP sponsored inaugural workshop in Rondonia, Brasil in February 1992. Participants consisted of 26 policy makers and research leaders from 8 tropical countries and representatives from 5 non-governmental organizations, 6 international research centres, 3 regional research organizations and 6 donor agencies. During the first phase, which was approved by GEF in December, 1993, activities were initiated in Brasil, Indonesia and Cameroon in 1994. This proposal is for a second one-year phase of what is essentially a long-term project.
3. Approximately two-thirds of the 15.4 million hectares of tropical forest currently being destroyed every year are the result of farmers clearing forest to open up new land for crops or pastures. The ASB initiative is based on the principle that deforestation can be reduced by eliminating the need to clear additional land through improved methods of agricultural land use. The strategy has three main parts: (1) developing and testing alternative technologies to slash-and-burn agriculture for small-scale farms on the forest margins, (2) identifying appropriate policies that provide incentives for such technologies and disincentives to further deforestation, and (3) enhancing the capacity of NARS, NGOs, decision makers and investment institutions to support sustainable alternatives to slash-and-burn agriculture. The project focuses on two main targets: (1) reclamation of already deforested and degraded lands, and (2) prevention of further deforestation.
4. To implement the project, eight international centres and programmes have joined efforts with eight national agricultural research systems as well as one international and seven local non-governmental organizations to formulate a research and development initiative that provides viable alternatives to slash-and-burn agriculture on a worldwide basis.

5. During the second phase, activities will continue to be implemented in the invited countries (Brasil, Cameroon, Indonesia) along with characterization studies to be conducted in Peru and Thailand. Training and information activities will continue to take place at all 8 sites.

## **PROJECT OBJECTIVES**

6. The long-term goal of this project is to reduce global warming, conserve biodiversity and alleviate poverty in the tropical forest margins by promoting the development of alternatives to slash-and-burn agriculture that are ecologically sound, economically viable and culturally acceptable.

7. **Anticipated global environmental benefits in the long-term will be gained from:**

- Geo-referenced data sets within the benchmark sites on carbon dynamics parameters such as: above and below ground carbon mass, carbon pools (fractionated to account for active and labile fractions) and measurements on carbon flux (emission versus sequestration) in representative land-use practices and the forest margin;
- Global geo-referenced databases and maps quantifying current rates of deforestation, extent of yearly slash-and-burn activities and areas of major land use systems including secondary forests and bush fallows;
- Standardized procedures and methods documented in manuals for an array of actions such as: biodiversity assessment, carbon emission/carbon sequestration dynamics, organic/inorganic nutrient use and efficiency models and geo-referenced databases incorporating socioeconomic with ecological and physical parameters;
- Methods for policy research on marketing, land tenure, migration, valuation of trees and forests, evaluation of alternative institutional approaches to forest management, rehabilitation of abandoned land and fallow systems; and
- Key policy decision-makers, farmers and scientists informed about policies, investment opportunities and technologies that will lessen the deforestation caused by slash-and-burn agriculture and redress concomitant land degradation.

8. **Phase II will be a second one-year component of the project with the specific objectives of initiating work in the following areas:**

- (a) Evaluate the environmental benefits, in terms of reduced carbon emissions and maintenance of biodiversity, of alternative land-uses and agricultural practices (environmental);



- (b) Identify, evaluate and, where necessary, modify and develop land-use systems and technologies that lead to sustainable alternatives to slash-and-burn agriculture and the reclamation of degraded lands (**technology**);
- (c) Identify, evaluate and design policies, as well as the tools and methods by which they are implemented, that will protect the environment by reducing the area deforested by the practice of slash-and-burn and promote the establishment of sustainable systems (**policy**);
- (d) Enhance the human-resource capacity for informed policy decision making and the dissemination and application of research results (**capacity building**); and
- (e) Establish viable institutional structures and mechanisms with strengthened research and implementation capacities to ensure that the long-term objectives of ASB are realized and sustained (**institutional**).

## PROJECT DESCRIPTION

9. Phase II involves the development of standardized methods, the implementation of research on 3 hypotheses and training.

10. **Development of standardized methods:** To ensure the quality of research at all the sites and the replicability of results across regions, emphasis has been placed on developing standardized research methods and guidelines for collaborators. Work in Phase II includes activities such as the development of methods for monitoring key processes and factors affecting: nutrient cycling; resource competition; carbon sequestration/emission dynamics; rapid and reliable assessment of biodiversity at the species, ecosystem and landscape levels; as well as remote-sensing methods for monitoring deforestation trends. This activity is implicit in components (a) through (d) below and therefore has no separate budget.

11. **Three hypotheses** which relate to (a) global warming, (b) food security and human welfare and (c) biodiversity were generated to demonstrate well-defined project objectives, activities and anticipated project outputs, thereby emphasising the project's contribution to the implementation of some of the objectives of the biodiversity and climate conventions.

(a) **Global Warming Hypothesis**

Currently 1.6 G-tonnes, 23% of total global emissions of carbon, are released into the atmosphere annually through deforestation caused mainly by forms of slash-and-burn agriculture. Projected rates are 6.0 G-tonnes of carbon per year if current deforestation rates are maintained. **Agroforestry and agropastoral systems that accumulate biomass quickly and produce greater reservoirs of soil carbon will increase carbon sequestration, thereby decreasing carbon dioxide emissions.**

The focus of research will be on carbon dynamics in the major land uses encountered in the humid tropics (forests, secondary forests, agricultural land, pastures and abandoned lands). Unlike the forest belts of the high- and mid-latitude zones where soil carbon stocks are five and two times greater, respectively, than in vegetation biomass, the low-latitude forested areas have equal carbon pools in their vegetation and soils. Sustainable alternatives to slash- and-burn, therefore, need to focus on above-ground carbon pools as much as on soil carbon stocks. Major activities to be continued or initiated in Phase II are:

- Development of multistrata systems comprising a mixture of fast- and slow-growing tree species that occupy different above- and below-ground strata and incorporate a range of litter quality to enhance nutrient cycling and soil organic matter (SOM) formation (Objectives 1 and 2 - Environmental and Technology);
- Utilization of agropastoral rotational systems that increase SOM content, particularly in the subsoil, through the root systems of aluminium-tolerant species (Objectives 1 and 2 - Environmental and Technology);
- Development of short-duration fallow systems incorporating rapid biomass accumulation and enhanced nutrient-cycling capabilities (Objective 2 - Technology);
- Identification of policy incentives that are most likely to induce local people to incorporate managed fallow, multistrata and rotational agropastoral systems as standard farming practices (Objectives 3 and 4 - Policy and Capacity building);
- Quantification of the slow and passive pools of soil organic matter and its synergistic and complementary relationship with carbon, nitrogen and phosphorus under different land-use systems (Objective 2 - Technology);
- Utilization of different ground-covers on sloping lands to reduce soil erosion, especially the highly vulnerable light carbon fraction, and its effect on above- and below-ground nutrient dynamics (Objective 2 - Technology);
- Monitoring of greenhouse gas emissions from soil in alternative land-use practices in collaboration with GCTE (Objective 1 - Environmental); Policy research to better understand the relationship between land use, poverty, population growth and land tenure on rehabilitated abandoned lands (Objective 3 - Policy); and
- Development of options, in collaboration with policy-makers, on mechanisms for the implementation of policy guidelines to promote sustainable land management (Objective 5 - Institutional).

**(b) Food Security - Human Welfare Hypothesis**

Two-thirds of current tropical deforestation is caused by small-scale farmers practising shifting cultivation to produce food at subsistence levels. Rapid decline in the productivity of land is largely caused by soil erosion, nutrient depletion and weed invasion. Alternative technological interventions that will maintain or enhance soil



fertility and diminish weed invasion will prolong the productivity of recently cleared land, thereby reducing the need for further forest clearance. In addition, interventions that enable farmers to grow a wide range of products to diversify their agroecosystems' output will increase household food security, improve nutritional status and reallocate labour within the farm to more productive activities.

Under conditions of food shortage and poverty, farmers' decisions are governed more by the extent to which their basic needs for survival are met in the short run than by considerations of longer-term sustainability. Deforestation is a low cost but environmentally destructive solution to immediate food and income shortfalls. Sustainable alternatives to slash-and-burn therefore need to focus on production methods that encourage farmers to intensify and diversify land use rather than to clear the forest. Major activities in Phase II are:

- Documentation and analysis of indigenous knowledge as a basis for the development of diversified production systems that prolong productivity of recently cleared land (Objective 4 - Capacity building);
- Increased participation of farmers and local organizations/communities in the design, implementation and dissemination of improved technologies and/or other changes for sustainable land use (Objectives 4 and 5 - Capacity building and Institutional);
- Selection and introduction into existing farming systems of plant species that perform better in low-fertility soils with low nutrient availability and that are highly competitive with weeds (Objectives 1 and 2 - Environmental and Technology);
- Investigation of the benefits of combining organic and inorganic sources of nutrients to enhance soil quality and nutrient supply for maintaining higher crop yields (Objective 2 - Technology);
- Utilization of short-duration managed fallow systems within crop-production systems to depress weed invasion (Objective 2 - Technology); and
- Increase in farmer access to sustainable production technologies through incentive policies and technical assistance, (Objectives 4 and 5 - Capacity building and Institutional).

#### (c) **Biodiversity Hypothesis**

The greatest diversity of plant and animal species in the world are found in moist tropical forests. It is in this agroecological zone that unsustainable slash-and-burn agriculture is practised, causing the greatest loss of biodiversity through deforestation. Development of sustainable alternatives to slash-and-burn consisting of the productive use of an increased number of plant species will bring benefits to farmers and society at large and at the same time reduce biodiversity loss by minimizing further deforestation.

Many tropical agroecosystems are biologically diverse. They incorporate a range of plant species that fulfil multiple production goals. The species richness of the plant subsystem in turn encourages a higher diversity in the associated vertebrate, invertebrate and microbial species, both above and below ground. As a result, traditional shifting cultivation systems often possess a degree of biodiversity that approaches and sometimes exceeds that of the natural ecosystem from which they are derived. As agricultural intensification proceeds, diversity usually decreases. The ASB approach is to utilize multiple-species systems to achieve production goals and preserve and promote biodiversity. Major activities are:

- Case studies for developing and testing biodiversity accounting methods (Objective 1 - Environmental);
- Utilization of a wide range of plant species by incorporating them into ecologically sustainable systems such as multistrata systems, improved fallows and silvopastoral systems (Objective 2 - Technology);
- Investigation of the relationship between land use, soil biodiversity and ecosystem functions such as nutrient cycling and soil-nutrient maintenance (2 - Technology);
- Utilization of minimum disturbance techniques in forest management that enhance sustainable growth of high-value tree species (Objectives 1 and 2 - Environmental and Technology);
- Policy research on marketing of non-timber tree crops; local-market commercialization and consumer preference; and institutional arrangements that promote local processing of primary products (Objectives 3 and 5 Policy and Institutional);
- Linkages between various forms of land-tenure and land-use systems, such as usufruct rights and common property resources; and quantification of the costs and benefits of biodiversity to different groups and individuals conserving biodiversity, (Objective 3 - Policy);
- Policy research to identify the most effective and equitable policy instruments for increasing on-farm biodiversity to socially optimal levels, (Objectives 3 and 5 - Policy and Institutional);
- Analysis and support of local indigenous practices that conserve and/or enhance diversity (Objective 1 and 5 - Environmental and Institutional); and
- Investigation of the relationships between the agriculturally, "planned" diversity (e.g. of crop species) and the total biodiversity of agroecosystems (Objective 2 - Technology).

#### (d) Training

The training component of the ASB project is integrated with the identified research activities. The focus is on key techniques and aspects of the programme and is intended to enhance the human-resource capacity of the scientists and policy-makers from the national and local institutions participating in the ASB activities. The training workshops will involve on-the-job training and field exercises at the same time as the research.



Global/Regional Training Activities			
Activity	Expected Outputs	Responsibility	Target Date
1. Sustainability Working Group Workshop	16 participants trained on methodologies for C-cycling experimentation; workshop report published.	TSBF, ICRAF	November
2. Regional characterization and diagnosis workshop	12 participants from Brasil, Peru and Mexico trained on characterization and diagnosis methods; workshop report prepared	ICRAF, CIAT	December
3. Policy training workshop	16 policy makers and development agents trained through discussion of field socioeconomic issues; workshop report prepared	WRI, ICRAF	October
4. Policy sustainable land-use systems workshop	20 participants from the benchmark sites in Southeast Asia will be trained in diagnosis of farmers' problems, developing research plans for ASB; workshop report will be published	ICRAF, IRRI	November
5. Strategy and Synthesis Working Group	20 participants trained on development of hypotheses, selection of methodology, experimental design and analysis and scientific writing	IITA, ICRAF	September

#### RATIONALE FOR GEF FUNDING

12. Approximately 10 million hectares of tropical forests are cleared and burned every year contributing to 23% of the total carbon emission to the atmosphere. This project is an enabling activity to assist those key countries where tropical deforestation is recognized by their government as a major environmental concern. Phase I established the project effectively in the three initial countries. Phase II builds on this achievement.

13. The structure of the ASB project is bottom up and country driven. NARS and NGOs participation is integrated into all aspects of project design and implementation and they contribute to 32% of total project cost.

14. Since it was originally planned that Phase I would be completed at the end of 1994, project funds have almost been exhausted. The NARS and NGOs are having difficulty maintaining their



teams without complimentary project support. Phase II funding is urgently required to maintain high quality project teams and the momentum of their work which has been positively evaluated.

15. The project is innovative in that it demands an inter-institutional and inter-disciplinary approach to finding sustainable landuse solutions for small farmers living on the forest margins. GEF funding is the catalyst that binds local, national and international institutions to a common focus.

16. GEF contribution is matched 1.6 times by ASB member countries and research institutions.

#### **SUSTAINABILITY AND PARTICIPATION**

17. Co-financing from a variety of sources has been utilized by the partner institutions. Commitments have also been made in terms of their own funds, time and number of scientists actively participating in ASB at each site by each institution. It is important to note that all the personnel from NARS and NGOs are funded from their own resources. UNDP/GEF funds support only their travel and operational costs and short-term consultants where needed.

18. CIRAD (France) has become a partner by placing a CIRAD senior scientist at ICRAF's headquarters (February, 1995) in Nairobi to work on remote sensing. For Phase II, the French GEF plans to allocate FF1,000,000 for this operational support.

19. The IARCs co-financing contribution comes from a large number of sources and is equal to the contribution from UNDP/GEF to IARCs. The total amount of financing to ASB for Phase II is about US\$7.7 million against the UNDP/GEF's contribution of US\$3.0 million dollars.

#### **LESSONS LEARNED AND TECHNICAL REVIEW**

20. In line with the requirements of UNDP and the GEF Secretariat, Phase I of the project was subjected to an independent evaluation in January/February 1995. The Phase II proposal was also reviewed by an expert from the STAP roster. The major lessons learned from the evaluation and review are: (i) importance of searching for solutions to ASB using a 'holistic' landuse systems analysis approach; (ii) need for uniform formats for database management and progress reports; (iii) need for a data quality mechanism applied to data being generated and a peer review process by national scientific advisory teams that include IARC scientists; (vi) need to build in the Project Document measures and/or indicators of achievements (milestones) to enable monitoring of Project progress; and (v) plan for a phased in approach on incorporation of all 8 benchmark sites to minimize institutional management bottlenecks and enable the construction of a robust baseline database for each site.

**PROJECT FINANCING AND BUDGET**

21. The funding proposal to GEF/UNDP for US\$3,000,000 in 1995 is shown in Table 1. The majority of the funds will be utilized in the benchmark sites: 76% of the total is allocated to the five sites (31% to Brazil, 20% to Indonesia, 18% to Cameroon, 3% to Peru and 4% to Thailand), and 24% for global and regional research activities, international workshops, training and dissemination. In spite of their small allocations under this project, Peru and Thailand will participate using bilateral contributions through ICRAF and IRRI or parallel contributions through NARS. The major donor for Peru is the InterAmerican Development Bank, while the major donors for Thailand are the Asian Development Bank, the Japanese Government and the Ford Foundation. GEF funds for Peru and Thailand will only be used to initiate site characterization activities during 1995.

Table 1. GEF Project Financing by Component (US\$000s)

ASB Partners	1985 Request	Component Distribution			
		Global Warming	Food Security	Biodiversity	Training/ Equipment
IRA	200	65	70	20	45
IITA	200	65	30	85	20
EMBRAPA	200	50	80	43	27
CIFOR	100	40	0	50	10
CIAT	200	80	35	60	25
AARD	200	50	40	65	45
IRRI	150	55	50	25	20
WRI	100	10	10	10	70
TSBF	200	110	20	50	20
IFDC	100	10	75	0	15
IPPRI	200	0	90	90	20
INIA	50	0	0	0	50
MAC	50	0	0	0	50
ICRAF (research)	400	100	100	125	75
COORD + DISSEMINATI ON	338*	0	0	0	88
OPS OVERHEAD	312	0	0	0	0
TOTAL	3000	635	600	623	580

#### INCREMENTAL COSTS

22. **Baseline:** Under the baseline, this project cannot be carried out. Any agricultural research project would focus only on the national benefits of agricultural production, ignoring the environmental impact of slash-and-burn agriculture on biodiversity and as an emitter of GHG's. The



research to be carried out might be agroforestry research, but would not pay attention either to GHG's, local participation, or broad-scale networking to the same extent.

23. **GEF Alternatives:** The project proposed here is a targeted research project designed to analyse slash-and-burn agriculture with an eye towards its contribution of global GHG emissions; to verify the level of carbon sequestration in areas cultivated under tropical slash and burn agriculture; and to identify, with the participation of local farmers, agricultural practices that are at least as economically beneficial as slash and burn agriculture but which result in reduced GHG emissions. The participation of local farmers and NGO's is an essential component in achieving the project objective.

24. **System Boundary:** The system is defined to include the forest margins of the humid tropics.

25. **Additional Domestic Benefits:** From this project, which is a targeted research project, per se, there are no additional domestic benefits to be considered. From any follow-on investments, the project benefits should at least equal the baseline benefits.

26. **Costs:** The total costs of the project are taken to be US\$7.7 million, of which US\$4.7 million is considered funds which would be spent on agricultural research without the project, and US\$3 million is the incremental cost.

#### ISSUES, ACTIONS AND RISKS

- **GHG monitoring and biodiversity assessment:** These are innovative tasks in agriculture research and they require new scientific approaches for implementation by NARS; the project needs to train, provide equipment and methodology for NARS to accept this technology.
- The project has included farmer participation from the characterization and diagnosis stage through installation of on-farm research as a priority. Structurally, the Local Steering Group has incorporated farmers' groups and NGOs to maintain continuous participation and increase the adoption potential.
- National decision-makers accepting new or reformulated policies; the project makes a serious effort to have policy specialists incorporated in the project and provides for their continuous input through workshops, etc.
- ASB is a global initiative involving 18 institutions comprised of international centers and programs, national research systems and NGOs; it thus requires a fully participative management structure which the project has installed through the 4 steering groups and 5 working groups.
- Multi-institutional and multi-disciplinary research; this has been fully incorporated in project goals and activities during Phase I. Technological options alone will not be sufficient, social and policy issues have to be fully integrated.
- To achieve its goals, ASB must be funded over the long term. A practical target would be a 5-year funding period with a mid-term review as recommended by the external evaluator.

## INSTITUTIONAL FRAMEWORK AND PROJECT IMPLEMENTATION

### Steering groups

27. The ASB initiative has adopted a fully participatory mode of operation. The process for generating ideas, setting priorities and implementing activities is guided by four levels of steering group.

- **The global steering group (GSG):** comprising representatives of the ASB consortium, sets general policy guidelines. It is chaired by the Director General of ICRAF and composed of designated representatives from seventeen institutions.
- **The regional steering groups:** led by IARCs, are ecoregional to ensure regional co-ordination, setting of priorities and sharing of institutional responsibilities among the region's benchmark sites. CIAT chairs the RSG for Latin America, IRRI for Asia and IITA for West Africa.
- **The national steering groups:** chaired by the NARS Director for each country, focuses on maintaining the involvement of government officials, government research and extension institutions, local NGOs and universities. AARD chairs the NSG in Indonesia, IRA in Cameroon and EMBRAPA in Brazil.
- **The local steering groups:** chaired by the NARS-ASB representative, comprise farmer-producer organizations, NGOs, community leaders, state governments and others. This group is charged with implementing the identified and prioritized project goals at the local level and is responsible for maintaining the quality of research and execution of training and dissemination activities.

28. The structure of the steering groups combines two essential factors for the project. It provides an opportunity for the participation of all contributors to the project in the discussion leading to formulation of policy and division of responsibility. It also provides a means of "scaling-up" project activities from those of individual scientists to the policy decisions of the Global Steering Group.

29. The project coordinator, with ICRAF backstopping, has established a project monitoring and financial accounting system to enable ICRAF to manage this worldwide, multi-institutional project in accordance with accepted procedures of UNDP and GEF.

## ACRONYMS

ASB	Alternatives to Slash and Burn
NARS	National Agricultural Research Systems
NGOs	Non-Governmental Organizations
GCTE	Global Change in Terrestrial Ecosystems Programme
IGBP	International Geosphere-Biosphere Programme
ICRAF	International Centre for Research in Agroforestry
CIAT	Centro Internacional de Agricultura Tropical
AARD	Agency for Agricultural Research and Development, Indonesia, Indonesia
IITA	International Institute of Tropical Agriculture
EMBRAPA	Empresa Brasileira de Pesquisa Agropecuaria, Brasil
TSBF	Tropical Soils Biology and Fertility Programme
IRRI	International Rice Research Institute
IFDC	International Fertilizer Development Centre
IFPRI	International Food Policy Institute
CIFOR	Centre for International Forestry Research
WRI	World Resources Institute
PESACRE	Pesquisadores do Acre, Brasil
EMATER	Empresa de Assistencia Tecnica e Extensao Rural, Brasil
IPHAE	Instituto para o Homem, Agricultura e Ecologia, Brasil
FUNDEAGRO	Fundacion para el Desarrollo del Agro, Peru I
GAC	International Global Atmospheric Chemistry
START	Global Change Systems for Analysis, Research and Training
IPCC	Intergovernmental Panel on Climate Change
UNEP	United Nations Environmental Programme
IARCs	International Agricultural Research Centres
RSG	Regional Steering Group
NSG	National Steering Group
GEF	Global Environment Facility
CGIAR	Consultative Group in International Agricultural Research
INIA	Instituto Nacional de Investigacion y Agropecuaria, Peru
INIFAP	Instituto Nacional de Investigacion Forestal y Agropecuaria, Mexico
MAFF	Ministry of Agriculture, Food and Fisheries, Zambia
MAC	Ministry of Agriculture and Cooperatives, Thailand
DGIP	Division for Global and International Programmes
OPS	Office For Project Services
CASER	Centre for Agro Socioeconomic Research, Indonesia
CRIFC	Central Research Institute for Food Crops, Indonesia
UNILA	University of Lampung, Indonesia,
UNIBRAW	University of Brawijaya, Indonesia
UGM	University of Gaja Mada, Indonesia
AFRD	Agency for Forestry Research and Development, Indonesia Agricultural University of Bogor, Indonesia
IPB	Indonesia
BIOTROP	Southeast Asian Regional Center for Tropical Biology
CSAR	Centre for Soil and Agroclimate Research
IRA	Institute de la Recherche Agronomique, Cameroon
INADES	L'Institut Africain pour la Developpement Economique et Social, Cameroon University of Yaounde, Cameroon



## TECHNICAL REVIEW

### GLOBAL: ALTERNATIVES TO SLASH AND BURN AGRICULTURE (ASB), PHASE II

1. I have been able to read in detail both the Phase I & II proposals and will restrict my comments to the technical aspects of Phase II only. I will also comment briefly on the budget and personnel aspects which are obviously crucial to the success of such a large and complex project.

(a) **Relevance to GEF**

The overall goals related to global warming, biodiversity and poverty are highly relevant to GEF's aims.

(b) **Objectives**

These are broad, covering process assessment (biophysical and socioeconomic), methodology and policy research and formulation, and various aspects of capacity building. The objectives are admirable but appear very ambitious and may not be achievable unless a long term project is envisaged. The objectives are, however, clearly defined based on the considerable experience of the main organizations.

(c) **Approach**

The approaches are clearly defined and detailed in "Specific Research Activities". The proposed activities are technically achievable but my concern is the short time scale and great number of researchers, organizations, sites, training courses (of undefined durations), and steering and working groups.

The countries and sites proposed into Phase III seem well selected.

(d) **Background Information**

This is excellent and well documented, as would be expected from the proposers.

(e) **Funding Level**

With such a broad-objective project and with so many activities and actors, a large budget is required. In fact, the funds may be spread too thinly to achieve the near-term objectives of obtaining concrete results which may have desirable, long-term effects.

(f) **Innovation**

In my opinion a real attempt to understand and influence policy on agroforestry systems and how they interact with GEF objectives (instead of just discussing such topics) is the significant innovative aspect of the project.

(g) **Strengths/Weaknesses**

The most important strength is the collaboration of the main protagonists of the benefits of agroforestry systems, in a single project, with clear objectives.

2. The main weakness appears to be that too many activities, organizations and people are involved in the project which will thus preclude obtaining good short-term results - even though the long-term objectives could be achievable given continued funding. It may be difficult at this stage to focus down on key activities but it certainly may be worthwhile considering how best to achieve this.

30th December 1994

## TECHNICAL REVIEW (PART II)

### GLOBAL: ALTERNATIVES TO SLASH AND BURN AGRICULTURE (ASB), PHASE II

1. After your call of December 22nd I would like to elaborate in more detail on points 2, 3 & 7 from my original letter of December 8th 1994.
2. To start with, I should make it very clear that I am sympathetic with the aims of the project and aware of the good track record of the main organizations involved. I would very much like to see such an important project succeed in the long run, as I believe that it would have significant environmental and social advantages.
3. However, my main concern, as I wrote in my previous Review, is that the project is much too ambitious and underestimates the problems in attaining the objectives (p.2) designated in both the short term (Phase I, one year; see p.13, Annex I) and the medium term (Phase II, end of the second year; see p.14 and p.13, Annex I). Three benchmark "sites" have been started in Phase I, but in reality only one specific site (M'Balmayo, Cameroon) has been designated, while in Indonesia and Brazil large regions of entire States have been designated and "on-farm sites have been selected" (p.5). In Phase II "characterization studies will be conducted in Peru and Thailand" (p.3). Three further sites are envisaged in Phase III.
4. Herein lie my concerns. Already there are at least 10 Teams, Groups and Task Forces so far for only 3 "sites". Research methodologies are being formulated and standardized, ranging from biophysical to socio-economic work; training workshops, extension and communication is being conducted with various aims and duration (unspecified), policy makers are (rightly) being consulted and becoming involved in work and policy; etc. I find it difficult to envisage how such a structure could function effectively with the 3 sites in Phase I, let alone the 5 envisaged for Phase II. My experience with coordinating research - in 5 countries around the world over the past 16 years at a much lower degree in intensity than that proposed for ASB - is that it is extremely difficult to proceed on so many fronts while trying to maintain reasonably even quality and ensuring that as much decision-making and work as possible is locally controlled.
5. If you would like my considered opinion, I would propose that the project focus down drastically on only 3 "sites", that these are thoroughly understood (Annex I, p.11) and that the methodologies of all types for monitoring and implementing alternative technologies are extensively tested for success; specific analysis of previous attempts to modify slash and burn should be widely presented and discussed, emphasizing both physical and social aspects (Annex I, p.9). The work should also focus on and specify clearly how short and long-term benefits to local people can be optimized while ensuring optimum global benefits.
6. Training, workshops, extension and discussions are difficult to perform well and should be a specialized activity, not just an adjunct in an overstretched person's agenda. They should be well defined with clear objectives, targeted participants and follow-up. Institution and capacity-building



for the sites needs a long-term and targeted structure if it is to be successful ultimately in a global context.

7. As presented, the project proposal appears like an open-ended and very expansive long-term commitment. There are no clear bench marks for evaluating achievements after, say, years 2 and 4, both at the "site" or local scale and at the global scale. Short-term targets and medium-term objectives have been proposed for Phases I and II; but how and when these will be checked is unclear.

8. In conclusion, I very much hope that this ASB project proceeds with adequate funding for a substantial effort to practically evaluate the alternatives which can benefit local people and the global environment. However, I think a more focused effort would have a much greater chance of cost-effectively achieving the long-term aims.