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MANAGEMENT OF AFRICAN AGRICULTURE AND THE ENVIRONMENT  
AT THE VILLAGE LEVEL

PROJECT DOCUMENT

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SAF

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AFRICAN DEVELOPMENT BANK

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Bibliothèque UA/SAFGRAD  
01 BP. 1783 Ouagadougou 01  
Tél. 30 - 60 - 71/31 - 15 - 98  
Burkina Faso

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## A C R O N Y M S

ADB	African Development Bank.
AEWP	Annual Environmental Work Programme.
ARD	Agricultural Research and Development Division (OAU).
FSR	Farming Systems Research
GEST	Grassroots Environmental Support Team.
NCGEA	National Coordination for Grassroots Environmental Activities.
NEAP	National Environmental Action Plan.
NSC	National Steering Committee.
OAU	Organization of African Unity.
PASD	Poverty Alleviation and Sustainable Development Division (UNECA).
RSC	Regional Steering Committee.
STRC	Scientific, Technical and Research Commission (OAU).
UNCED	United Nations Conference on Environment and Development.
UNECA	United Nations Economic Commission for Africa.
VEC	Village Environmental Committee.
VLEAP	Village Level Environmental Action Plan.

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## I. BACKGROUND

The agrarian crisis which is engulfing Africa can be attributed to several causes prominent among which are : degradation of the environment as a result of human activities (e.g., soil depletion, deforestation, and physical alteration of land and surface water habitats); excessively high human population growth rates (with the population of many African countries expected to double during the next 20 to 30 years); lack of technological advancement leading to stagnation or even decline in food and agricultural production; and climatic changes, especially during the past two decades, resulting in reduced and/or more uncertain precipitation. Furthermore, the future of the agro-ecological systems in the region is threatened by human activities such as accelerated deforestation and inappropriate land use and management. In short, the quality of the environment in most areas of Africa is severely stressed at present and is experiencing continuing degradation.

At the United Nations Conference on Environment and Development (UNCED), States called for more responsible management and utilization of resources throughout the world to meet present needs without compromising those of future generations. Indeed, the recent meeting to agree on a United Nations Convention to Combat Desertification in Africa, held in Burkina Faso in February, 1994, called on all African Governments to prepare and implement National Environmental Action Plans (NEAP) as a matter of urgency. These NEAPs are supposed to identify factors contributing to the degradation of the environment and to propose measures for combating them. The African Nations who are party to the convention have also resolved<sup>1/</sup> that the NEAPs should be integrated and be area based and should address the basic needs of local communities including income generation and employment creation. Furthermore, they should be long-term in perspective and flexible in design so as to allow for the changing needs and circumstances of different countries in order to guarantee long-term sustainability.

Several countries have already embarked on the preparation of their NEAPs and a number of them, who took the initiative much earlier, are already implementing aspects of their new environmental plans. Because the rural sector dominates most African economic, political and social systems, most of the NEAPs have a strong rural component. However, despite these good intentions, many African countries are facing serious difficulties in their efforts to translate the rural elements of their NEAPs into practical, coherent, and sustainable environmental activities on the ground. Several reasons are responsible for these

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<sup>1/</sup>See the Proceedings of the African Expert Group Meeting of the Intergovernmental Negotiating Committee for the Elaboration of an International Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, Ouagadougou, Burkina Faso, 10-15 February, 1994.

difficulties. First, up until recently, most of the efforts have been top-down with emphasis on how to persuade local rural people to provide support to government and/or donor sponsored environmental projects designed outside the community. Secondly, because of the multi-disciplinary and multi-departmental nature of the projects involved, they have often been implemented from several fronts resulting in serious problems of conflict and coordination. Thirdly, difficulties associated with traditional land tenure systems and common property rights over natural resources at the village level, have often dampened the enthusiasm of villagers to fully appreciate the usefulness of investing their time and resources to conserve and manage the natural resources involved in a sustainable manner.

## II. PROJECT OVERVIEW

### 2.1. Justification

Following the Rio Conference on the environment, African Governments committed themselves to take bold decisions and actions aimed at managing demographic changes and population pressures, achieving food self-sufficiency and food security, ensuring efficient and equitable use of water resources, securing greater energy self-sufficiency, conserving endangered species and ecosystems and preventing and/or reversing desertification. There have, however, been several constraints to the successful attainment of these laudable objectives. These have included lack of clear direction on critical natural resource management issues, difficulties in establishing genuine partnership at the grassroots level in the formulation and implementation of resource management initiatives, limited capacity by governments to absorb and administer the aid on offer, and limitations on human, institutional, and infrastructural capacities.

African soils are more fragile, the timing and quantity of rainfall more variable, and the predominance of arid and semi-arid areas greater than in other regions of the world. The continent also has a long history of devastation brought about by droughts, floods, typhoons, diseases and political conflicts. It is a measure of the strength of their resilience and ingenuity that, in the past, African communities were able to evolve systems of natural resource use and management that, by and large, simultaneously secured their livelihood and the integrity of the environment. Post-independence initiatives have, however, failed to fully exploit this resilience and ingenuity. Instead, they have focused more on ways by which local people should be persuaded to provide the needed labour input into environmental projects designed outside the community rather than on ways in which grassroots initiatives, stemming from indigenous environmental concerns, can result in sustainable agricultural management.

Fortunately many African Governments and their development partners now recognize the fact that future agricultural development efforts will require significant modification in existing mechanisms for planning and implementing activities to curb environmental stress. A collaborative and consultative mechanism is needed so that African communities can be involved in the definition of environmental interventions in their ecological systems, based on local priorities and needs. An implementation mechanism must also be available at the grassroots level so that much needed support can be channelled directly to community based environmental interventions.

On-going efforts by African Governments to establish and implement National Environmental Action Plans will be a time-consuming process requiring action programmes, administrative reforms and extensive training. However, given the growing urgency of environmental degradation in Africa and its consequential impact on food security and rural needs, quick but sizeable experimentation with new approaches involving local participation, including empowerment and the use of indigenous knowledge systems must begin immediately to test the effectiveness of such approaches and introduce the necessary adjustments and modifications necessary for their successful extension country-wide and region-wide. The primary objective of this project is to facilitate this process, by initiating, on a pilot basis in selected African countries, activities to support genuine grassroots management of agriculture and natural resources.

## 2.2. Objectives

### ■ Development Objective

The primary development objective of the project is to promote the attainment of food security and self-sufficiency in African countries without damaging the essential environmental integrity of their food and agricultural systems.

### ■ Immediate Objectives

The project has the following immediate objectives:

- i) To put in place, on a pilot basis in selected African countries, mechanisms that will provide a better understanding of and communication with local communities with a view to overcoming the most important environmental problems associated with efforts to increase food security and sufficiency;

- ii) To strengthen the capacities of the village, district, and provincial institutions to plan, implement and manage the rural components of NEAPs and to develop, test, and further improve the procedures for village level management of natural resources in support of sustainable food security and sufficiency;
- iii) To evolve a community-based village-level natural resource management mechanism that, with time, can be easily extended nation-wide. Such a mechanism will be expected to:
  - a. Integrate existing sub-systems of agricultural production (i.e., cropping, agroforestry, livestock, forage legumes, fishery, etc..) in an environmentally sustainable manner;
  - b. Prevent degradation of the resource base while concurrently inducing the improvement of soil fertility through enhancement and recycling of renewable resources between sub-systems of production, for example, cropping and livestock systems;
  - c. Strengthen sustainable management of village ecosystems by adopting appropriate traditional and indigenous methods of land conservation and rehabilitation complemented, whenever necessary, by appropriate and relevant new technologies;
  - d. Develop, at the village level, simple and easy-to-use environmental protection techniques such as those required for water use efficiency, water harvesting and soil conservation;
  - e. Introduce agroforestry techniques which can reduce soil degradation arising from, among other causes, run-off and erosion on depleted soils; and
  - f. Address the immediate food, shelter, and energy needs of farmers and the long-term conservation needs of villages.
- iv) To establish a regional mechanism for coordinating rural environmental efforts in African countries so as to promote the exchange of information and experiences between and among government environmental administrators, researchers, farmers and external and non-governmental agencies.

## ■ Regional Perspective

Recognizing that environmental degradation and decline in agricultural productivity are not limited to political frontiers and boundaries, the programme is anchored around a strong regional perspective. The thrust of this perspective is to create the favourable institutional conditions and mechanisms which are essential for solving common problems of food production and environmental degradation.

The project has been designed to respond to the reality that African countries working alone would find it very difficult to achieve their environmental protection development objectives. This is particularly true in connection with the attainment of their food production objectives. In this regard, sustainable agricultural development in Africa requires that local communities enjoy genuine autonomy, have control over adequate resources and be provided, where necessary, with minimal technical assistance to restore their resource base and re-establish control over natural resources. The technical assistance needs of the project are, therefore, limited to those that will reinforce the capabilities and effectiveness of grassroots arrangements and organisations to manage their natural resources. The focus is to build on a base of existing local knowledge, skills and technology and lessons from participatory experience and experimentation. There will, therefore, be a strong emphasis on indigenous human resource development. The progressive building of skills and know-how of local staff and community administrators will be taken into account in the evaluation of the impact of the project.

The regional component of the project is intended to ensure that African countries work together so as to attain the critical mass that is essential for tackling each country's environmental problems. The focus will be on the identification of common environmental and agricultural production research and development priorities for solving the food, shelter, and energy production problems of African countries, based on constraints with a regional dimension and the installation of a sustainable mechanism for successfully meeting these priorities. This way, African countries will be able to learn from each other's successes and failures.

The regional perspective will also exploit the wind of political change currently blowing through Africa. Following independence many African governments inherited colonial tendencies that were biased against the involvement of the majority of their indigenous people in development activities which, in turn, has left a legacy of patronage, economic disparities, political contradictions and social divisions. The consequence of this tendency has been a failure to utilize the enormous reserves of traditional African wisdom, creativity and enterprise.

However today, there is a new movement in Africa towards democracy and more popular participation by the masses in the process of development. Such grassroots participation in the development process should create opportunities which will mobilize the continent's resources and ensure that the path of development responds to the interest of the people. Furthermore, the regional perspective of the project is also designed to pay greater attention to the role of women in sustainable food production. The goal of sustainable food production will be elusive if half of the continent's population continues to be marginalized and discriminated against.

### III. PROJECT IMPLEMENTATION

#### 3.1. Project Strategy

##### ■ At the National Level

The main premise of the project at the national level is that it is the combined impact of individual community based activities - either constructive or destructive - undertaken by the vast majority of community members which will determine the fate of each African country's natural resources and ecosystems. The project strategy at the national level is, therefore, based on the proposition that most African peasants have a greater interest in the integrity of their environment than any outside parties since their very existence and way of life is at stake. The fact that many of their activities now contribute to the degradation of the very resources on which their future and livelihood depends can be attributed to the breakdown of their customary systems of resource management and consequent loss of group control, local autonomy and responsibility. Community participation is, therefore, essential if the advantages of these customary systems are to be restored.

The national component of the project is, therefore, intended to:

- i) Provide technical support to enhance the collective resource management operations of the communities involved;
- ii) Provide the needed technical support for the development of human, institutional, and infrastructural capacities at local level;
- iii) Establish a regional mechanism to facilitate the exchange of information and experiences between and among development workers, institutions, villagers, external

and non-governmental organizations in each African country; and

- iv) Effectively utilize existing technical talents and facilities of participating countries to build up the desired "critical mass" in the management of agricultural production and the environment at regional and national levels.

#### ■ At the Regional Level

As a continental project for combating environmental degradation and the decline of agricultural production, representative villages will be identified for the major agro-ecological zones through the pilot country-level sites. During the first phase, six agricultural and environmental management projects will be implemented in , Algeria, Burkina Faso, Central African Republic, Ethiopia, Ghana and Mozambique. These projects would be implemented in close collaboration with existing sub-regional and political economic groupings (i.e., AMU, Central African States, ECOWAS, IGADD, and SADC, ) to enhance the realization of the continent's objective of regional integration.

Each country-level pilot project would serve as the focal point for joint management of the environment and agricultural production in the sub-region.

### 3.2. Design Considerations

#### ■ Community Participation

It should be emphasized that the term community participation is seen by the project not simply as an alternative to more efficient management style to be used by African Governments and their development partners to increase the success of national environmental conservation projects but, more broadly, to reflect the desire of many communities to develop rules and structures which ensure that resources are not over-exploited or destructively exploited by any individual or groups. This is not to say, however, that "grassroots environmental action" at the national level is by itself sufficient to prevent or reverse environmental degradation in situations where national policies or global-level ecological changes create major destructive forces, but to emphasize that local level participation is a pre-requisite for sustainable development.

Obvious examples of the importance of local-level participation in sustainable development range from situations where needed environmental conservation actions such as those

involving tree-planting are so overwhelming that widespread cooperation from everyone involved becomes imperative, to instances where the prevention of continued environmental degradation requires group action such as in situations in which pastoralists must maintain social controls in order to prevent the over-exploitation of resources. In many cases, social mobilization has also proven very effective in successfully opposing the destructive resource management practices of external agents.

This focus on grassroots participation is supported by compelling logic and impressive evidence.<sup>2/</sup> Indigenous communities in Africa have a deep and intimate knowledge of their local ecology, flora, and fauna born out of centuries of constant interaction with the environment and handed down from generation to generation. Local communities are also in a very good position to assess the relevance and validity of solutions to their environmental problems devised by outsiders. The project's logic is therefore centred around the proposition that effective participation of local people in devising and implementing programmes and activities of environmental conservation provides the best guarantee for achieving the objectives of sustainable food security and sufficiency. There are many success stories about indigenous African inventiveness and creativity in devising environmentally harmonious adaptations in production systems to changes in social and material conditions and environmental projects; which combine external resources with community initiatives and participation.<sup>3/</sup>

The project will aim to capitalize on these successful African experiences by emphasizing: meaningful democratic participation by the local people; adequate preparation and focus on livelihood

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<sup>2/</sup> See for example D. Ghai and J. Vivian (1992), *Grassroots environmental action*, London, Routledge.

<sup>3/</sup> See for example: C. Conroy and M. Litvinoff, eds., (1988), *The greening of aid*, London, Earthscan Publications Ltd.; ECA-FAO (1992), *Land degradation and food supply*, Addis Ababa, ECA; P. Egger and J. Majeres (1992); "Local resource management and development: strategic dimensions of people's participation", in D. Ghai and J. Vivian, (eds.), *Grassroots environmental action*, London, Routledge; B. Ledea Ouedraogo (1990), *Entraide villageoise et développement*, Paris, l'Harmattan; P. Harrison (1987), *The greening of Africa: breaking through in the battle for land and food*, Glasgow, Penguin Books; P. Pradervand (1990), *Listening to Africa: developing Africa from the grassroots*, New York, Praeger; W.V. Reid et al. (1988), *Bankrolling successes: a portfolio of sustainable development projects*, Washington, D.C. Environmental Policy Institute and National Wildlife Federation.

concerns; use of community organizations; reliance on locally available tools, materials and skills; preference for low-risk activities with attractive pay-offs; use of existing systems of marketing and extension and government and donor support and commitment.

#### ■ Preparation of Village Environmental Action Plans

Each project community will devise and implement, with the aid of project assistance, a Village Level Environmental Action Plan (VLEAP) as well as Annual Environmental Work Programmes (AEWPs) designed to translate the principal elements of the plan into concrete environmental activities. The VLEAPs and the AEWPs will reflect the short-, medium-, and long-term objectives of the community as well as the natural resource constraints and the limitations of their own human, institutional, and infrastructural capacities. Their design and implementation will be guided by procedures aimed at: sensitizing the community; determining the magnitude and dimensions of the environmental problem; providing support to the creation of village environmental committees and other village organizational arrangements; supporting the actual elaboration of the VLEAPs and AEWPs; the establishment of working relationships between and among the government and the community; and the establishment of monitoring and evaluation mechanisms.

#### ■ Gender Focus

In many ways, women in rural areas have been the most affected by the environmental crisis facing African agricultural production. Nearly 80 per cent of the economically active women in sub-Saharan Africa are in agriculture and are responsible for over 70 per cent of the region's food production.<sup>4/</sup> In their capacity as food producers, they have seen the returns to their labour reduced by declining soil fertility and cultivation in marginal areas. The migration of male members of the household induced by scarce or degraded resources has further increased their responsibilities and work load. Labour force surveys estimate the total working time for women in Africa at 67 hours per week. Micro-studies suggest that women and girls spend, on average, 5 to 17 hours per week collecting and carrying water and fuelwood with adverse effect on family nutrition and health.<sup>5/</sup>

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<sup>4/</sup> See United Nations (1991), *Women's world: trends and statistics*, New York, United Nations.

<sup>5/</sup> See E. Cecelski (1987), *Energy and Rural Women's work: crisis, response and policy alternatives*, *International Labour Review*, Volume 126, Number 1.

The VLEAPs will be designed so as to have a positive effect on the women members of the village. Mechanisms will be designed, including separate village environmental committees for women, whenever necessary, to ensure that gender focus is maintained. For example, the annual work programmes will pay special attention to strengthening women tenure rights. The provision of additional water sources, if required, will also focus on the reduction of the time and effort required for water collection, an activity normally undertaken by women. Afforestation activities will be designed to reduce the time required for fuelwood collection, another task normally performed by women in many African countries. Commercial and marketing opportunities of direct importance to women will also be promoted.

#### ■ The Role of External and Non-Governmental Organizations

Most African nations have a large number of foreign agencies, including multilateral, bilateral, and non-Government Organizations (NGOs), active in the different villages of their countries. Many of these agencies are engaged directly in rural development. A number of the bilateral and multilateral agencies are also financing projects in several African countries which include strong environmental and agricultural development components. Furthermore, many of these NGOs are now reformulating their country programmes to better address environmental concerns. In this regard, many of them have gained invaluable local experience in implementing projects for a variety of donors. African development projects, however, have had a history of insufficient consultation between external agencies and NGOs and local administrations and a lack of consistency among the programmes of different agencies. To avoid this problem and to fully exploit the complementary benefits derivable from involving both government agencies and NGOs in the implementation of the present project, whenever possible and feasible, the NGOs will be encouraged to integrate their activities with those of the present project in the different country sites.

### 3.3. Project Components

#### ■ General considerations.

Africa possesses a varied environment comprising diverse ecological systems. Tropical forests, cool highlands, humid coastal areas, riverine and marshy zones, extensive savannas, semi-arid regions and vast stretches of desert exist side by side throughout the continent. This varied topography superimposed on highly variable soils and rainfall has resulted in a wide combination of production systems and sub-systems including cultivation, herding, hunting and gathering. The diversity has given rise, over time, to a wide variety of human activities which

seek to exploit local and regional specificities to assure food security and sufficiency. As a result, contrasting systems involving shifting cultivation, intensive agriculture, organic fertilizer, intercropping, mixed farming, hillside, wetland and dry plain cultivation, water harvesting and irrigation, soil and forest conservation, and nomadic and transhumance pastoralism, now form part of the traditional production systems of African communities.

It is now, however, clear that environmental degradation caused by soil erosion, desertification, <sup>resource depletion including</sup> deforestation and inadapted agricultural practices is seriously <sup>wildlife</sup> undermining the very resources on which many African farmers and their families depend for their survival. It is also becoming increasingly obvious that, to be successful and sustainable, any effort to increase food and agricultural production in Africa to keep pace with the increased demands of the population, must be strongly linked to complementary strategies aimed at managing the natural resource base in a sustainable manner.

Available evidence<sup>6/</sup> suggest that environmental constraints are already posing serious limitations to food security in several African countries particularly in areas where population densities are increasing rapidly. Average population growth in many African countries is in excess of 3.0 percent per annum resulting in excessive pressure on the land for food and agricultural products. The consequence has been environmentally damaging levels of deforestation and land degradation. Rangelands are being destroyed as a result of overgrazing and wasteful and inadequate management of available water resources. The problem has been compounded by reduced and uncertain levels of rainfall which are aggravating the already deteriorating status of other natural resources. The worsening situation is also being accelerated by destructive cultural practices leading to severe soil problems and loss of valuable agricultural land. The continent's future food security situation will, therefore, depend heavily on the effectiveness of African efforts in reversing this trend and in managing their natural resource base to produce enough food and raw materials to meet and even surpass the needs of the continent's rapidly increasing population without damaging the essential ecological integrity of the food and agricultural systems.

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<sup>6/</sup> See for example: R.S. McNamara (1990), Africa's development crisis: agricultural stagnation, population explosion, and environmental degradation, Washington D.C., World Bank; and D. Anderson and R. Grove, eds., (1987), Conservation in Africa: people, policies and practice, Cambridge, Cambridge University Press.

■ Farming production and environmental action plan modules.

The project has been designed to address these constraints as separate farming systems components or farming production and environmental action plan modules as follows:

. Crop production module.

This module will promote crop selections based on their economic and/or feed values, and on their ability to minimize nutrient losses, maximize agricultural outputs as well as their acceptability to farmers. Appropriate production technologies including high yielding cultivars which are genetically well buffered against changing environmental conditions, time of planting, plant populations, crop rotation schedules, soil and soil water management including tillage techniques, mineral and organic fertilizer, amendment rates and time of application; weed control, crop residue management including compost production and application techniques, etc.; all these will be extended to farmers.

. Agroforestry and soil and water management module.

This module will have four sub-modules as follows:

- Agroforestry: This sub-module will involve interplanting trees or shrubs with crop species as well as planting them as hedgerows for use as windbreaks in farms for shade, shelter, fuelwood, fiber, feeds and for soil conservation. The growing of trees or shrubs in rows with food crops planted between the rows (alley cropping) will form an important part of this sub-module. The objective here would be to reduce the incidence of pests, diseases, weeds and soil loss; to enable different plants to exploit different soil regimes to recycle nutrients that would otherwise be lost through percolating water, runoff and erosion or immobilized in deep soil; to provide continuous supply of food and feed and to increase overall agricultural output and productivity of the land with minimum inputs. Species of multipurpose leguminous trees or shrubs such as Prosopis, Albizia, Acacia, Leucaena, Gliricidia, Casuarina, Sesbania and Cassia, which are commonly used in agroforestry, will be experimented with as appropriate.

- Development of Fuelwood for Village Development: This sub-module will deal with setting aside pieces of land for growing trees specifically for provision of fuelwood. The growing of trees on public land is generally known as communal forestry. It will be the responsibility of the Village Environment Committees to administer the establishment and harvesting of trees from the communal forest. Proper knowledge of fast growing trees - combined with other characteristics - will be required. Needless to add, the need to encourage the use of fuel efficient stoves as well as

the development and exploitation of alternative renewable sources of energy, in order to give time to the planted seedlings to grow and mature. The development of communal forestry and renewable forms of energy will also relieve women and female children from spending most of their working hours collecting firewood from distant places for household needs. In addition, this will halt devegetation resulting in increased biodiversity, soil conservation and enhanced agricultural productivity. Also through the integration of the agroforestry systems, an important component for soil-water conservation, nutrient recycling and a source for fuel and shelter, it is possible to prevent the expansion of agricultural production into degraded marginal lands.

- Soil Conservation Measures: There are many factors which cause land degradation. This submodule will endeavour to identify them during the preparation of the Annual Environment Work Programme so that remedial actions can be taken. Some of the likely remedial actions to be taken for land improvement may involve any of the following, depending on various circumstances: (i) introducing appropriate technologies; (ii) reforming land tenure systems; (iii) reforming agricultural price strategies; and (iv) making farm inputs more readily available. Soil conservation reduces water run-off as well as increasing vegetative cover over the land surface. Furthermore, soil conservation measures stabilize and increase crop yields through increased water infiltration rate and improved soil water and nutrient holding capacities. Soil conservation may also result in additional fodder and fuel. The most common soil conservation techniques include the following: (i) terracing on steep sloping lands; (ii) contour farming reinforced by planting of permanent grass trips such as Vetiveria zizanioides; and (iii) construction of earthen or stone bands and stone lines along contours.

- Water Resource Management: The soil conservation measures addressed earlier reduce water run-off in order to maximize water infiltration into the soil. The other techniques which this submodule will need to focus upon include the construction of gabbions as well as the inclusion of cover-crops and mulch in the cropping system. Collection of water run-off from large catchment areas such as hill tops using stone bands and conveying the water harvested through channels to cultivated fields will also need to be explored. The interception of desert streams that carry water seasonally has been used in many countries since time immemorial. There will be need, however, to explore ways of reducing surface evaporation from reservoirs constructed for storage of such waters. Also availability of water, whether from ground aquifers or from surface run-off, will enhance agricultural production through irrigation if necessary. With regard to irrigation schemes, priority will need to be given to the less costly ones which can be maintained and managed by the villagers themselves.

. Rangeland management module.

Rangelands in Africa are, in general, village communal properties. Therefore, it will be the responsibility of the Village Environment Committees to administer their management, namely: their improvement with regard to planting of new varieties of pasture grass and/or leguminous species, trees or shrub species; time and intensity of grazing; soil conservation measures, establishment of water points, etc. For this sub-module to be effective in achieving its goals, the proper knowledge of fast growing; drought, heat, excess moisture and trampling resistant and/or tolerant; and fire brush tolerating varieties of grass and/or leguminous species, and tree or shrub species combined with other characteristics such as calorific and protein content and digestibility values of fodder will be required.

. Wasteland, marshland, riversbank and stream water module.

In Africa, wastelands, marshlands, unexploited riverbanks and stream water, like rangelands, are, in general, village communal properties. Since management of these sites may have repercussions transcending village boundaries, their management responsibilities shall, therefore, fall in the hands of Village Environmental Committees as well as those of Grassroots Environmental Support Teams and the National Coordination. Actions to be carried out will include: soil conservation, and revegetation and/or afforestation for the wastelands; drainage and reclamation of marshlands; building of dams to retain stream water, clearing and levelling of riverbank for irrigated crops and/or fish ponds. Also, a selected number of improved varieties of plant and animal species including fishes with economic value and acceptable to farmers and consumers could be introduced for use by the farmers.

. Livestock production module.

This module will promote livestock speculations selected on the basis of their economic values as well as complementarities with crops produced in the farms. For example, crop residues and other lignocellulosic biomass from the farm would be converted into high value marketable commodities such as meat, milk, etc. Also, forage legumes would be cultivated not only to provide quality animal feeds, but also to enrich the soil with nitrogen. In turn, animal manure would be collected and composted and used to fertilize field plots for crop production. Animal traction would be promoted to reduce labour bottlenecks and the drudgery of manual labour.

*and to meet fuel requirements in some countries like Ethiopia, Somalia, etc.*

. Agricultural input supply and output marketing module.

This module will operate under the responsibility of the national coordinator. To be functionally effective, it must be

subdivided into two sub-modules: one for agricultural input supply and the other for agricultural output marketing. Their functions are as follows:

- Agricultural input supply sub-module: This sub-module will compile Village Level Environmental Action Plans (VLEAPs) and identify the needed agricultural inputs both in quantity and quality. Its responsibility will be to ensure the economic and environmental soundness of the quantity and quality of the required inputs; it may also, as need be, propose substitute products to farmers. For inputs selected, it will interact with agricultural suppliers for their procurement and timely delivery to farmers; with agricultural credit banks to sensitize them to provide funds that will make agricultural input easily available and accessible to farmers; and with government officials for new policy changes that will facilitate the adoption of new agricultural production technologies by farmers.

- Agricultural output marketing sub-module: This sub-module will compile data provided by VLEAPs and forecast annual production of agricultural commodities. Based on the experience of the previous year(s), it may anticipate agricultural commodity marketing problems and advise whether farmers should maintain or change emphasis on selected commodities; also whether or not farmers should store some agricultural commodities, and for how long, before marketing them. It will also interact with national agricultural merchants and/or the Chamber of Commerce and sensitize them on the marketing of agricultural produce. In addition it will collect, from the latter, data on agricultural commodity market requirements and advise farmers to adapt their production accordingly, both in quantity and quality wise. And finally, it will interact with government officials regarding the needs for building new market infrastructures and policy changes that will favourably affect prices of agricultural commodities and so facilitate their sale.

#### ☐ Integrated resource management.

The integration of the different farming production and environmental action plan modules at farm and village levels as well as at the district and national levels is the essence of this project. The main objective is to integrate resources naturally available on-farm to achieve efficient management and provide maximum agricultural outputs with minimum inputs, that is, minimum loss of natural resources and minimum investment of agricultural inputs including labour, particularly, household labour from women and children. This can only be achieved in a farm, if the surrounding farms, rangelands, wetlands and other components, with an environmental impact, are also well managed.

The integration of different farming production modules will be dependent on: farm size, farm location, agro-ecological and

economic conditions, farmers' preferences and requirements, etc. In any case farming production modules will be selected to ensure economic as well as agronomic complementarities. For example, crop production module may be integrated with either agroforestry and soil and water management module or livestock production module or both. The advantages of these integrations have been enumerated above, in the specific modules; they can only be accumulated when the three modules are integrated together. Another example could be a small farm located along a riverbank with few hectares of cultivated land but with a fish pond. The farmer can reap maximum profit from such a farm by integrating alley cropping with cereal and grain legume crop productions and raising ducks in the fish pond. Unsold cereal and legume grains would be fed to the ducks; the latter would deposit their droppings into the fish pond water and serve as nutrients to phytoplanktons and the fish. Fish would be captured and sold on markets as high quality protein food products.

The systematic application of technologies and the pursuit of the measures recommended in the integrated farming production and environmental action plan modules would lead to the regeneration of the resource base, resulting in the following:

- Accumulation of organic matter as a consequence of the application of animal manure, return of crop residues and litter from hedgerow trees or shrubs and green manuring;
- Reduced runoff and erosion from field plots as well as rangelands and wastelands;
- Improved soil physical properties as the ensuing effect of increased soil organic matter; the beneficial effects being: improved soil structure, increased water infiltration rates and soil water holding capacity, reduced soil temperatures, etc.;
- Increased soil cation exchange and nutrient retention capacities and soil fertility;
- Revegetation and/or afforestation of wastelands;
- Establishment of improved rangelands;
- Reduced sedimentation along riverbanks and in surface waters; and
- Restoration of sound biotopes favourable for diverse species of plants and animals to flourish in.

The fragile African ecosystems could, thus, be rejuvenated through efficient management of the renewable resources in integrated crop-livestock-tree production systems.

## ■ Training

### . At the National Level

Since the project is inward looking and community based, local level training will feature prominently in its activities. The training component will be managed and supervised by the National Coordinator for Grassroots Environmental and Agricultural Development, in collaboration with the resident village project Coordinator. He/she will prepare an annual plan of training including an estimate of costs and will prepare a report every six months to evaluate the training programme. These reports will be submitted to the National Coordinator Grassroots Environmental and Agricultural Development Activities who will transmit them to the National Steering Committee for approval.

The implementation agreement to be signed by the Village Environmental and Agricultural Development Committee and the Government will provide details on the training to be conducted and the responsibilities of each of the participating institutions and agencies. The agreement will also specify time tables for the training activities to be executed and the required logistic requirements. The Regional Coordinator will complement the training programme with the needed technical assistance as required. The village Environmental Support Team will monitor the training needs and the execution of training activities at the village, district, and provincial levels. Training priorities and course content will be guided by the needs identified by the Village Environmental Committee at the village level and those identified by the support team at the provincial and district levels.

### . At the Regional Level

The emphasis of training at the regional level would be on the improvement of skills for development in the technical and organizational aspects of agricultural production and environmental management. Various courses and seminars would be organized in order to prepare technical and managerial personnel for pilot project countries and for other countries.

## IV. PROJECT MANAGEMENT

No new institutions will be created to manage the project. As a continental activity for sustainable agricultural development and environmental management at various village sites in various countries, the project would be sponsored by the Organization of African Unity (OAU), which provides the political umbrella and the coordination framework; the United Nations Economic Commission for Africa (UNECA), which provides technical support; and the African

Development Bank, which could possibly provide technical support and financial assistance.

The Food Grain Research and Development of the OAU/STRC, an autonomous Technical Agency, will be responsible for the regional coordination and implementation of the pilot project activities in selected countries and enhancing networking in the curbing of environmental degradation and the management of sustainable agricultural development in more than 40 countries in collaboration with sub-regional agencies.

#### 4.1. At the regional level

##### Regional Steering Committee

There will be a Regional Steering Committee (SC) for the project comprising the Permanent Secretaries (Secretaries General) or equivalent level authority of the Ministries of Environment and Natural Resources of the Project countries where such ministries exist or, where they do not exist, the Permanent Secretaries of relevant ministries. The Steering Committee which will be chaired by the OAU/STRC-SAFGRAD, will meet at least once a year in one of the project countries to:

- i) Provide guidance on project implementation;
- ii) Approve the Village Level Environmental Action Plan and the Annual Work Programmes and recommended project budgets for the coming year;
- iii) Approve annual project monitoring and evaluation reports; and
- iv) Provide other support as requested by the Regional Coordinator of the Project and/or the Director of Research of SAFGRAD.

##### Regional coordination

The Regional Coordinator of the Project will serve as the Secretary to the Steering Committee. He/she will be the only internationally recruited staff at a regional level. Coordination of the project activities in various countries will be carried out by the Regional Coordinator (under the supervision of OAU/STRC-SAFGRAD), according to the agreed schedule of implementation. The Financial Management Unit of SAFGRAD will provide its efficient services in the administration, disbursement and management of the funds of the project.

#### 4.2. At the national Level

##### National Steering Committee

Each country will have a National Steering Committee comprising one representative each from the principal ministries concerned, i.e., agriculture, livestock, forestry, water, health, fisheries, etc. Other agencies and organizations such as research institutes, universities, development projects and NGOs will also be represented, as appropriate, in the Steering Committee. The Permanent Secretary (Secretary General) of the Ministry of Environment and Natural Resources will chair the meetings. The National Coordinator for Grassroots Environmental Activities will serve as the Secretary to the committee. The functions of the committee will include the following:

- i) Provide guidance on the identification and implementation of VLEAPs and AEWPs;
- ii) Review, adjust, and approve VLEAPs and AEWPs and make recommendations on village level activities and annual budgets;
- iii) Ensure the provision of support by all the concerned agencies including line ministries, research institutes, universities, NGOs, etc. and establish, maintain and follow up on the needed relationships between project villages, districts, provinces and the central government;
- iv) Provide other support as requested by the National Coordinator.

##### Grassroots Environmental Support Teams

Each country project will have a national Grassroots Environmental and Agricultural Development Support Team (GEST) based in the project village and comprising a Team Leader (a routine ministry field staff chosen according to the environmental priority of the village) and technical assistants representing the major production systems in the community, and representatives of NGOs and development projects operating in the village. The team will be based in the village and its primary responsibility will provide the needed support to the Village Environmental Committee on all aspects of its work to evolve and implement a VLEAP. *be to*

##### The National Coordination

Each project country will appoint a National Coordinator for Grassroots Environmental Activities (NCGEA) to carry out overall coordination of the project's activities in the country. The NCGEA

should be an experienced Agronomist or Agricultural Economist with requisite experience in environmental and farming systems

## V. PROJECT INPUTS AND OUTPUTS.

### 5.1. Projects Inputs.

#### Government Inputs

The government will provide all the local staff required for the implementation of the project including field staff to be stationed in the project villages. The relevant district and provincial staff will also contribute appropriate supervisory and management time to the project as needed. The government will also be responsible for the provision of adequate office space, furniture, equipment and other supplies which, in addition to those provided from external sources, will be required for the successful implementation of the project.

#### Donor Inputs

- Donor inputs will be required for the following:
- Salary and personal emoluments of the Regional Coordinator and support for his regional activities including the networking of farmers, researchers and environmental administrators;
- Support to the management of the national coordination effort for grassroots environmental action and national environmental activities including national networking;
- Support to the training programmes of the project at both the national and regional levels;
- Organization of seminars and workshops at the village, district, provincial, national and international levels;
- Local and international travel involving farmers, local officials, and the project officials;
- Acquisition of supplies including construction materials for critical environmental infrastructures, farm implements, agricultural inputs, computers, stationery, office supplies requisites and non-expendable equipment including vehicles, motor-cycles, office equipment and furniture, etc..
- Miscellaneous expenditures including the operation and maintenance of infrastructural services, equipment, vehicles, etc..

## 5.2. Project Outputs.

This project, if fully implemented, is expected to produce a positive impact on the environment within the fifth and tenth years of its duration. Its outputs could then be measured both at the national and regional levels.

■ At the national level.

At the national level, the following outputs are expected after the fifth year:

- i) Enhancement of the recycling of natural resources as a result of integrating different farming production and environmental action plan modules in an integrated natural resource management;
- ii) Development of sustainable agricultural production systems to meet the food, shelter, and energy needs of rising village populations, while at the same time building the resource base and improving the quality of the environment;
- iii) Development of land use systems that are technically, economically and socially viable in the short-run and ecologically sound in the long-run; and
- iv) Promotion of the practice of collaborative agricultural development in the village sites involving the three major partners, i.e., the farmers, the rural development workers, and multi-disciplinary research groups.

The success recorded in pilot villages is expected to strengthen the commitment of national governments in member countries to extend the approach nation-wide and to share the results with other countries in the continent.

■ At the regional level.

At the regional level, an approach would have been tested, which involved the management of natural resources and soil conservation strategies and which combined community participation with government commitment and donor support. This could serve as a model for other countries to emulate continent-wide. The project is, therefore, expected to provide an invaluable basis for African Governments to learn from lessons of successes as well as failures from one another. This will ensure a speedy extension and replication of successful local experiences not only country-wide but also continent-wide.

## ■ Logical framework.

The logical framework, which provides information on the feasibility and measurement of progress achieved by the project and the part of responsibility of the different partners contributing to the success of the project is presented in Appendix 1.

## VI. BENEFITS AND RISKS

### 6.1. Benefits

This project is expected to provide benefits at four levels. First, it will prepare the conditions for large-scale implementation of national programmes, <sup>leading</sup> to sustainable management of natural resources at the village level while at the same time attaining national objectives of food security and sufficiency. It will do this by developing and testing an approach that is action oriented and focuses on technologically simple activities with very significant community involvement and the participation of government agencies, development projects and NGOs in their implementation.

Secondly, the project will develop a functional institutional capacity in the project countries for evolving and implementing environmental conservation plans and work programmes based on the community's own initiatives to solve their resource use and management problems. The project recognizes that African villagers cannot or do not always provide solutions to their environmental problems. The project will, therefore, fully exploit the potential of grassroots environmental action for solving environmental conservation problems while at the same time recognizing the importance of externally generated technologies in advancing the search for sustainable development in rural areas.

Thirdly, the villagers will benefit from a consolidation of development activities in their villages with a focus on the environment which will reduce wasteful and, often, contradictory duplication of efforts.

Fourthly, support provided by the project for developing environmental infrastructures such as water supply points, erosion control facilities, will improve the health of everyone in the village. For example, by spending less time collecting water, villagers will have more time for other productive activities. As their health improves, they will also be able to work more intensely on environmentally sustainable productive activities.

It is appreciated that national environmental rehabilitation and conservation cannot be based on village level environmental projects alone. By their very nature they can only reach a limited number of villages and villagers. One of the major benefits of

this project, therefore, is to evolve and test a new approach and a set of techniques for sustainable management of natural resources, working in close collaboration with the local producers. In this regard, the contributions made by the project to evolve an overall approach and strategy for the participating countries and, by extension, to all countries in Africa, is most invaluable.

## 6.2. Risks.

The existence of <sup>and policy</sup> successful records of participatory initiatives in resource management and rural development in several African countries, is a powerful indication that the approach and strategy of the project is both feasible and viable. There is, however, a risk that the approach, even though viable and effective, will not be able to spread rapidly to cover major parts of each participating country and the African region at large. Apart from problems of finance, technology, knowledge, skills and organization, which the project aims to address, there are other problems of a political nature which are outside the control of the project. For example, the project literally calls for a transfer of power, responsibilities, and resources to local institutions and organizations. This is bound to work against the vested interest of powerful groups including politicians, bureaucrats, commercial enterprises and even international agencies and bilateral donors. The situation will be further confounded in areas with sharp inequalities in wealth and organizational power at the local level. As a result of this, despite its potential for success, progress in extending the approach and strategy throughout each country and across the continent is likely to be slow and halting.

There are, however, a number of developments which provide much optimism for high expectations. These include a growing perception by national governments and rural people themselves of the economic, social, and ecological unsustainability of present patterns of agricultural development, heightened awareness of the disastrous consequences of environmental degradation at the local, national, and international levels, mutuality of interests in promoting environmental integrity among different producers and social groups within and across national boundaries in Africa and a powerful global momentum for democracy and human rights.

Recent democratic reforms in a number of African countries can only improve the enabling environment for overcoming these risks. Ultimately, it is the evolution of strong, democratic and self-reliant organizations of rural producers and their communities which will guarantee the long-run success of the project.

## VII. IMPACT ASSESSMENT

Each national project will prepare semi-annual reports describing progress in the implementation of the project as well as reviewing the physical, organizational, and economic progress of the project and its impact on improving the environment and attaining food security and sufficiency. Although these reports will be primarily for the use of the communities involved to improve upon their VLEAPs on a continuous basis, they will also be available to national governments and donor agencies. In any case, the reports will reach the donor no later than three months after the end of each year.

Data required for the reports will be generated by a monitoring and evaluation system that compares the targets described in the VLEAPs and AEWPs with impact evaluation data. The national Grassroots Environmental Support Teams will generate the data needed for the day-to-day management of project activities, review the previous year's activities, and identify needed changes in the VLEAPs and the AEWPs. The monitoring and evaluation system will be specifically designed to: provide national, provincial and district staff with up-to-date information on the project to enhance decision making; improve communication among and between agencies and institutions involved with the project and provide a benchmark for periodic evaluations of the project's impact. The system will track village level organizational arrangements and management intervention to ensure that key implementation strategies are being met.

## IX. FINANCIAL REQUIREMENTS

The financial requirements of the project are outlined below.

Table 1 - Budget proposal (in '000 US dollars) for Regional Technical Support and Networking\*

	Activities	Year					Total
		1	2	3	4	5	
(i)	Coordination and Management *	190	145	155	165	165	820
(ii)	Technical Training **	575	414	458	173	153	1773
(iii)	Workshops	100		80		100	280
(iv)	Project Implementation Monitoring and Consultancy	45	45	40	35	35	200
(v)	Publications	20	30	35	25	25	115
	Total	930	634	768	398	478	3,208
	Admin Overhead charge (15%)	139.5	95.1	115.2	59.7	71.7	481.2
	Grand Total	1,069.5	729.1	883.2	457.7	549.7	3,689.2

\* See Annex 1

\*\* See Annex 2

Table 2 - Budget proposal (in '000 US dollars) for Management of Agriculture and the Environment at village level.

Activities		Per pilot project	Yearly-budget for 6 pilot projects					Total
			1	2	3	4	5	
(i)	Technical Activities	150	900	900	900	900	900	4500
(ii)	Field Equipment	115/20	690		180			870
(iii)	Training	15	90	90	90	90	90	450
(iv)	Women's Project Support	50	300	300	300	300	300	1500
(v)	Rural Infrastructure	100/50	600		300			900
(vi)	Project Tech. Support	25	150	150	150	150	150	750
(vii)	Workshops	20	120	120	120	120	120	600
(viii)	Project Coordination and Management	30	180	180	180	180	180	900
(ix)	Publications	10	60	60	60	60	60	300
	Total	515	3090	1800	2280	1800	1800	10,770

\* Pilot project countries include: Algeria, Burkina Faso, Central African Republic, Ethiopia, Ghana and Mozambique.

Table 3 - Phase I - Training of Trainers at Regional Level

		Pilot Project Countries	Other Countries *	Total Trainees
<b>(1) Technical</b>				
(i)	Sustainable development	24	24	48
(ii)	Village level planning for environmental management	18	32	50
(iii)	Integration of crop-livestock enterprises	24	18	42
(iv)	Forestry and agroforestry resources	18	20	38
(v)	Natural resource management	30	25	55
(vi)	Farm power, animal traction and mechanization	24	16	40
(vii)	Rural infrastructure	36	22	58
(viii)	Sustainable management of village ecosystems	30	18	48
<b>TOTAL (1)</b>		<b>204</b>	<b>175</b>	<b>379</b>
<b>(2) Organization and Management</b>		<b>Pilot Project Countries</b>	<b>Other Countries</b>	<b>Total Trainees</b>
(i)	Project coordinators and managers	12	12	24
(ii)	Trainers of women farmers	24	16	40
(iii)	Improving farmers' technical skills	24	24	48
(iv)	Community organization, governance and participation in project activities.	36	14	50
<b>TOTAL (2)</b>		<b>96</b>	<b>66</b>	<b>162</b>
<b>GRAND TOTAL</b>		<b>300</b>	<b>241</b>	<b>541</b>

\* West, Sub-Saharan and North African countries.

## Annex 1. Coordination and Management. Budget Proposal for Regional Technical Support &amp; Networking.

	Description	Y E A R					TOTAL
		1 US \$	2 US \$	3 US \$	4 US \$	5 US \$	
1	Regional Coordination	72,000	75,600	79,500	83,500	87,500	398,100
2	Travel	20,000	20,000	22,500	22,500	20,500	105,500
3	Operational Cost	30,000	31,400	33,000	35,000	37,000	166,400
4	Meeting of Management Committee	18,000	18,000	20,000	20,000	20,000	96,000
5	Office Equipment	15,000			4,000		19,000
6	Vehicle	35,000					35,000
TOTAL		190,000	145,000	155,000	165,000	165,000	820,000

## Annex 2. Budget Estimates for Training of Trainers at Regional Level.

	Areas of Training	Total trainees from pilot countries	Total trainees from other countries	Grand total of trainees.	Y E A R					TOTAL US \$
					1 US \$	2 US \$	3 US \$	4 US \$	5 US \$	
	<b>A - TECHNICAL</b>									
1	Sustainable development	24	24	48	154,000					154,000
2	Village level planning for environmental management	18	32	50	157,000					157,000
3	Integration of crop-livestock enterprises	24	18	42		142,000				142,000
4	Forestry & agroforestry resources	18	20	38		134,000				134,000
5	Natural resource management	30	25	55			167,000			167,000
6	Farm power, animal traction & mecanization	24	16	40			138,000			138,000
7	Rural infrastructure	36	22	58				173,000		173,000
8	Sustainable management of village ecosystems	30	18	48					153,000	153,000
	<b>TOTAL A</b>	<b>204</b>	<b>175</b>	<b>379</b>	<b>311,000</b>	<b>276,000</b>	<b>305,000</b>	<b>173,000</b>	<b>153,000</b>	<b>1,218,000</b>
	<b>B - ORGANIZATION &amp; MANAGEMENT</b>									
9	Project coordinators & manager	12	12	24	107,000					107,000
10	Trainers of women farmers	24	16	40		138,000				138,000
11	Improving farmers' technical skill	24	24	48			153,000			153,000
12	Community organization, governance & participation in project activities	36	14	50	157,000					157,000
	<b>TOTAL B</b>	<b>96</b>	<b>66</b>	<b>162</b>	<b>264,000</b>	<b>138,000</b>	<b>153,000</b>	<b>0</b>	<b>0</b>	<b>555,000</b>
	<b>GRAND TOTAL</b>	<b>300</b>	<b>241</b>	<b>541</b>	<b>575,000</b>	<b>414,000</b>	<b>458,000</b>	<b>173,000</b>	<b>153,000</b>	<b>1,773,000</b>

## Appendix 1. Logical framework matrix.

Narrative summary	Objective: Verifiable justification	Means of verification	Important assumptions
<p>1. <u>Project goals.</u></p> <ul style="list-style-type: none"> <li>- To develop, with the participation of farmers, a minimum input, sustainable agriculture based on a sound and efficient management of natural resources;</li> <li>- To increase the productivity, production and income of peasant farmers to meet the needs of rising African populations while protecting the environment from degradation;</li> <li>- To conserve natural resource base: soil, water, nutrients and ecosystems; and to rejuvenate those ecosystems that have been already degraded;</li> <li>- To minimize labour inputs per output with particular emphasis on relieving women and female children from spending most of their time in collecting firewood and other agricultural production activities.</li> </ul> <p>2. <u>Project purpose</u></p> <ul style="list-style-type: none"> <li>- The project purpose is to enable government administrators, agricultural scientists, extension workers, farmers, and other economic actors to interact permanently in solving problems that are vital to their very existence: harmonious agricultural development;</li> <li>- To sensitize all the fractions of the society to the needs for an efficient management of natural resources; and to introduce them at the farm, village and district as well as national levels.</li> </ul>	<p><u>Measures of goal achievement</u></p> <ul style="list-style-type: none"> <li>- Increased awareness by farmer communities and government administrators of environmental conservation problems;</li> <li>- Their willingness and readiness to meet discuss, agree, plan, implement and evaluate relevant development action plans;</li> <li>- Increased integration of different agricultural production systems at the farm level with the view of maximizing agricultural production with minimum inputs including low pressure on the environment;</li> <li>- Increased yield, production and incomes;</li> <li>- Improved soil and ecosystem conservation;</li> <li>- Improved rural population welfare: women and children spending more of their time in socio-economic activities for their personal development.</li> </ul> <p><u>EOPS<sup>s</sup> Status: conditions to indicate achievement.</u></p> <ul style="list-style-type: none"> <li>- Effectively operating management committees at regional as well as national levels;</li> <li>- Different committees, and different partners in each committee working together and cooperatively in finding appropriate solutions;</li> <li>- Environmental actions planned, approved, implemented and evaluated; and results reported at all levels;</li> <li>- Effective linkage, between government administrators agricultural scientists, extension workers, farmers, and other economic actors;</li> <li>- Appropriate technologies adopted and being used by farmers as integrated resource management.</li> </ul>	<ul style="list-style-type: none"> <li>- National progress reports;</li> <li>- Government statistics,</li> <li>- Country visit reports;</li> <li>- Case study reports.</li> <li>- Annual reports;</li> <li>- Attendance at steering committee meetings at all levels;</li> <li>- Attendance of the project training activities;</li> <li>- Reports from country visits by the regional coordinator and SAFGRAD and other project partners and officials.</li> </ul>	<ul style="list-style-type: none"> <li>- Increased awareness of government administrators about the accelerated environmental degradation in their home countries;</li> <li>- Willingness of government administrators to take necessary steps to curb environmental degradation;</li> <li>- Agricultural research is functional either at national or regional and international levels and can provide appropriate technologies;</li> <li>- Appropriate technologies have been or are being developed and can be extended to farmers;</li> <li>- The needed inputs including credits are or can be made available;</li> <li>- Incentive price policies do exist or can be enacted without too much delay;</li> <li>- New policy changes in favour of environmental conservation can be enacted as need be;</li> <li>- All interested partners: government administrators national and international scientists*, technicians, economic actors, farmers and farmer organizations are willing to participate and work cooperatively to solve environmental protection and agricultural production problems;</li> <li>- Able leadership in African regional services to coordinate the activities of the project;</li> </ul>

§EOP = end of project. \* International scientists from IITA, ICRISAT, WARDA, ICRRAF, ICARDA, ILCA, USDA, etc..

mass media campaign

Narrative summary	Objective: Verifiable justification	Means of verification	Important assumptions
<p><b>3. Project outputs</b></p> <ul style="list-style-type: none"> <li>- An effectively functioning steering committee at regional level;</li> <li>- An effectively functioning regional coordination;</li> <li>- Effectively functioning steering committees, grassroots environmental support teams and national coordination at national levels;</li> <li>- Establishment of client relationships between agricultural research and farmers' groups in pilot countries;</li> <li>- Appropriate technologies developed and extended to farmers;</li> <li>- Extension service responsive to farmers' needs and requirements, as well as environmental conservation exigencies and ensuring strong linkage with agricultural research, government administrators, farmers' organisations, and farmers;</li> <li>- Exchange of scientific information on environmental action plan experiences among member countries;</li> <li>- New government policy changes to promote scientific agricultural development at national level;</li> <li>- Increased farmers' outputs with minimum inputs including labour;</li> <li>- Women and children spending less of their time for agricultural production and household supply, the saved time being spent for their personal education and development; and finally,</li> <li>- Better conservation of resource base and more biodiversity</li> </ul>	<p><b>Magnitude of outputs.</b></p> <ul style="list-style-type: none"> <li>- Regular meetings, of the regional steering committee to review environmental action plans, annual action plans, annual progress reports, etc. and provision of guidance to national coordinators for appropriate actions;</li> <li>- Regular meetings of national steering committee, grassroots support teams and farmers at all different national levels for planning, implementing, evaluating and reporting, action plans and their results;</li> <li>- Adoption of new technologies and their use as inputs in an integrated natural resource management at farm, village, district and national levels;</li> <li>- Better conserved ecosystems, rejuvenation of ecosystems that had been degraded, and presence of biodiversity;</li> <li>- Improved welfare of African rural populations with women and children getting better education and being fully involved in socio-economic developmental activities; and</li> <li>- Different sections of the society being involved and fully participating in development actions affecting them, i.e., more democracy in the country.</li> </ul>	<ul style="list-style-type: none"> <li>- Project annual reports;</li> <li>- National agriculture, environment, and other ministries, annual reports and statistics;</li> <li>- Reports of various steering committee meetings;</li> <li>- Reports of monitoring tours by farmers; government administrators and other project partners to different member countries or in a particular country.</li> </ul>	<ul style="list-style-type: none"> <li>- Able leadership at OAU/STRC-SAFGRAD to sensitize African governments as to the value of environmental protection action plans and appropriate agricultural production technologies and make them receptive to new initiatives in these areas;</li> <li>- Able leadership at OAU/STRC-SAFGRAD to sensitize and mobilize international centres, i.e., IITA, ICRISAT, WARDA, ICRAF, ICARDA, ILCA and others to backstop national agricultural scientists in the development and extension of new, appropriate agricultural production technologies;</li> <li>- Resources needed to carry out the project are timely released and made available to all involved partners.</li> </ul>

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1994-06

# MANAGEMENT OF AFRICAN AGRICULTURE AND THE ENVIRONMENT AT THE VILLAGE LEVEL

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