

## **PROJECT BRIEF**

### **1. Identifiers**

<b>Project Number:</b>	GF/2711-02 –
<b>Project Title:</b>	Desert Margins Programme (DMP) Tranche 2
<b>GEF Implementing Agency:</b>	United Nations Environment Programme (UNEP)
<b>Executing Agency:</b>	ICRISAT
<b>Requesting Countries:</b>	Regional - Africa: Burkina Faso, Botswana, Kenya, Mali, Namibia, Niger, Senegal, South Africa, Zimbabwe
<b>Eligibility:</b>	<p>CBD Ratification: Botswana (12 Oct., 1997), Burkina Faso (2 Sept., 1993), Kenya (26 July, 1994), Mali (29 March 1995), Namibia (16 May 1997), Senegal (17 Oct., 1994), South Africa (2 Nov., 1995), Zimbabwe (11 Nov., 1994), Niger (25 July 1995).</p> <p>UNCCD Ratification: Senegal (26/07/95); Mali (31/10/95); Niger (19/01/96); Burkina Faso (26/01/96); Botswana (11/09/96); Namibia (16/05/97); Kenya (24/06/97); Zimbabwe (25/09/97); South Africa (30/09/97)</p>
<b>GEF Focal Areas:</b>	Biological Diversity with relevance to Climate Change and the Cross-Cutting Issue of Land Degradation
<b>Project duration:</b>	6 years: 2+2+2
<b>GEF Programming Framework:</b>	Operational Programme 1 on Arid and Semi-Arid Ecosystems with relevance to OP12 on Integrated Ecosystem Management and OP13 on Conservation of Biodiversity important to Agriculture

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### **2. Summary:**

The overall objective of the DMP is to arrest land degradation in Africa's desert margins through demonstration and capacity building activities. The GEF increment to this project will enable the programme to address issues of global environmental importance, in addition to the issues of national economic and environmental importance, and in particular the loss of biological diversity, reduced sequestration of carbon, and increased soil erosion and sedimentation. Key sites harbouring globally significant ecosystems and threatened biodiversity have been selected in each of the nine countries to serve as field laboratories for demonstrations activities related to monitoring and evaluation of biodiversity status, testing of most promising natural resources options, developing sustainable alternative livelihoods and policy guidelines and replicating successful models. The project will make a significant contribution in reducing land degradation in the marginal areas and help conserve biodiversity. Guidelines, recommendations, appropriate technologies and supportive national policies that address biodiversity concerns are envisaged to be in place in implementing countries.

### **3. Costs and Financing (Million US \$)**

<b>GEF:</b>	<b>Project:</b>	Tranche 1 (2 years)	US\$ 4,987,134
		Tranche 2 (2 years)	US\$ 5,617,044
		Tranche 3 (2 years)	US\$ 5,365,822
	<b>PDF A:</b>		US\$ 25,000
	<b>PDF B:</b>		US\$ 340,000
<b>Subtotal GEF:</b>			US\$16,335,000
<b>Co-financing:</b>	<b>Governments in cash:</b>		US\$ 665,307
	<b>Contributions from Bilateral Donors at country level:</b>		US\$ 4,372,000
	<b>Other sources by Agency:</b>		
		IARCs	US\$ 2,500,000
		ARIs	US\$ 1,500,000
		GTZ	US\$ 1,000,000
		Norway	US\$ 1,000,000
		USAID	US\$ 1,000,000
		IFAD	US\$ 2,000,000
		IDRC	US\$ 1,500,000
		JAPAN	US\$ 1,000,000
		DANIDA	US\$ 1,000,000
		EU	US\$ 1,000,000
	<b>Subtotal Co-financing in cash:</b>		<b>US\$18,537,307</b>
	<b>Governments in kind:</b>		<b>US\$15,000,000</b>
	<b>Total Co-financing by phase:</b>		
		Tranche 1	US\$10,231,999
		Tranche 2	US\$12,063,899
		Tranche 3	US\$11,241,409
<b>Total Project Cost:</b>			<b>US\$ 49,507,307</b>
<b><u>4. Associated Financing (Million US \$)</u></b>			
	Burkina Faso		US\$ 4,720,652
	Botswana		US\$ 240,000
	Namibia		US\$ 412,580
	Senegal		US\$ 1,994,000
	Mali		US\$ 1,032,300
	Niger		US\$ 4,292,856
	South Africa		US\$ 1,997,953
	Kenya		US\$ 31,464
	Zimbabwe		US\$ 3,750,000
	IARCs + ARIs		US\$ 10,065,000
	<b>Total</b>		<b>US\$ 28,358,055</b>

## 5. Operational Focal Point Endorsement(s)

- **Senegal:** Name: Ms. Fatimata Dia TOURE, Director of Environment and Classified Establishments-Ministry of Environment; Date: Letter of Endorsement No. 0076/MJEPH/DEEC of 7 September 2001
- **Niger:** Name: Oumarou Elhadji, Secrétaire Ministère du Plan; Date: Letter of Endorsement dated 17 September 2001.17 – Name: Sala Hassane Amadou, Président du CNEDD; Date: Letter of Endorsement No. 0962 dated 12 September 2001.
- **Burkina Faso:** Name: Jean-Baptiste Kambou, Ministère de l'Environnement et de l'Eau, Focal Point, GEF; Date: Letter of Endorsement no. 01616/MEE/FEM dated 14 September 2001
- **Mali:** Name: Salif Kanoute, Ministère de l'Équipement de l'Amenagement du Territoire de l'Enviornnement et de l'Urbansims, Focal Point GEF; Date: Letter of Endorsement no 248/MEATEU/STP-CIGQE dated 26 September 2001.
- **South Africa:** Name: Dr. Crispian Olver, Director General, Department of Environmental Affairs and Tourism, Focal Point GEF; Date: Letter of Endorsement no A24/21/3/5 dated 8 August 2001.
- **Namibia:** Name: Tangeni Erkana, Permanent Secretary, Ministry of Environment and Tourism, Directorate of Environmental Affairs, Focal Point GEF; Date: Letter of Endorsement no GEF DMP SEPT 2001 dated 27 Septemeber 2001.
- **Kenya:** Name: B.O. K'Omudho, Director, National Environment Secretariat, GEF Focal Point; Date: Letter of Endorsement no NES/CONF/07/10VOL.III dated 28 September 2001.
- **Botswana:** Name: M. Mphati for Permanent Secretary, Ministry of Agriculture; Date: Letter of Endorsement no A 12/1/1 VI, dated 28 September 2001.
- **Zimbabwe:** Name: M.T. Chinamora, GEF National Focal Point, Secretary for Environment and Tourism; Date: Letter of Endorsement dated 28 September 2001.
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**6. IA Contact:** Mr. Ahmed Djoghlafl, Executive Co-coordinator, UNEP/GEF Co-ordination Office, UNEP, Nairobi, Tel: 254 2 624153; Fax: 254 2 520825; Email: [ahmed.djoghlafl@unep.org](mailto:ahmed.djoghlafl@unep.org)

## ACRONYMS AND ABBREVIATIONS

ACMAD	African Centre of Meteorological Applications for Development
AGRHYMET	Centre régional de formation et d'application en agrométéorologie et hydrologie opérationnelle
ARI	Agricultural Research Institute
ARO	Advanced Research Organizations
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
CAZRI	Central Arid Zone Research Institute
CBD	Convention on Biological Diversity
CEH	Center for Ecology and Hydrology
CCD	Convention to Combat Desertification
CGIAR	Consultative Group on International Agricultural Research
CILSS	Comité permanent inter-états de lutte contre la sécheresse dans le Sahel
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement
CNRST	Conseil national de recherche en science et technologie
CU	Coordination Unit of DMP
CST	Committee of Science and Technology of UNCCD
DAR	Department of Agricultural Research
DEDC-PAC	Dryland Ecosystems and Desertification Control Programme Activity Centre
DMP	Desert Margins Program
DRFN	Desert Research Foundation of Namibia
DRSS	Department of Research and Specialist Services
ENDA	Environment and Development Activities
FFA	Framework for Action
GCM	General Circulation Model
GCTE	Global Change in Terrestrial Ecosystems
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEWEX	Global Energy and Water-balance Experiments
GHG	Green House Gases
GLASOD	Global Assessment of Soil Degradation
GNP	Gross National Product
HAPEX-Sahel	Hydrological Atmospheric Pilot Experiment in the Sahel
IAWGD	Interagency Working Group on Desertification
IARC	International Agricultural Research Center
IBSRAM	International Board for Soil Research and Management
ICARDA	International Centre for Agricultural Research in the Dry Areas
ICASALS	International Centre for Arid and Semi-Arid Land Studies
ICRAF	International Centre for Research in Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDRC	International Development Research Center
IER	Institut d'économie rurale
IFAD	International Fund for Agricultural Development
IFDC	International Fertilizer Development Centre
IFPRI	International Food Policy Research Institute
IGBP	International Geosphere Biosphere Programme
IITA	International Institute of Tropical Agriculture

IK	Indigenous Knowledge
ILRI	International Livestock Research Institute
INCD	International Negotiating Committee for a Convention to Combat Desertification
INERA	Institut national d'études et de recherches agricoles
INRAN	Institut national de recherche agronomiques du Niger
INSAH	Institut du Sahel
InSC	Interim Steering Committee
IPCC	Inter-governmental Panel on Climate Change
IPGRI	International Plant Genetic Resources Institute
IRD	Institut pour le Developpement (France)
ISC	ICRISAT Sahelian Center
ISNAR	International Service for National Agricultural Research
ISRA	Institut senegalaise de recherche agricole
ISRIC	International Soil Reference and Information Centre
KARI	Kenya Agricultural Research Institute
KEFRI	Kenya Forestry Research Institute
LFA	Logical Framework
MOU	Memorandum of Understanding
NEAP	National Environment Action Plans
NAP	National Action Programme of the CCD
NARS	National Agricultural Research System(s)
NARES	National Agricultural Research and Extension System(s)
NCC	National Coordination Committee
NDA	National Department of Agriculture
NGO	Non-Governmental Organization
NRM	Natural Resource Management
PACD	Plan of Action to Combat Desertification
PIR	Project Implementation Review
PEA	Project Executive Agency
RFI	Range Forage Institute
SADC	Southern Africa Development Community
SALWA	Semi-Arid Lowlands of West Africa
SALT	Savannes a long terme
SAT	Semi-Arid Tropics
SPAAR	Special Program for African Agricultural Research
SRAP	Sub-Regional Action Programmes of the CCD
SSWNMRI	Systemwide Soil, Water and Nutrient Management Research Initiative
STAP	Scientific and Technical Advisory Panel of the GEF
STAT	Scientific and Technical Advisory Team
SBSTA	Subsidiary Body of Scientific, Technical and Technological Advice
TAC	Technical Advisory Committee (of the CGIAR)
TSBF	Tropical Soil Biology and Fertility
UK	United Kingdom
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNCOD	United Nations Conference on Desertification
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization

UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
UNSO	UNDP Office to Combat Desertification and Drought
WANA	West Asia North Africa
WCRP	World Climate Research Programme
WMO	World Meteorological Organization

## SECTION 2 - BACKGROUND AND CONTEXT

1. The Desert Margins Program (DMP) has been developed in response to a recommendation made to the international research community at UNCED to consider specific contributions for implementation of the three International Conventions on Biodiversity, Climate Change, and Desertification. Three key areas were identified: (1) poverty alleviation; (2) increased agricultural production; and (3) environmental protection. Following this step, a CGIAR task force was appointed to prepare a report on the CGIAR response. The task force recommended that the CGIAR should undertake four global initiatives, including a Global Marginal Soils Initiative. The first effort at addressing the value and desirability of developing a Desert Margins Program (initially called DMI) to combat land degradation started in June 1993, just around the time negotiations for the INCD got under way.

2. Land degradation is recognized by the United Nations Convention to Combat Desertification (UNCCD) as a loss of both economic and environmental potential. In addition to the domestic costs of declining food productivity and increasing poverty, dryland soil degradation results in loss of globally significant biodiversity, genetic resources, a significant reduction in carbon storage, and increased sedimentation of rivers and lakes, thereby contributing to the degradation of international water systems.

3. Degradation of dry lands occurs as a subtle, dispersed, and continuous process, particularly in semi-arid areas far away from the desert fringes. However, the arid ecotone between deserts and semi-arid areas is also increasingly affected by degradation, either as a result of human-induced pressure spreading out from degraded semi-arid areas, or as a result of less understood ecological and atmospheric inter-linkages between the two ecotones. The true extent of permanent land degradation is not known; nor are the relative contributions of the various human and climatic factors understood well enough to prescribe sustainable long-term counter measures. We know however that both human and climatic factors contribute to dryland degradation in a number of complex, interactive ways (Annex M):

- First, direct anthropogenic pressures, such as overgrazing, over-cultivation, mismanagement of irrigated land, and deforestation can cause a decrease in vegetation cover, exposing vulnerable soils to erosion and affecting hydrological regimes (Annex D). Semi-arid soils (loams and clays) appear to be more vulnerable than arid sandy soils. These pressures also lead to a simplification of the plant community, decreased diversity (inter-specific and genetic), and loss of habitat integrity for globally significant fauna.
- A second mechanism triggered by the loss of vegetation is the propagation of further land-degradation via the land surface-atmosphere feedback. This mechanism however, is little understood at present.
- Natural climatic variability over geological time is a third mechanism whose effects are hard to separate from the fourth factor, recent climatic change. External influences from anomalies in sea surface temperature, deforestation in the humid tropics, and CO<sub>2</sub>-induced climate change are thought to be associated with desiccation and drought in arid zones.

4. Desertification and land degradation lead to biodiversity loss, reduction in carbon stocks, and erosion of agriculturally productive landscapes. The contribution of drylands to carbon sequestration is little understood, and most likely under-estimated.

5. Areas of transition (ecotones) between more or less arid regions harbour globally significant biodiversity, and are also increasingly being recognized as important areas of speciation and genetic

variability. Desertification is a major worldwide problem, but it is most extensive and severe in the arid and semi-arid areas in Sub-Saharan Africa, where one third of the entire world area of dryland soil degradation is to be found. Over 330 million ha of African drylands are subject to soil degradation. Areas of high degradation are extensive in Sub-Saharan Africa in the regions bordering the Sahara and Kalahari deserts. The gradient of aridity from the core of the Sahara and Kalahari deserts to the neighbouring arid and semi-arid lands acts as a natural screener of genetic adaptation to aridity. Although total number of species is lower in these areas than other biomes, the percentage of endemism is very high. The spatial heterogeneity based on the pattern of soil texture, rainfall distribution and re-distribution of surface water by run-off enhances the biodiversity of these ecotones in spite of extreme ecological condition for plant and animal lives. However, because of large rainfall variations between years, the survival of these animals and plants requires that large areas of land be kept under low human pressure. Land fragmentation that results from the expansion of crop agriculture, associated with deforestation and sedentary overgrazing, threaten the biodiversity of these ecosystems. There is a strong correspondence between the areas of land degradation and the arid (100-400 mm rainfall per year) and semi-arid zones (400-600 mm rainfall per year) (Annex Ka and Kb). The aridity (index 0.05-0.65) emphasizes the close relationship between land degradation and drought.

6. Past attempts to address and arrest land degradation have relied on International Agricultural Research Centres (IARCs), NARS, NGOs and other Advanced Research Organizations (AROs) working more or less independently with *ad hoc* inter-linkages through the NARS. Although this approach served the purpose of each institution, it failed to recognize the considerable benefits of synergy that could be derived from integrating individual institutional interests into a more holistic and coordinated approach.

7. The imperative for more effective utilization of resources to address common problems has brought together nine countries of sub-Saharan Africa: Kenya, Botswana, Burkina Faso, Mali, Namibia, Senegal, Niger, South Africa, and Zimbabwe into the Desert Margins Programme (DMP) (Annex Kc) with a basic premise to develop an integrated national, sub-regional, and international action programme for developing sustainable natural-resource management options to combat land degradation and loss of biodiversity. The DMP would build on the existing National Action Programs (NAPs) of the CCD and involve both development and action-research efforts to unravel the complex causal factors of biodiversity loss through land degradation, and formulate and pilot appropriate solutions.

8. NAPs developed in the DMP countries have clearly indicated the need to carry out targeted actions in the sustainable use and conservation of biodiversity of the drylands. Moreover, the sites selected by the DMP countries are priority sites for dryland conservation and rehabilitation highlighted in the different country NAPs and have been identified in a consultative process encompassing national stakeholders at all levels. Hence, the DMP meets the dual country needs of arresting land degradation at priority sites, and of developing replicable models for promotion of sustainable dryland management and food security in all drylands at risk of desertification. At the sub-regional level, programmes have been initiated to carry out targeted actions to conserve biodiversity, including *inter alia*, to create a sub-regional information system, to harmonize databases and to strengthen human capacity development at the grass-roots level. Southern African Development Community (SADC) for example has formulated a sub-regional programme that include early warning systems that relate to food security and environment monitoring placing emphasis on capacity building, institutional strengthening and networking with the framework of their sub-regional action programme. Comité permanent inter-états de lutte contre la sécheresse

dans le Sahel (CILSS) countries have similar provisions. DMP is expected to contribute to these efforts.

9. The DMP stakeholders have participated at different levels to the national process that led to the developing of these National Action Programs (NAPs) and the Sub-regional Action Programs (SRAPs) and have therefore established strong linkages between DMP and the NAPs and SRAPs to ensure a) better coordination of strategic frameworks to combat drought and desertification; b) the development of incentives system to secure long-term sustainability of field-level multisectoral action programs; and c) strengthened public policy and enabling environment for addressing land degradation.

10. Therefore, mechanisms for better coordination and collaboration between NAPs, the environment programs and similar programs issued from CBD and UNFCCC exist. For example DMP-South Africa and the CCD national Scientific Task Team have been mandated by the South African government to play a major role in the coordination and development of these action programs and act on a consultative level in the revision of the current government Acts (NAP, CBD, Landcare, CONNEP, Conservation Act, Water Act, Land Tenure, etc.) and are also charged in fund raising, facilitation and prioritising of sustainable development projects, creation of quality control mechanisms and effective networking. Similar arrangements have been worked out in the remaining DMP countries.

11. 120 million people live in the nine countries participating in the DMP, with some of the highest population growth rates in the world. The majority of these people depend on rainfed agriculture and natural rangelands, which are particularly vulnerable to climate change. Cereal production per unit area of land has been decreasing in the last few decades because of the impacts of land degradation and increasing aridity, thus compelling farmers to clear more and more virgin lands.

12. The project is eligible for GEF funding through the Operational Programme 1 on Arid and Semi-Arid Ecosystems because it addresses biodiversity issues of global significance. DMP is expected to provide benefits to two focal areas (biodiversity and climate change through carbon sequestration) and is therefore also of relevance to the GEF Operational Programme 12 on Integrated Ecosystem Management as well as 13 on Conservation of Biodiversity important to Agriculture, through its focus on carbon sequestration and conservation of biodiversity within the managed/productive landscape. Furthermore, this project is eligible for GEF funding through GEF's Action Plan to enhance support to land degradation that was adopted in 1999. The main elements of such action plan revolve around a) operationalising the linkages between land degradation and the GEF focal areas by on-the-ground activities; b) strengthening public policy and enabling environment for addressing land degradation; and c) engaging key stakeholders and enhancing GEF catalytic role in mobilizing resources to address land degradation. The project will make significant contribution towards the achievements of these goals. In addition to the GEF eligibility criteria listed above, all DMP member countries have ratified the three conventions on UNFCCC, UNCC and CBD.

13. The project has been closely designed to complement activities of existing GEF funded projects in DMP countries such as the Management of Indigenous Vegetation for the Rehabilitation of Degraded Rangelands in Africa (Botswana, Kenya, Mali). The TSBF's project on below-ground biodiversity both managed by UNEP, the Integrated Ecosystem Management in Four Representative Landscapes of Senegal managed by UNDP just to mention a few. It is therefore expected to enhance GEF overall impact in semi arid areas.

14. From a sustainable development perspective, and pursuant to the three fold objectives of the Convention on Biological Diversity, biodiversity conservation at agricultural forest margins should not occur at the expense of farmers livelihoods. Similarly, the GEF Operational Strategy and GEF operational programme 1 on Arid and Semi-arid Zone Ecosystems recognize that agricultural practices aimed at reducing GHG emissions and increasing carbon sequestration must also be economically and socially beneficial in order to be sustainable. DMP would also present its member countries contribution to the work of Committee on Science and Technology of the Desertification Convention (CST/CCD). More specifically it relates to the articles 17, 18 and 19 of CCD on institution building, training and development of national capacities. It would also make a contribution to the work of the SBSTTA of the CBD, the SBSTA of the UNFCCC as well as to STAP.

### **SECTION 3 - RATIONAL AND OBJECTIVES**

#### **PROBLEM TO BE ADDRESSED**

15. The overall objective of the DMP is to arrest land degradation in Africa's desert margins through demonstration and capacity building activities developed through unravelling the complex causative factors of desertification, both climatic (internal) and human-induced (external), and the formulation and piloting of appropriate holistic solutions. The GEF increment to this project will enable the programme to address issues of global environmental importance, in addition to the issues of national economic and environmental importance, and in particular the loss of biological diversity, reduced sequestration of carbon, and increased soil erosion and sedimentation, associated with land degradation in these arid and semi-arid ecotones.

16. The broader objectives of the overall DMP are to:

- develop a better understanding of the causes, extent, severity and physical processes of land degradation in traditional crop, tree, and livestock production systems in the desert margins, and the impact, relative importance, and relationship between natural and human factors;
- document and evaluate, with the participation of farmers, NGO's, and NARS, current indigenous soil, water, nutrient, vegetation, and livestock management practices for arresting land degradation and to identify socio-economic constraints to the adoption of improved management practices;
- develop and foster improved and integrated soil, water, nutrient, vegetation, and livestock management technologies and policies to achieve greater productivity of crops, trees, and animals to enhance food security, income generation, and ecosystem resilience in the desert margins;
- evaluate the impact and assist in designing policies, programs, and institutional options that influence the incentives for farmers and communities to adopt improved resource management practices;
- promote more efficient drought-management policies and strategies;
- enhance the institutional capacity of countries participating in the DMP to undertake land degradation research and the extension of improved technologies, with particular regard to multidisciplinary and participative socio-economic research;
- facilitate the exchange of technologies and information among farmers, communities, scientists, development practitioners, and policymakers;
- use climate change scenarios to predict shifts in resource base and incorporate these into land use planning strategies.

17. The overall objective of the GEF alternative is to conserve and restore biodiversity in the Desert Margins through sustainable utilization. The GEF component will enable the DMP to address issues of global environmental importance, in particular the loss of biological diversity and reduced sequestration of carbon associated with soil erosion, sedimentation, and natural resource degradation and to develop replicable models for the sustainable use of dryland biodiversity. The unique focus of the GEF component of DMP is the promotion of enhanced ecosystem resilience in semi-arid areas, where agricultural land has been degraded by practices that negatively impact on biological diversity and global climate change.

18. The GEF increment will build upon the baseline and co-financing, to cover the additional costs related to achieving global benefits. Annexes A and B provide the detailed description of outputs, activities and co-financing arrangements for each participating country. Bottom-up consultations and negotiations were undertaken in each country with leaders of rural communities and donors of existing baseline activities to derive co-financing arrangements. In general, these co-financing will cover the cost of sustainable development activities, investments in production inputs, micro-credits, and promoting sustainable livelihoods strategies as well as replication of successful models.

19. The GEF increment (Annex Aa and Ab) will cover the costs of the full inventory of threatened and endangered species and habitats and monitoring of changes in biodiversity of global significance, development and implementation of sustainable harvesting regimes, validation and adoption of sustainable ecosystem rehabilitation techniques as well as the development and testing of sustainable biodiversity management and conservation technologies and models in selected project sites in each of the nine countries. Furthermore, it will enhance effective national participation in transboundary biodiversity conservation. For example, Mier, Paulshoek, Prieska and Namaqualand sites in South Africa (Annex Kc and Kd) share common boundaries with Botswana and Namibia. Sites in Mali (Gao) have common boundaries with sites in Niger. The GEF increment will also lift barriers to the sustainability of replicability of some of the successful technologies, approaches and models promoting conservation and sustainable use of biodiversity. The barriers are technical, economic, political and institutional in nature (Annex J). The GEF increment will address these barriers at the local (e.g. appropriate technologies, policies and economic incentives), national (e.g. capacity building, inter-sectoral policy reform, land tenure reform, legal clarification) and regional (e.g. tariffs on biodiversity products) levels.

20. The GEF component of DMP will further develop and implement improved management of land use practices that restore and rehabilitate degraded agricultural land through integrated approaches that lead to sustainable use of globally significant natural resources and landscapes. The focus will especially target the endemic organisms that are the keystone species, which determine ecosystem function, above and below ground, at different spatial scales (benchmark sites, national and sub-regional). This focus will seek to determine the causes, extent, severity of biodiversity loss, as well as the physical processes of soil and ecosystem degradation in selected key sites in Africa that harbour globally significant biodiversity (Annex L).

21. The DMP takes an innovative participatory and integrated natural resource management (INRM) approach. The goal is the conservation of biological resources through restoration activities that reverse degradation processes in managed landscapes, rather than the preservation of specific ecosystems or species (in protected areas). The specific outputs will be actively disseminated to all stakeholders, including policy makers in each country. This knowledge and experience will also be shared with stakeholders at all levels, through 2-way interchange between project partners.

22. DMP will also encourage other types of sustainable land use and promote parallel activities that develop alternative livelihoods (e.g. eco-tourism) within the project areas, as well as at the sub-regional (E&S Africa and W Africa) and at the regional scale. Sustainable livelihood strategies that promote wise use of natural resources, such as those that develop the use of medicinal plants, will also be addressed. In addition, DMP will actively promote public awareness of sustainable biodiversity management and capacity building of national partners through knowledge sharing, training activities and collaborative research.

#### SITE ACTIONS

23. Land degradation is diverse in form and impact on farming systems, suggesting that generalization is likely to be a problem. One of the implications for a project strategy is a need for detailed case studies and an emphasis on the particularities of the local history of land degradation and regeneration. This emphasis implies that both research and the design of interventions must invest intellectual resources in the contextualization of the problems of resource use.

24. The strategy proposed for choosing sites within the DMP project is to focus most of the effort on a small number of well-monitored sites where the work of the soil, plant, and animal scientists can be integrated with the studies performed by the socio-economists, policy analysts, and institutional analysts. These sites will also act as sub-regional "field laboratories", where the necessary interactions will be established between farmers, researchers, and development workers. It is the partnerships formed by this integration of disciplines and combination of farmers/resource users contemporary knowledge, research and development which is the strength of the DMP project. The strategy of focusing on a few sites of this kind will also avoid duplication of effort and will give a critical mass of work which can achieve the progress necessary for tackling the complex problem of land degradation.

25. Based on above, the following sites have been selected in each country: Burkina Faso (District of Bah, District of Katchari and District of Oursi); Botswana (Bobirwa and Khalagadi Districts); Mali (Gao); Namibia (Northern edge of the Nama-karoo region, and northern region of Namibia); Niger (West and East); Senegal (North and Center zones, Western zone, Center, East and south zones, and Estuary zone); South Africa (Mier (Kalahari), Paulshoek/Leliefontein in Nanagualand, Suid Bokkeveld in the Hantam District of the Northern Cape); Kenya (The Kargi settlement area of Marshabit District, the Tarack River of Turkana District and the Kaambeere area in Mbeere District); Zimbabwe (The Mayingo South, the Matebeland South and North and Lowveld areas of Zimbabwe). Annexes Kc and Kd provide more details of each site while full description can be found in each country annex (available on file).

26. There are already some areas in the DMP countries where there has been significant relevant study and assessment of sites for their suitability for studying land degradation and natural-resource management. The DMP will capitalize on this by linking its activities to build on what has already been done. The final selection of sites has been made during national workshops. To obtain standardization across sub-regions, the following guiding principles have been used:

- build on areas where substantial relevant studies already exist; Work in areas where there are interactions between facets of natural resource management land use, farmers' fields, pastures, trees, etc.;
- use areas that are physically well-defined (e.g., watershed), where most of the key natural resource and socioeconomic phenomena occur;
- select areas that are accessible and have the basic facilities to allow the efficient conduct of multidisciplinary research and development activities;

- select areas which have been identified as prioritized zone by both biodiversity strategy and action plan, NEAP and/or NAP.

27. The envisaged methodologies at each site will include:

- (a) Demonstrations and experiments to be conducted on farmers fields and on rangelands in actual resource use condition at different stages of degradation to demonstrate the effect of grazing management on flora diversity, range productivity, soil physical and chemical properties and animal production. The demonstration experiments will be repeated for a minimum of three years to capture the dynamics of vegetation and account for interaction effects of rainfall conditions. Modelling the effect of rotational grazing on herbaceous growth during the wet season and on standing hay and litter disappearance during the dry season will permit the application of the findings to a wider range of situations.
- (b) Assessments of the genetic diversity losses that may result from the expansion of cropped land, the fragmentation of rangelands associated to increasing grazing pressure and wood harvesting will be carried out. The potential offered by marginal lands, fallows and ecotones at field edges, along drainage lines and roadsides to maintain some plant diversity will also be evaluated.
- (c) Forage species adapted to grazing and drought stress will be identified. Populations of these species will be sampled along the climatic gradient and in areas of different grazing history in order to characterize the genotype of the best adapted provenances using specialized molecular analysis such as isozyme and DNA profiles. Subsequently, field experiments will be carried out to test and demonstrate the usefulness of the selected genotypes in the reclamation of degraded rangelands and production of good quality forages in the semi-arid zone.
- (d) Farm surveys will be conducted to identify economic policies and institutional arrangements that would facilitate the adoption of improved grazing management systems and use of selected genotypes in the reclamation of degraded lands.
- (e) The economic profitability of recommended resource management systems involving grazing management and herd mobility will be established under different environmental conditions.
- (f) Assessments carried out on crop genetic losses that may result from habitat disturbance, market-driven forces leading to crop uniformity and the replacement of traditional varieties, and catastrophic events such as war and climatic episodes.
- (g) Subsequently, formulate strategies on how to conserve and distribute the maximum biodiversity of Semi-Arid Tropics (SAT) food crops and how to diversify SAT cropping systems through a broader choice of crop and livestock options.
- (h) Accelerate impact by scaling up promising technologies, using new informatics tools.
- (i) Assess how to use community-based participatory approaches to enhancing the return on natural resource assets.

28. The benefits of more sustainable agricultural practices are evidently local and national. However, they are also global since the sustainable use of the resource base of agriculture promotes the conservation of the unique above - and below - ground plant and animal biodiversity of the dry tropics. The benefits of biodiversity conservation, carbon sequestration and decreased GHG

emissions are largely global. A basic premise of the project is that these global environmental benefits can be achieved only through a combination of appropriate land-use practices and supportive national and global policies.

29. The project will result in the identification of benefits that have been found to accrue global incremental environmental benefits in terms of conserving biodiversity and minimizing the impact of climate change. From a biodiversity perspective, the project is in support of and consistent with Decision III/11 of the Conference of Parties regarding conservation and sustainable use of agricultural biological diversity which highlighted, in that Decision document, important aspects under the land resources thematic area to be considered for priority funding by the GEF.

30. Selected and recommended practices will have measurable costs (e.g. of labour) associated with carbon and biodiversity management but will also generate local agricultural benefits (e.g. more stable production). Such recommendations inevitably require some trade-offs between global and local benefits. This is why technological alternatives will be developed that will ensure that local benefits, become sufficiently attractive for farmers to adopt the recommended practices. These recommendations will be widely disseminated so as to benefit other GEF recipient countries with similar ecological and socio-economic conditions. Lastly, the envisaged GEF financial contribution will cover the incremental costs of the programme while the in-kind and direct contributions from the partners and co-financing from other donors will cover costs related to local and/or national benefits. Linkages related presently to on-going programmes are explained in each country annex.

#### **SECTION 4 - COMPONENTS AND EXPECTED OUTPUTS**

31. The DMP partners have gone through a bottom-up participatory planning process during the PDF-B phase. This has resulted in each country preparing its own logical framework including an indicative list of activities, verifiable indicators, means of verification, and assumptions, which are presented in country annexes (available on file). Each national consultation was facilitated by either an international consultant or by the DMP global coordinator. Furthermore, each sub-region organized a sub-regional consultation meeting to develop a sub-regional logical framework. The LFA for West Africa and that of East and Southern Africa are available on file.

32. Finally, a global stakeholder meeting was organized in Nairobi to develop a global DMP logical framework. See Annex B. A brief description of the expected outputs and GEF increment for each component is given below. More details are given in Annex A for incremental costs and in annex H for major projects activities by year. Annex I gives a breakdown of activities by component and indicates the amount of co-financing as well as GEF funds requested for each activity. Moreover, Annex I indicates in which phase of the project the respective activities will be implemented.

##### **Component 1: Ecological Monitoring and Assessment (*GEF: US\$4,466,265; Co-financing: US\$6,984,230*)**

33. This component is aimed at improving knowledge about the physical processes leading to biodiversity loss in the drylands, in particular the relative importance of human and climatic factors, the development of quantitative indicators of biodiversity loss, and improved monitoring techniques.

**Component 2: Biodiversity conservation and sustainable use** (GEF: US\$2,177,504; Co-financing: US\$5,086,006)

34. This component will emphasize participatory testing of strategies for conservation, restoration and sustainable use of degraded agro-ecosystems with farmers, rural communities, NGOs and decision makers. It will identify, document and evaluate and mainly test existing best practices, pilot selected technologies that enhance conservation, restoration and sustainable use of biodiversity and disseminate, promote and facilitate the adoption and implementation of the best practices and proven technologies. This component will foster improved and integrated soil, water, nutrient, vegetation, and livestock management technologies to achieve greater productivity of crops, trees, and animals to enhance food security, and ecosystem resilience in the desert margins. It will lead to:

- (a) The identification of livestock management practices that preserve biodiversity and resilience of natural vegetation in the arid zone and minimize land degradation and biodiversity loss in the semi-arid zone;
- (b) Improved methods for restoring and sustaining long-term fertility in dryland areas to effectively reduce biodiversity loss;
- (c) Improved soil and water management techniques for increasing plant water-use efficiency;
- (d) Sustainable crop production technologies that conserve the environment and are socially and economically acceptable, and meet the food and fodder needs of local populations in the dryland areas; and
- (e) Strategies for enhancing ecosystem resilience through optimisation of biodiversity.

**Component 3: Sub-regional, National and local capacity building** (GEF: US\$3,749,701; Co-financing: US\$8,969,133)

35. Given the lack of appropriate personnel and facilities in many participating countries to design and effectively implement natural resource management strategies, it is important to enhance institutional capacities. Emphasis will be placed on:

- reinforcement of national capacities to carefully monitor climate, soil, vegetation and livestock trends and dynamics;
- standardization of methodologies to ensure data quality;
- building effective partnership of national (NGOs, rural communities, CBOs), regional and international institutions to create a continuum from identification, testing to extension and adoption of technologies for arresting biodiversity loss and promoting its sustainable use;
- building capacity of stakeholders in land use planning. The GEF increment will enhance stakeholders' awareness and skills in natural resource management and strengthen community involvement in natural resource management leading to more effective biodiversity conservation and reduction in natural resource degradation.

**Component 4: Alternative Livelihoods** (GEF: US\$967,100; Co-financing: US\$2,960,150)

36. This component will identify, develop an inventory and document economically viable livelihood options. It will create an environment conducive to the adoption of improved plant

nutrient technologies through programs that promote a more efficient procurement, distribution, and marketing of inputs and programs that enhance effective utilization of farm outputs through the development of micro enterprises. It will increase the local awareness and use of the indigenous dryland products, processing and enhanced marketing strategies, develop markets for non-timber forest products and other dryland products, implementation of pilot schemes with alternative crop technologies that have proven to be successful in several regions for sustainable utilization of existing inputs and enhancing productivity. Examine ways to add value to the outputs from the farm in order to increase the farmer's income.

**Component 5: Policy and legal framework** (GEF: US\$1,427,000; Co-financing: US\$1,720,345)

37. Incentives for farmers and rural communities for the conservation and sustainable use of natural resources are influenced by a variety of social, economic and political factors. These include micro and macroeconomic policies, legal rules of access to resources, direct public investment, institutional mechanisms put into place to support these policies. The DMP work will not only be synchronized with existing work on policy reform to avoid any duplications but will focus mainly on informing policy debate. It would address micro-economic issues, but also include a broader mandate to look at:

- How macro, trade and agricultural sector policies impact on dryland areas, including the likely impact of trade liberalization and globalisation
- A range of local institutional issues, including property rights arrangements and incentives for collective management of rangeland resources
- Payoffs from investing in dryland areas as policy makers, especially finance ministers, remain sceptical that investing in dryland areas is a good use of scarce public funds
- Analysis of how livelihood strategies change in response to desertification and what policies can be enacted to mitigate the negative effects on farmers and farm communities
- Document "successes" and "failure" for lessons learned, as well as carry out an overall evaluation of what past investments have achieved at an aggregate level
- Share information and knowledge with policy makers to inform on-going policy debates

**Component 6: Extension of Sustainable Natural Resource Management** (GEF: US\$2,502,151; Co-financing: US\$4,570,972)

38. This component will foster improved and integrated soil, water, nutrient, vegetation, and livestock management technologies to achieve greater productivity of crops, trees, and animals to enhance food security and ecosystem resilience. It will ensure the integrated management of biological diversity by households and farmers associations so as to improve their incomes. It will enhance the capacity of national agricultural research systems (NARS) to identify in collaboration with farmers natural resource management methods and technologies that include strategies for implementing and promoting conservation, restoration and sustainable use of degraded ecosystems.

**Component 7: Stakeholder participation** (GEF: US\$680,279; Co-financing: US\$3,246,471)

39. This component covers activities intended to guarantee the participation of all stakeholders and especially the participation of the most vulnerable groups in the design, implementation and follow-up/evaluation of the project. It will establish a permanent dialogue framework using participatory tools. It will evaluate the existing interface between experts and rural communities in order to identify effective mechanisms constitute working groups, especially of women and promote effective linkages between researchers and rural communities in all project sites.

## **Expected end of project situation**

40. It is expected that the project would make a significant contribution in reducing land degradation in the marginal areas and help conserve biodiversity. The project will at the same time provide alternative livelihoods to the rural communities. Most of the stakeholders especially the local communities in and around the project sites, will have developed a common purpose and acquired the necessary skills, strategies and policies to:

- a) conserve and restore biodiversity
- b) reduce and ultimately stop land degradation
- c) manage the environment and the natural resources in a sustainable manner

41. It is also expected that guidelines and recommendation domains (areas) and supportive national policies that address biodiversity concerns would be in place in implementing countries. The role of women in decision making on management of natural resources will also be greatly improved. The project is expected to effectively address the root causes of the threats to globally significant ecosystems in the region (long-term impact) and contribute towards biodiversity restoration in the region. The following outputs are envisaged from the implementation of the full-scale project:

- data on existing technologies (indigenous, new technologies, policy and institutional changes) and identification of those proven to increase the sustainable use of biodiversity (plants, animals and trees), arrest soil erosion and sedimentation;
- developed and tested technological options in collaboration with other partners to arrest and reverse land degradation and its negative impacts.

## **SECTION 5 - RISKS AND SUSTAINABILITY**

42. In each country, the DMP project falls within adopted national tools such as National Environment Action Plans (NEAP), National Biodiversity Strategies and Action Plans, and National Action Programs (NAP). The commitment of governments at policy and operational levels through co-funding, the adoption of the decentralisation process in most of participant countries, the presence of governmental institutions at the project sites, and the active involvement of NGOs and community based organisations, will ensure sustainability of the project and follow-up activities. Sharing of resources, skills and experience will be fostered to engender complementarities. Implementation will also actively involve beneficiary groups such as farmers, rural communities, NGOs, governmental institutions and private sector within a participatory framework to ensure project ownership and future implementation and sustainability.

43. Win-win measures such as developing alternative livelihoods that release much of the pressure from the dryland soils and water resources and sustainable national resource management strategies will be developed leading to both environmental conservation and improved economic returns. Similarly proven techniques tested and demonstrated at DMP sites are expected to spread and be taken by other communities well beyond the project completion.

44. Also, the structure of the project is designed to ensure the participation of local experts in all related aspects of the proposed activities and consequently to secure a strong technical level of sustainability of futures activities. The project will enhance the sharing of skills and experiences between the nine countries. This will permit the replication of the process within other African countries.

45. During the five years of GEF funding, financial sustainability will also have been created. This will be done through building national capacity to raise and manage funds from sources other than GEF and through the creation of strong national partnerships and local constituencies which are not dependent on significant external funding to ensure on-going programs and activities. Sustainable funding mechanisms (such as trust funds, endowments and sponsoring etc.) will have been evaluated and set in place, where appropriate. At the end of the project, stakeholder participation should continue with each contributing skills, experience and required materials and financial support for those activities identified by the project as being of economic and ecological importance.

## **SECTION 6 - STAKEHOLDER PARTICIPATION AND IMPLEMENTATION ARRANGEMENTS**

46. The DMP is conceived as a regional project because its participating countries face similar threats to globally significant biological diversity, namely similar forces that lead to land degradation. Nine of the countries in the region have expressed a strong interest to join forces to develop a common programme. Thus there is a logic to sharing learning about appropriate responses to these particular threats over possibly rather different types of ecosystems. The regional component of the project will focus on information and technical exchange, and harmonization of pilot demonstration activities addressing biodiversity loss, land degradation, and reduction in carbon sinks.

### **STAKEHOLDER PARTICIPATION**

47. National programmes have clearly identified various groups of individuals/organisations who are going to benefit from the DMP/GEF programme. An analysis of the national programmes reveal that these groups fall into five categories as identified below:

- (a) Local communities, pastoralists/agro-pastoralist farmers through better knowledge on the management of Natural Resources and hence;
  - -easier access to medicinal plants and water,
  - -improved nutrition to families and fodder to livestock and wildlife,
  - -reduced levels of poverty due to alternative livelihood options, and
  - -reduced loss of biodiversity and general degradation of the ecosystem.
- (b) Grassroot organizations - CBOs and NGOs through access to appropriate technologies to plan and guide sound natural resources management programmes among local communities.
- (c) Service providers - Government and NGOs involved in Policy making and extension through better understanding of biodiversity issues resulting from;
  - participatory interaction with local communities and grass root organizations regarding Natural Resource aspects,
  - access to sound information on biodiversity an ecosystem functions for sound policy and decision making as well as preparation and dissemination of relevant packages, and
  - training in biodiversity and ecosystems aspects.
- (d) Local and international research Institutions in terms of;
  - improved interaction and linkages with local communities and NARS (target populations) and hence development of sound intervention approaches, and

- training in biodiversity and ecosystems aspects.
- (e) International community involved in development assistance programs in terms of
- better policy environment guaranteeing enhanced
  - more committed development partners success

## **IMPLEMENTATION ARRANGEMENTS**

48. DMP governance is organized according to three distinct and complementary levels: national level, sub-regional level (western, and southern / eastern Africa), regional level (Africa) including at the GEF level (e.g., GEF/UNEP, GEF/UNDP). The governing body for the DMP is a Steering Committee that will provide policy guidance and direction. NARS and NGOs are at the center of the organizational structure. The Steering Committee consists of representatives of the DMP Consortium (see composition below and in Annex F). The consortium of partners (see Table 1; Annex E) pools resources and expertise of nine NARS and NGOs, four sub-regional organizations (CORAF for western Africa, SADC/SACCAR for southern Africa, and ASARECA for eastern Africa), five IARCs (ICRAF, ICRISAT, IFDC, ILRI, and TSBF), and three ARIs (CEH, CIRAD and IRD, with the experience of UNEP and UNDP in the implementation of the CBD, UNFCCC and UNCCD).

49. A coordination and communication structure has been put in place. The Coordination Unit is headed by a "DMP Coordinator", with a Programme Assistant. The DMP Coordinator oversees the day-to-day direction of the scientific programme as a whole and is responsible for scientific and administrative aspects of liaison between all collaborators. He reports to the DMP Steering Committee and ICRISAT. The DMP Coordinator will plan and manage the work of the coordination unit, located at the ICRISAT Sahelian Center in Niger and will be responsible to the DMP Steering Committee and act as its ex-officio member-secretary. The DMP Coordinator will organize meetings and interact with the NCCs and regional organizations, to ensure that the results are effectively synthesized and reported, review the research, report to the steering committee, and assist them in their work. ICRISAT will ensure the accountability of DMP funds. Details of the project management structure are given in annex G.

## **SECTION 7 - INCREMENTAL COSTS AND PROJECT FINANCING**

50. The deteriorating productivity through land degradation and loss of biodiversity is to the communities dependent on dryland ecosystems a serious threat to their survival and well-being, and to the global community a potential threat to climatic stability through global warming. The proposed project is part of regional programme that addresses biodiversity issues of local, regional and global significance. Sharing of information from cross-site comparison is expected to enhance success. The project will contribute to and thus enhance the global biodiversity database.

51. The GEF increment to the project (Annex Aa and Ab) will enable it to specifically address issues of global environmental importance, primarily in the area of biodiversity but with secondary impacts in the areas of climate change (carbon sequestration) and international waters (reduced sedimentation and pollution). Examples of these include:

- Full inclusion of biodiversity and above and below ground biomass (carbon storage) issues in analytical and monitoring activities;

- understanding impact of different management regimes on biological diversity (plants and animals);
- inclusion of studies on sedimentation (siltation) of trans-boundary rivers and lakes;
- study of fugitive dust and impacts;
- large-scale carbon (carbon sequestration) and nutrient (biodiversity) balance models in arid lands;
- understanding and developing strategies for enhancing ecosystem resilience through sustainable use of biodiversity; development of participatory approaches to vegetation management and biodiversity conservation.

52. The total cost of the GEF Alternative, including the baseline, is US\$77,865,362. The baseline cost, of currently undertaken activities, is estimated at US\$28,000,000.

53. The GEF incremental cost is US\$49,872,307 including the PDF-B and PDF A grants of US\$340,000 and US\$25,000 respectively.

Co-financing in cash is estimated at US\$18,537,000 from several sources, including contribution from the governments of the nine countries, bilateral donors and UN Agencies operating in each country (GTZ, UNDP, USAID, IDRC, IFAD) as well as contribution from IARCs and ARIs. In-kind contribution from the government is estimated to be around US\$15,000,000. Furthermore, it is expected that rural communities will also contribute in-kind resources (labour, minor equipment, land and seeds) but this has not yet been quantified.

The requested GEF contribution to the project is US\$15,970,000 (Annex I).

#### **a) Incremental Cost Table (US\$)**

<b>Outputs</b>	<b>Baseline</b>	<b>Alternative</b>	<b>Co-funding</b>	<b>GEF</b>
1. Ecological Monitoring and Assessment	10,935,017	22,385,512	6,984,230	4,466,265
2. Testing and implementation	3,564,448	10,827,950	5,086,006	2,177,504
3. Capacity building	5,213,263	17,932,097	8,969,133	3,749,701
4. Sustainable alternative livelihoods	1,932,062	5,859,312	2,960,150	967,100
5. Policy and legal framework adopted	1,574,285	4,721,630	1,720,345	1,427,000
6. Up scaling of NRM options	2,989,647	10,062,770	4,570,972	2,502,151
7. Stakeholder participation	2,149,333	6,076,083	3,246,471	680,279
<b>Total</b>	<b>28,358,055</b>	<b>77,865,362</b>	<b>33,537,307</b>	<b>15,970,000</b>

Annex Ab. on incremental cost table provides details on outputs that give global versus domestic benefits.

#### **b) Component Financing (US\$)**

<b>Component</b>	<b>GEF</b>	<b>Co-financing</b>	<b>Total</b>
1. Ecological Monitoring and Assessment	4,466,265	6,984,230	11,450,495
2. Testing and implementation	2,177,504	5,086,006	7,263,510
3. Capacity building	3,749,701	8,969,133	12,718,834
4. Sustainable alternative livelihoods	967,100	2,960,150	3,927,250
5. Policy and legal framework	1,427,000	1,720,345	3,147,345
6. Up scaling of NRM options	2,502,151	4,570,972	7,073,123
7. Stakeholder participation	680,279	3,246,471	3,926,750
<b>Total</b>	<b>15,970,000</b>	<b>33,537,307</b>	<b>49,507,307</b>

## **SECTION 8 - MONITORING, EVALUATION AND DISSEMINATION**

54. The project monitoring will be done to assess progress made by the project. The research outputs will be monitored annually through individual reports presented by the collaborating institutions/partners at the national annual technical meetings, and by the combined annual project reports.

55. At each annual meeting, the participating institutions will present their work plans and budgets for the following year. The national steering committee will evaluate the documents for consistency with the goals and objectives of the project and will approve the annual work programme and budgets.

56. The entire DMP/GEF project will be subjected to external reviews after each phase to obtain an independent assessment of progress and recommendations for completion of the project. In addition, a final external review will be done at the end of the project to assess its achievements and make recommendations on how to ensure its long-term sustainability.

57. It is envisaged that through its capacity building activities, project staff, NGOs, rural communities and policy makers will be encouraged to disseminate lessons learnt, project results and other relevant information on sustainable use and conservation of biodiversity. Supervision mission by UNEP-GEF, and ICRISAT will be done annually to gauge project progress and gather and disseminate lessons learnt.

58. Finally all Monitoring and Evaluation activities will follow standard ICRISAT, GEF and UNEP procedures. To that effect, a detailed Monitoring and Evaluation Plan is provided in Annex 3.

## **SECTION 9 – PROJECT BUDGETING AND FINANCING**

### **9.1 Items to be Financed by Project Activities**

The requested Project Grant will be used to implement the seven project components outlined above, which are eligible for GEF financing. The activities outlined above will cost an estimated US\$15,219,133 of which GEF will release US\$4,987,134 for the first phase of implementation (Tranche 1) and subsequently US\$5,617,044 and US\$5,365,822 second and third phases of implementation (Tranches 2 and 3) of the DMP Project respectively. The present request is for GEF to release US\$5,617,044 0 (tranche 2) for the second phase of implementation of the DMP.

### **9.2 Budget**

A detailed budget following UNEP format can be found in Annex 1 of this document.

### **9.3 Cash Advance Requirements**

An initial cash advance of **US\$1,000,000** will be made upon signature of the project document by both parties and will cover expenditures expected to be incurred by ICRISAT during the first six months of the project execution. Subsequent advances will be made half yearly, subject to:

- (i) Confirmation by ICRISAT at least two weeks before the payment is due, that the expected rate of expenditure and actual cash position necessitate the payment, including a reasonable amount to cover “lead time” for the next remittance (see format of request in Annex 5a)
- (ii) The presentation of:
  - A satisfactory financial report showing expenditures incurred so far (see format in Annex 5b).
  - Timely and satisfactory reports on project implementation.

### **9.4 Work Plan and Time Table**

A detailed work plan and timetable can be found in Annex 2.

## **SECTION 10 – INSTITUTIONAL FRAMEWORK AND EVALUATION**

### **10.1 Institutional Framework**

The project will be executed by ICRISAT in collaboration with UNEP and the National and International Partners listed in Annex E.

DMP will have two levels of activity; (i) National activities jointly implemented at the country level by the National Agricultural Research Systems (NARS), International Agricultural Research Centres (IARCs) and Advanced Research Institutes (ARIs), led by National Coordination Committees, chaired by a National Coordinator, and (ii) Sub-regional/regional activities implemented by IARCs and ARIs.

At the national level, IARCs and ARIs, will assist NARS through the Scientific and Technical Advisory Team (STAT) to develop a common framework for site stratification and to characterise specific bench mark sites. The STAT will also provide support to NARS for the development of standardised data collection methodologies, storage and management systems for an understanding of ecosystem status and dynamics with regards to the loss of biodiversity. IARCs and ARIs will also participate in the implementation of studies at the benchmark sites and assist with an overall syntheses at the sub-regional and regional level. In addition, IARCs and ARIs will promote capacity building in the NARS through training courses and collaborative studies at the field level. Through these collaborative studies, IARCs and ARIs will provide support to NARS for the development of natural resource management methods and technologies that include strategies for implementing and promoting conservation, restoration and sustainable use of degraded ecosystems.

At the sub-regional and regional level, IARCs and ARIs will assess the need for new scientific, technical and social science in order to implement and fulfill all the proposed DMP outputs, and then develop appropriate training packages that meet these needs. Such training may be provided by an array of different types of courses, or through scientific team exchange visits and information sharing between sub-regions and countries to facilitate technology transfer. Sub-regional and regional synthesis of results will be developed by IARCs and ARIs through upscaling methodologies for south-south trends and through the use of systems modeling, remote sensing and GIS tools for extrapolation strategies. Biophysical and socio-economic approaches to modeling will be integrated to allow the screening and identification of scenarios that will lead to best bet management practices and policies for rebuilding biodiversity and restoring degraded and collapsed ecosystems. Once appropriate technologies and land use practices have been identified, IARCs and ARIs will assist NARS scientists to assess the training needs of all levels of stakeholders and target populations across sub-regions and countries. They will then develop training packages and appropriate policy guidelines that meet these requirements. They will also generate and produce information / dissemination packages.

### **DMP Steering Committee**

The Steering Committee will meet once a year at one location to review and approve the yearly workplans and conduct a second meeting through electronic media. Other groups will meet only when the need arises. Meetings will rotate between countries and sub-regions. Meetings will be open, and NGOs observers will be invited.

### **Terms of Reference for the DMP GEF Project Steering Committee**

- Review and approve final project documents
- Promote sound relations between the DMP and other initiatives
- Constitute working groups to facilitate implementation of activities and work plans
- Determine the programme's priority research areas
- Promote effective linking between country and sub-regional aspects of the project
- Develop guidelines for the appointment of members of the Scientific and Technical Advisory Team (STAT)
- Develop and approve Terms of Reference for specific tasks to be undertaken by the STAT
- Appoint members of the STAT
- Approve annual workplans and associated budgets

## **Membership of the Steering Committee**

The steering committee is composed of 14 members:

One National Co-ordinator per country (9), one representative of the International Agricultural Research Centers (1), one representative from the convening center (ICRISAT), one representative each from UNEP and UNDP (2) and the DMP Coordinator as its ex-officio member.

## **Executive Committee and its Terms of Reference**

The day to day management of the DMP will be supported by an Executive of the Steering Committee. The Executive will meet (largely) virtually.

## **Membership of the Executive Committee**

It is formed by a committee of 6 members as follows:

One Anglophone/Eastern African Representative, one Francophone/West African Representative, one representative each from UNEP, UNDP, ICRISAT and the DMP Coordinator.

## **Scientific and Technical Advisory Team (STAT)**

The STAT will be an ad hoc grouping of experts, and its membership will be fluid as the need arises. It will comprise the most suitable advisors to address the topic at hand (members will not be appointed on a proportional or country basis)

It will provide ad hoc advice on implementation, both proactive policy advice and problem oriented, as these arise.

The STAT will be appointed by the Steering Committee and its Executive Committee via the Co-ordinator.

## **National Coordinating Committees**

As explained earlier, National Coordinating Committees (NCCs) established during the national workshops, will identify and prioritize the national research problems in collaboration with all partners in the Program, including research and extension institutions, CBOs (farmer's, resources users representatives) local NGOs, and universities. A National Coordinator has been appointed by each NCC in the consortium to coordinate the planned national program in the DMP, allocate research tasks, and share information and resources across the national institutions.

## **Terms of reference of the National Steering Committees**

- Select and appoint the National Coordinator
- Identify and prioritise research activities within projects for submission by the DMP to donors
- Liase with the national GEF Focal Point and ensure sound coordination within government
- Liase with the DMP country office
- Liase actively with all national partners so as to ensure effective project management, and promote synergy between all aspects and partners of the DMP.
- Receive, approve and forward all progress reports to the DMP

## **Global management structure**

ICRISAT will manage logistics, finances, etc on a de-centralized basis in each sub-region. The ICRISAT regional office in Niamey will manage funds earmarked for the West Africa partners, the regional office in Nairobi for partners in East Africa and the regional office in Bulawayo for partners in Southern Africa. Each office will be supported by a sub-regional coordinator supported jointly by ICRISAT and GEF project funds. Sharing of experiences and learning should primarily take place at field level via exchange visits, seminars, etc that involve both francophone and Anglophone countries.

### **10.2 Correspondence**

All correspondence regarding substantive and technical matters should be sent to:

**At: ICRISAT**

Dr. Saidou Koala  
Global Coordinator  
Desert Margins Program (DMP)  
ICRISAT-Niamey  
B.P. 12404  
NIAMEY (NIGER)  
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Fax(227)734329  
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**At UNEP:**

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All correspondence regarding financial and administrative matters should be addressed to:

**At: ICRISAT**

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email: john.mukoza@unep.org:

**10.3 Review & Processes**

Upon completion of the project UNEP and Division of GEF Coordination will undertake a evaluation to measure the degree to which the objectives of the project have been achieved. An external review will be carried out at the end of each phase.

**SECTION 11– MONITORING AND REPORTING****11.1 Half yearly Progress Reports**

Every six months, (as at 30 June, and 31 December), ICRISAT shall submit to UNEP, with a copy to UNEP Division of GEF Coordination, using the formats given in Annex 6A and Annex 6B, half yearly reports for the GEF and the UNEP on the progress in project execution, to be submitted by ICRISAT within 30 days of the end of the reporting period.

**11.2 Terminal Reports**

Within 60 days of the completion of the project, ICRISAT will submit to UNEP a terminal report using the format given in Annex 7.

**11.3 Financial Reports****(a) Project Expenditure Accounts**

(i) Details of project expenditures will be reported on a project-by-project basis, in line with project budget codes as set out in the project document, as at 31 March, 30 June, 30 September and 31 December (see Annex 5). All expenditure accounts will be dispatched to UNEP within 30 days of the end of the quarter to which they refer, certified by a duly authorised official of ICRISAT.

(ii) The expenditure accounts as at 31 December, certified by a duly authorised official, should be dispatched to UNEP within 30 days, as for other quarters, but, in addition, UNEP requires that the end of year expenditure account should be reported in an opinion by a recognised firm of public accountants, which shall be dispatched to UNEP by 31 March. In particular, the auditors should be asked to report whether, in their opinion:

- Proper books of account have been maintained;
- All project expenditures are supported by vouchers and adequate documentation;
- Expenditures have been incurred in accordance with the objectives outlined in the project document.

(iii) Within 30 days of the reporting period, ICRISAT shall transmit to UNEP/GEF to UNEP/GEF Co-ordination Office, prepared by project partner institutions, a half yearly co-financing report for the project using the format provided in Annex 4B showing:

(a) Amount of co-financing realised compared to the amount of co-financing committed to at the time of project approval.

(b) Co-financing reporting by source and by type.

- Sources include the agency's own co-financing, government co-finance (counterpart commitments), and contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector, and beneficiaries.
- Types of co-finance include grants, committed in-kind support and other specified types. In-kind resources are required to be:
  - dedicated uniquely to the GEF project,
  - valued as the lesser of the cost and the market value of the required inputs they provide for the project, and
  - monitored with documentation available for any evaluation or project audit.

(iv) Within 90 days of the completion of the project, ICRISAT will supply UNEP with a final statement of account in the same format as for the quarterly statement, certified by a recognised firm of public accountants. If requested, ICRISAT shall facilitate an audit (by United Nations Board of Auditors and/or the Audit Service) of the accounts of the project.

(v) Any portion of cash advances remaining unspent or uncommitted by ICRISAT on completion of the project will be reimbursed to UNEP within one month of the presentation of the final statement of accounts. In the event that there is any delay in such disbursements, ICRISAT will be financially responsible for any adverse movement in the exchange rates.

## **(b) Cash advance accounts**

A statement of advances of cash provided by UNEP should be submitted half-yearly in the format shown in Annex 3 as at 31 December.

## **11.4 Terms and Conditions**

### **11.4.1 Non-Expendable Equipment**

ICRISAT will maintain records of non-expendable equipment (items costing \$1,500 or more) as well as items of attraction such as pocket calculators, cameras, computers, printers, etc. purchased with UNEP funds (or with Trust Funds or Counterpart Funds administered by UNEP) and will

submit an inventory of all such equipment to UNEP (following the format at Annex 4 and attached to the quarterly progress report), indicating description, serial no.(if any), date of purchase, original cost, present condition, location of each item together with the proposal for the disposal of the equipment. Non-expandable equipment purchased with funds administered by UNEP remains the property of UNEP until its disposal is authorised by UNEP, in consultation with ICRISAT. ICRISAT shall be responsible for any loss or damage to equipment purchased with UNEP funds. The proceeds from the sale of equipment, (duly authorised by UNEP) shall be credited to the accounts of UNEP, or of the appropriate Trust Fund or Counterpart Funds. ICRISAT shall attach to the terminal report mentioned above, a final inventory of all non-expendable equipment purchased under this project following the format in Annex 4, indicating description, serial number, original cost, present condition, location and a proposal for the disposal of the said equipment. The inventory should be physically verified by a duly authorised official of ICRISAT.

#### **11.4.2 Responsibility for Cost Overruns**

Any cost overrun (expenditure in excess of the amount budgeted in each budget sub-line) shall be met by the organisation responsible of authorising the expenditure, unless written agreement has been received in advance from UNEP. In cases where UNEP has indicated its agreement to a cost overrun in a budget sub-line to another, or to increase the total cost to UNEP, a revision to the project document amending the budget should be issued by UNEP.

#### **11.5 Claims by Third Parties against UNEP**

ICRISAT shall be responsible for dealing with any claims which may be brought by third parties against UNEP and its staff, and shall hold UNEP and its staff non-labile in case of any claims or liabilities resulting from operations carried out by ICRISAT under this project document, except where it is agreed by ICRISAT and UNEP that such claims or liabilities arise from gross negligence or wilful misconduct of the staff of UNEP.

#### **11.6 Reports and Publications**

All publications must be produced/published, according to UNEP's publications manual with the approval of the UNEP Editorial Committee to ensure peer review of manuscripts, and distribution and marketing strategies. UNEP thereby affirms itself as copyright-holder of the said manuscript.

For publications issued with the executing agency, both the cover and the title page of the publication will carry the logo of UNEP and the title of the United Nations Environment Programme, together with that of the Executing Agency and the collaborating agencies. The Executing Agency will submit three copies of any manuscript prepared under the project for clearance prior to their publication in final form. UNEP's views on the publication and any suggestions for amendments of wording will be conveyed expeditiously to the Executing Agency, with an indication of any disclaimer or recognition which UNEP might wish to see appear in the publication.

UNEP may request ICRISAT to consider a joint impress basis. Should ICRISAT be solely responsible for publishing arrangements, UNEP will nevertheless receive 10 free copies of the published work in each of the agreed languages for its own purposes.

## **LIST OF ANNEXES**

<b>Annex 1:</b>	<b>Budget in UNEP Format</b>
<b>Annex 2:</b>	<b>Workplan and Timetable</b>
<b>Annex 3:</b>	<b>Monitoring and Evaluation (M&amp;E)</b>
<b>Annex 4:</b>	<b>Format for UNEP Inventory of Non-expendable Equipment</b>
<b>Annex 5a:</b>	<b>Format for Cash Advance Statement</b>
<b>Annex 5b:</b>	<b>Format for Half Yearly Project Expenditure</b>
<b>Annex 5c:</b>	<b>UNEP/GEF Report on Planned Project co-financing and Actual Co-financing Received</b>
<b>Annex 6a:</b>	<b>Format for Half Yearly Progress Report to the GEF</b>
<b>Annex 6b:</b>	<b>Format for Progress Report to UNEP</b>
<b>Annex 7:</b>	<b>Format for Terminal Report</b>
<b>Annex 8:</b>	<b>Terms of Reference for Project Personnel</b>
<b>Annex 9:</b>	<b>Details of Annexes and Maps contained in the GEF Project Document</b>

## Annex 1 Detailed Budget in UNEP Format

	2002	2003	2004	2005	2006	2007	Total
<b>1100 Project Personnel</b>	\$	\$	\$	\$	\$		\$
1101 Global Coordinator	125,000	125,000	125,000	130,000	130,000	130,000	765,000
1102 Sub-regional Coordinator (W. Africa)	55,000	55,000	55,000	55,000	55,000	55,000	330,000
1103 Sub-regional Coordinator (East & Southern Africa)	55,000	55,000	55,000	55,000	55,000	55,000	330,000
1104 Natural Research Management Officer	50,000	50,000	50,000	55,000	55,000	55,000	315,000
1199 Total	<u>285,000</u>	<u>285,000</u>	<u>285,000</u>	<u>295,000</u>	<u>295,000</u>	<u>295,000</u>	<u>1,740,000</u>
<b>1200 Consultants</b>							
1201 Consultants National (field & demonstr.)	30,000	30,000	30,000	30,000	30,000	30,000	180,000
1201 Consultants International (assessment)	20,000	30,000	20,000	30,000	30,000	30,000	160,000
1299 Total	<u>50,000</u>	<u>60,000</u>	<u>50,000</u>	<u>60,000</u>	<u>60,000</u>	<u>60,000</u>	<u>340,000</u>
<b>1300 Administrative support</b>							
1301 Financial and Administrative Officer	50,000	50,000	50,000	50,000	50,000	50,000	300,000
1302 Program Administrative Assistant	25,000	25,000	25,000	30,000	30,000	30,000	165,000
1302 Field technicians (6)	55,000	55,000	60,000	60,000	65,000	65,000	360,000
1303 Drivers (2)	10,000	10,000	10,000	10,000	10,000	10,000	60,000
1320 Overtime	10,000	10,000	10,000	10,000	10,000	10,000	60,000
1321 Temporary assistance	15,000	13,000	15,000	15,000	15,000	15,000	88,000
1322 Conference Services	10,000	10,000	10,000	10,000	10,000	10,000	60,000
1399 Total	<u>175,000</u>	<u>173,000</u>	<u>180,000</u>	<u>185,000</u>	<u>190,000</u>	<u>190,000</u>	<u>1,093,000</u>
<b>1600 Travel on official business</b>							
1601 Regional	10,000	10,000	10,000	10,000	10,000	10,000	60,000
1602 International	30,000	30,000	30,000	30,000	30,000	30,000	180,000
1699 Total	<u>40,000</u>	<u>40,000</u>	<u>40,000</u>	<u>40,000</u>	<u>40,000</u>	<u>40,000</u>	<u>240,000</u>
<b>1999 Component total</b>	<b>550,000</b>	<b>558,000</b>	<b>555,000</b>	<b>580,000</b>	<b>585,000</b>	<b>585,000</b>	<b>3,413,000</b>
<b>20 SUB CONTRACT COMPONENT</b>							
<b>2100 Sub-Contracts with ICRISAT</b>							
2101 Burkina Faso	120,000	180,000	200,000	200,000	190,000	150,000	1,040,000
2102 Botswana	80,000	90,000	100,000	100,000	80,000	80,000	530,000

2103 Kenya	100,000	150,000	200,000	200,000	210,000	160,000	1,020,000
2104 Mali	100,000	150,000	120,000	120,000	137,000	100,000	727,000
2105 Niger	150,000	170,000	200,000	200,000	200,000	186,000	1,106,000
2106 Namibia	100,000	100,000	150,000	150,000	150,000	120,000	770,000
2107 Senegal	130,000	150,000	150,000	172,500	200,000	200,000	1,002,500
2108 South Africa	150,000	150,000	200,000	184,000	150,000	150,000	984,000
2109 Zimbabwe	120,000	180,000	250,000	190,000	200,000	180,000	1,120,000
2110 ILRI	85,000	100,000	85,000	85,000	90,000	80,000	525,000
2111 IFDC	40,000	35,000	45,000	35,000	35,000	30,000	220,000
2112 TSBF	55,000	65,000	60,000	62,000	50,000	48,000	340,000
2113 ARIs	150,000	200,000	150,000	150,000	150,000	150,000	950,000
2114 ICRAF	50,000	50,000	50,000	50,000	50,000	50,000	300,000
2299 Total	1,430,000	1,770,000	1,960,000	1,898,500	1,892,000	1,684,000	10,634,500
<b>2999 Component total</b>	<b>1,430,000</b>	<b>1,770,000</b>	<b>1,960,000</b>	<b>1,898,500</b>	<b>1,892,000</b>	<b>1,684,000</b>	<b>10,634,500</b>
<b>30 Research and Training Component</b>							
<b>3100 Scientific assessments, monitoring and evaluation</b>							
3101 Fellowships	15,000	15,000	15,000	15,000	15,000	10,000	85,000
3102 Visiting scientists	15,000	20,000	20,000	15,000	15,000	15,000	100,000
Total	30,000	35,000	35,000	30,000	30,000	25,000	185,000
3200 Group Training	20,000	15,000	25,000	25,000	20,000	20,000	125,000
3300 Meetings/Conferences							
3301 Meetings/Conferences (Synthesis)	0	70,000	0	70,000	0	70,000	210,000
3302 Steering Committee meetings (1)	20,000	20,000	20,000	20,000	20,000	20,000	120,000
3303 Expert group meetings (2) (STAT)	15,000	15,000	15,000	15,000	15,000	15,000	90,000
3304 Monitoring and evaluation (ICRISAT)	10,000	10,000	10,000	10,000	10,000	20,000	60,000
Total	45,000	115,000	45,000	115,000	45,000	125,000	480,000
<b>3999 Component Total</b>	<b>95,000</b>	<b>165,000</b>	<b>105,000</b>	<b>170,000</b>	<b>95,000</b>	<b>170,000</b>	<b>790,000</b>
<b>40 Equipment &amp; Premises Component</b>							
<b>4100 Expendable Equipment</b>							

4101 Vehicle operation and maintenance	7,000	10,000	10,000	10,000	10,000	10,000	57,000
4102 Office supplies	20,000	10,000	10,000	10,000	10,000	10,000	70,000
4103 Library acquisitions	5,000	3,000	3,000	3,000	3,000	3,000	20,000
4104 Computer software	5,000	0	0	5,000	0	0	10,000
<u>4199 Total</u>	<u>37,000</u>	<u>23,000</u>	<u>23,000</u>	<u>28,000</u>	<u>23,000</u>	<u>23,000</u>	<u>157,000</u>
<b>4200 Non-expendable equipment</b>							
4201 Vehicles (2)	35,000		35,000				70,000
4202 Computers (4)	15,000						15,000
4203 Video equipments	15,000						15,000
4204 Office equipments	10,000	1,000	1,000	1,000	1,000	1,000	15,000
4205 Field equipment	10,000	15,000	15,000	15,000	15,000	15,000	85,000
4206 Photocopy equipments	10,000						10,000
<u>4299 Total</u>	<u>95,000</u>	<u>16,000</u>	<u>51,000</u>	<u>16,000</u>	<u>16,000</u>	<u>16,000</u>	<u>210,000</u>
<b>4300 Premises</b>							
4301 Office rental including meeting room	8,000	10,000	10,000	10,000	11,000	11,000	60,000
4302 Maintenance	5,000	5,000	10,000	10,000	10,000	8,000	48,000
<u>4399 Total</u>	<u>13,000</u>	<u>15,000</u>	<u>20,000</u>	<u>20,000</u>	<u>21,000</u>	<u>19,000</u>	<u>108,000</u>
<b>4999 Component Total</b>	<b>145,000</b>	<b>54,000</b>	<b>94,000</b>	<b>64,000</b>	<b>60,000</b>	<b>58,000</b>	<b>475,000</b>
<b>50 Miscellaneous Component</b>							
<b>5100 Operation and maintenance of equipment</b>							
5101Computers	500	500	500	500	500	500	3000
5102 Photocopy equipments	2,000	3,000	2,000	3,000	2,000	3,000	15000
<u>5199 Total</u>	<u>2500</u>	<u>3500</u>	<u>2500</u>	<u>3500</u>	<u>2500</u>	<u>3500</u>	<u>18000</u>
<b>5200 Reporting</b>							
5201 Publication of newsletter	4,000	4,000	4,000	4,000	4,000	4,000	24,000
5202 Printing of reports	3,000	3,000	3,000	3,000	3,000	3,000	18,000
<u>5299 Total</u>	<u>7,000</u>	<u>7,000</u>	<u>7,000</u>	<u>7,000</u>	<u>7,000</u>	<u>7,000</u>	<u>42,000</u>
<b>5300 Sundry</b>							

5301 Communications	10,000	10,000	10,000	10,000	10,000	10,000	60,000
5302 Postage & pouch	1,000	2,000	1,000	2,000	1,000	3,000	10,000
5303 Other	65,000	65,000	65,000	65,000	60,000	57,500	377,500
5399 Total	<u>76,000</u>	<u>58,000</u>	<u>76,000</u>	<u>77,000</u>	<u>71,000</u>	<u>70,500</u>	<u>447,500</u>
<b>5400 Hospitality &amp; entertainment</b>							
<b>5999 Component total</b>	<b>85,500</b>	<b>87,500</b>	<b>85,500</b>	<b>87,500</b>	<b>80,500</b>	<b>81,000</b>	<b>507,500</b>
<b>6000 UNEP &amp; UNDP PARTICIPATION COST</b>							
6100 Monitoring and Evaluation (External)		35,000		35,000		50,000	120,000
6101 UNDP to SC meeting	5,000	5,000	5,000	5,000	5,000	5,000	30,000
<b>6999 Total UNEP Participating Cost</b>	<b><u>0</u></b>	<b><u>40,000</u></b>	<b><u>5,000</u></b>	<b><u>40,000</u></b>	<b><u>5,000</u></b>	<b><u>55,000</u></b>	<b><u>150,000</u></b>
<b>99 GRAND TOTAL</b>	<b>2,310,500</b>	<b>2,674,500</b>	<b>2,804,500</b>	<b>2,840,000</b>	<b>2,717,500</b>	<b>2,633,000</b>	<b>15,970,000</b>

## **Budget notes**

### **Salaries**

- Global Coordinator:** Based on full time position paid at ICRISAT at the rate 55 000 USD plus allowances, insurance and children education allowances.
- Sub-regional coordinator (West Africa):** Based on full time position @ 50% of staff time devoted to the coordination of DMP in West Africa. Salary @ 50% at a slightly junior level
- Sub-regional coordinator (East and Southern Africa):** Half of an IRS salary as above
- Natural Research Management Officer.** Full time position paid @ 50% by DMP and @ 50% by ICRISAT/IPGRI
- National Consultants:** To advise on data collection, experimental design and protocols etc. 5 consultants X 200 USD per day plus travel cost X 30 days = 30000 USD
- International Consultants:** To advise on methodology for cross country data collection and interpretation. 5 consultants x 500 USD/day x 8 days =20000 USD
- Financial and Administrative Officer:** This is to cover 50% of the cost of an IRS position at ICRISAT as described above. ICRISAT will support the remaining 50%
- Program Administrative Assistant:** This is for an Executive Administrative Assistant full time position at 1500/month plus allowance, insurance and children education expenses
- Field technicians (6):** These technicians are hired under the ICRISAT research component of DMP. 6 technicians x 764 USD/month x 12 months = 55 000 USD. The technician will contribute to benchmark site characterization, data analysis and follow-up of on-farm and on-station demonstration
- Drivers (2):** 2 x 420 USD/month x 12 months = 10 080 USD
- Overtime:** This item is related to ICRISAT research component. It concerns overtime of field technicians, Drivers, and temporary assistance on overnight stay and weekends paid at 1.5 times the normal hourly rate
- Temporary assistance:** This refer to ICRISAT research component. Casual labor paid at 12.5 USD /day x 10 labors x 10

days/months x 12 months/year = 15 000 USD

**Conference Services:** Cost of location of meeting rooms, translation equipment and bilingual translators. This is estimated to cost 10 000 USD per year or 833 USD /months x 12 months.

**Travel:**

**Regional:** Travel of global coordinator, sub-regional coordinators (West Africa, East and Southern Africa) and NRM Officer in their respective region of posting to monitor the project. 4 staff x 2 trips/each x 1250 USD per trip (including cost of fuel, hotel, per diem and accompanying driver) = 10 000 USD.

**International:** 4 staff to attend DMP meeting/conferences, steering committee and global monitoring tours: 4 staff x 3 trips x 2500 US\$ per trip = 30 000 USD

**Research and training**

**Fellowships:** 3 regional fellowships awarded for MSc and/or PhD students to carry out their field research on topics related to the DMP/GEF. Scholarships to be awarded on a competitive basis. 3 fellowships x 5000 USD /per fellowship = 15 000 USD.

**Visiting scientists:** Posting of 3 to 4 NARS Scientists at contributing AIRCs for a period of up to 6 months. 3 x 5000 USD= 15000

**Group training:** Training of stakeholders (farmers' groups, NGOs and NARS on methodology and techniques related to biodiversity conservation and sustainable use. 2-3 training per year . US\$7000 per training = 14 000 USD (2 trainings) or 20 000 USD (for 3 trainings).

**Meetings/Conferences**

**Synthesis meeting:** To synthesize project results at end of each phase. 30 participants in total . Travel (airfare): 30 x 1500 US\$ = USD45000. Hotel and per diem: 30 x 400 USD/per day x 2 days = 24000 USD

**Steering Committee Meeting:** 8 Participants in total.  
Airfare: 8 x 1500 USD /ticket = 12000 USD  
Hotel and per diem : 8 x 140 USD/day x 7 days = 7840 USD  
Total = 20 000 USD

**Expert group Meeting:** 2 meetings/year. Cost of one meeting involving 5 experts.

Travel (airfare)  $5 \times 1500 \text{ USD} = 7\,500 \text{ USD}$

Hotel and per diem  $5 \times 140 \text{ USD/day} \times 3 \text{ days} = \text{US\$}2100$

Miscellaneous support: 5400 USD

Total: 15 000 USD

**Monitoring and evaluation (ICRISAT):** Cost of ICRISAT Internal annual monitoring of the project:

3 trips  $\times 3333 \text{ USD/trip} = 10\,000 \text{ USD}$

### **Equipment & Premises Component:**

#### **Vehicle operation and maintenance:**

Cost of fuel, spare parts and regular maintenance for 2 four wheels drive (West and East and southern Africa) including activities related to ICRISAT research.

**Office supplies:** Include cost of printing ink, photocopying papers. Cost of year one includes purchase of supplies to install the two sub regional coordinators and NRM Officer at 3000 USD per office.

**Library acquisition:** Subscription of key scientific journals on biodiversity for the different stakeholders estimated at 5 000 USD in year one and 3 000 USD thereafter.

**Computer software:** Purchase and licensing fees of computer software estimated at 500 USD/year

### **Non-expendable equipment**

**Vehicle (2):** Purchase of two 4 WD vehicles ( one 4 WD in year 1 and in year 3) for each DMP coordination office and the regional one of East and Southern Africa

**Computers (4):** Purchase of 4 computers for the 3 coordinators and the NRM Officer including software.  $4 \times 3750 \text{ USD/computer} = 15\,000 \text{ USD}$

**Video equipments:** Purchase of 2 sets. One set for West Africa and the 2<sup>nd</sup> set of East and Southern Africa.  
 $7500 \text{ USD/set} \times 2 = 15\,000 \text{ USD}$

**Office equipments:** Purchase of desks and miscellaneous equipments for the 2 sub-regional coordinators and NRM Officer. Estimated at 3 000 USD per office plus 1 000 USD for small items.

**Field equipment:** This cover cost of ICRISAT field research activities (Fertilizers, pesticides, sampling, nursery, plant and soils analysis. Estimated at 10 000 USD in year one and 15 000 USD thereafter.

**Photocopy equipments:** Purchase of 2 set of photocopy equipments for DMP Coordination Unit and sub-regional office in East and Southern Africa. 5 000 USD per set

**Premises**

**Office rental including meeting room:** Shared cost of office use by coordination unit and sub-regional coordination

**Maintenance:** Upkeep of DMP offices: Purchase of office cleaning supplies etc..

**Operation and maintenance of equipment**

**Computers:** Cost of maintenance contract of DMP computers estimated at 500 USD /year

**Photocopy equipments:** Cost of maintenance contract for equipment (1000 USD) and photocopy supplies (Toner, paper etc..) at 1000 USD/year plus extra photocopies for increased activities at the end of each phase.

**Reporting**

**Publication of newsletter:** Writing, printing and dispatching of 1000 copies to DMP stakeholders twice a year. Cost estimated at 4 000 USD/year.

**Printing of reports:** Cost of printing of reports as outlined in annex 3, 6 and 7. Cost estimated at 3 000 USD/year.

**Sundry**

**Communications:** Cost of emails, telephone for the DMP Coordination Unit and sub-regional offices. Estimated at 7 000 USD in West Africa and 3 000 USD for East and Southern Africa.

**Postage & pouch:** For urgent documents to be sent by DHL. Each package is sent at 10 USD.

**Other:** This covers research expenses undertaken by ICRISAT Scientists participating in the DMP/GEF. This includes: purchase of maps/satellite imagery, soils and plant analysis for benchmark site characterization, GPS equipment, GIS/Image Analysis Software. Processing of satellite imagery, Participatory rural appraisal exercises, on-station and on-farm demonstration plots.

**Monitoring and Evaluation (External)**

2 mid-term evaluations are planned at the end of phase one and two and a final evaluation at the end of project.

Cost of a Mid-term evaluation as follows:

2 consultants x 4500 USD (airfare) = 9 000 USD

Hotel & Per diem: 2 x 150 USD x 20 days= 6 000 USD

Fees: 2 x 500 USD/day x 20 days = 20 000 USD

Total = 35 000 USD

Cost of Final evaluation involving 3 consultants:

3 x 4 500 USD (airfare) = 13 500 USD

Hotel & Per diem: 3 x 150 USD/day x 18 days = 8 100 USD

Fees: 3 x 500 USD/day x 19 days = 28 500 USD.

Total = 50 100 USD

**UNDP Participation to Steering Committee Meetings.**

This refers to the cost of UNDP attending the Steering Committee meetings. This is estimated at 5 000 USD for Airfare plus hotel and meals costs.

## ANNEX 2: WORKPLAN AND TIMETABLE

### Annex B2: Work Plan and Time Table for Tranche II

OUTPUTS	ACTIVITIES	IMPLEMENTATION PLAN IN MONTHS			
		30	36	42	48
<b>1.0 ECOLOGICAL MONITORING AND ASSESSMENT</b>	<i>1.1 Inventory of Endemic Species</i>				
	<i>1.2 Ecosystem Stability</i>				
	<i>1.3 Document IK</i>				
	<i>1.4 Inventory of Endangered Species</i>				
	<i>1.5 Biodiversity Degradation</i>				
	<i>1.6 Regeneration</i>				
	<i>1.7 Restoration of Biodiversity</i>				
	<i>1.8 Characterisation of Benchmarks</i>				
	<i>1.9 Standardized Data Collection</i>				
	<i>1.10 Identify Social Skills</i>				
	<i>1.11 Develop Packages</i>				
	<i>1.12 Scaling up Methodologies</i>				
	<i>1.13 Modeling</i>				
<b>2.0 TESTING AND REHABILITATION</b>	<i>2.1 Document Best Bet Practices</i>				
	<i>2.2 Pilot Technologies</i>				
	<i>2.3 Adoption and Implementation</i>				
	<i>2.4 Conservation and Restoration</i>				
	<i>2.5 Enhance IK</i>				
	<i>2.6 Overall Synthesis</i>				
<b>3.0 CAPACITY BUILDING</b>	<i>3.1 Asses Training Needs</i>				
	<i>3.2 Develop Training Programmes</i>				
	<i>3.3 Planning and Implementation</i>				

	3.4 Sensitize Partners				
	3.5 Organize Training Courses				
	3.6 Information Packages				
	3.7 Training Packages				
<b>4.0 SUSTAINABLE ALTERNATIVE LIVELIHOODS</b>	4.1 Livelihood Options				
	4.2 Empower Communities				
	4.3 Implement best-Bet Options				
<b>5.0 POLICY AND LEGAL FRAMEWORK</b>	5.1 Document Existing Policies				
	5.2 Develop Policy Documents				
	5.3 Implement Policies				
<b>6.0 UP SCALING NRM OPTIONS</b>	6.1 Promote Soil Fertility				
	6.2 Promote Integrated Land and Pastoral Spaces				
	6.3 Promote Multiple Land use Systems				
	6.4 Integrated Management of Biodiversity				
	6.5 Support to NARS				
<b>7.0 STAKEHOLDERS PARTICIPATION</b>	7.1 Participation of Vulnerable Groups				
	7.2 Permanent Dialogue Framework				
	7.3 Scientific Teams Exchanges				

## ANNEX 3: MONITORING AND EVALUATION PLAN

### INTRODUCTION

The objective of monitoring and evaluation is to assist all project participants in assessing project performance and impact, with a view to maximizing both. Monitoring is the continuous or periodic review and surveillance by management of the implementation of an activity to ensure that all required actions are proceeding according to plan. Evaluation is a process for determining systematically and objectively the relevance, efficiency, effectiveness and impact of the activities in light of their objectives. Ongoing evaluation is the analysis, during the implementation phase, of continuing relevance, efficiency and effectiveness and the present and likely future outputs, effects and impact.

The general and specific objectives of the project, and the list of its planned outputs, have provided the basis for this M&E plan. The wider project objective is to conserve and restore biodiversity in Desert Margins through sustainable utilisation; while specific objectives are to: (a) develop and implement strategies for conservation, restoration and sustainable use of dryland biodiversity (to enhance ecosystem function and resilience); and (b) recommend policies for and approaches to sustainable natural resource management to key government decision makers, farmers and field practitioners.

The project will be evaluated on the basis of:

1. **Execution performance.** Monitoring will concentrate on the management and supervision of project activities, seeking to increase the efficiency and effectiveness of project implementation. It is a continuous process, which will collect information about the execution of activities programmed in the annual workplans (Annex 2), advise on improvements in method and performance, and compare accomplished with programmed tasks. This activity will be the direct responsibility of the DMP Coordinator, under the supervision of the Executive Committee (Execom). See Table 3.1 for the execution performance indicators.
2. **Delivered outputs.** Ongoing evaluation will assess the project's success in producing each of the programmed outputs, both in quantity and quality. Internal assessment will be continuously provided by the Sub-regional Coordinators, and mid-term and final evaluations of outputs will be carried out by external consultants contracted by UNEP in consultation with ICRISAT [and by consultants contracted by Scientific and Technical Advisory Panel]. See Table 3.2 for a summary of expected outputs by project objectives, and Annex B for a detailed list of project activities and corresponding outputs.
3. **Project performance.** Performance evaluation will assess the project's success in achieving the third of its objectives (above). Monitored internally through reports and meetings, especially of the Executive Committee, and by the project Steering Committee (SC), success will be evaluated twice during the project life (after two and four years of project execution) and at the end by external consultants contracted by UNEP in consultation with ICRISAT. See Table 3.3 for a summary of the project performance indicators.
4. **Project impact.** Two major areas have been identified for impact assessment, namely: i/ poverty alleviation and ii/ biodiversity conservation and sustainable use. Impact assessment in these two areas will depend upon the phases and milestones of the project. The tools, methods

and indicators for measuring impact will be sorted out during an initial methodology workshop to ensure that a standardized framework is shared by all involved countries.

The rest of the presentation is in tabular form, as set out below:

Table 3.1 lists the indicators of project execution performance.

Table 3.2 describes inputs and expected outputs and their timings. See also the Activity Plan, Annex 2.

Table 3.3 summarizes indicators of project performance.

Table 3.4 distinguishes the monitoring and evaluation responsibilities respectively of UNEP, of DMP Coordination Unit (DMP CU), the DMP Execom, and of the DMP SC.

Table 3.5 sets out the monitoring and evaluation reports, their content, timing and responsibility.

Table 3.6 sets out the principal reports by area of activity, expected date, and drafting responsibility.

Further detail on stakeholder involvement, and on dissemination of information to a wider public, is provided in Annex E.

---

### **Table 3.1 Indicators of project execution performance**

- DMP CU is functioning efficiently, and is served by effective scientific advisors.
  - Execom is tracking implementation progress and project impact, and providing guidance on annual workplans.
  - SC is providing policy guidance, especially on achievement of project impact.
  - Half-yearly and annual activity and progress reports are prepared in a timely and satisfactory manner.
  - Half-yearly disbursement plans and half-year and annual financial reports are prepared in a timely and satisfactory manner.
  - Performance targets are achieved as specified in the annual operating plan.
  - Deviations from the annual operating plan are corrected promptly and appropriately.
  - Disbursements are made on a timely basis, and procurement is achieved according to the procurement plan.
  - Audit reports and other reviews show sound financial practices.
-

**Table 3.2 Description and timing of expected outputs by project objectives**  
(SEE ANNEX 2: WORKPLAN AND TIMETABLE; ‘BEGUN’ MEANS WORK COMMENCED DURING THE PREPARATORY PHASE)

Must be read together with country implementation plans

Objectives and inputs	Outputs	Start	Finish	Outcomes
1.	See prodoc			
2.	See prodoc			
3.	See prodoc			
4.	See prodoc			
5.	See prodoc			
6.	See prodoc			
7.	See prodoc			

**Table 3.3 Indicators of project performance**

(SEE ALSO ANNEX B)

**Indicators of improved understanding of ecosystem status and dynamics with regard to loss of biodiversity**

- At least 10% of communities in target areas promoting sustainable ecosystems management technologies by year 3

**Indicators of developed and implemented strategies for conservation, restoration and use of degraded agro-ecosystems.**

- At least 3 technologies developed by year 3
- At least 1 technology implemented at each site by year 5

**Indicators of stakeholders’ capacity enhancement**

- At least 10% of target populations able to apply sustainable community based NRM principles with limited outside assistance by end of project
- 90% of partners have their intervention capacity strengthened
- All structures of stakeholders’ participation

**Indicators of tested and promoted alternative livelihood systems**

- At least 5 different alternative livelihood activities being practiced in target area of each implementing country by end of project

### **Indicators of formulated and implemented policies and guidelines**

- At least one policy guideline formulated in a participatory manner at local community level by year 2
- Formulated guidelines are tested per country site by project end

### **Indicators of implemented participatory natural resource management strategies**

- 50% of target populations have one or two integrated soil fertility technologies

### **Indicators of target populations' involvement in each stage of the project cycle**

- All the major stakeholders (farmers, NGOs, CBOs, NARS etc..) are involved in the design, implementation and follow-up/evaluation of the project

The 'matrix for the monitoring of impact indicators of the DMP' was fine-tuned during the initial methodology workshop that was held at the start of implementation of Phase 1, where the methodology for measuring proposed indicators was defined as follows.

### **Methodology for measuring proposed indicators**

- 1.) Ecosystems stability: Number of arthropods existing in the target area is used as an indicator.
- 2.) Restoration of biodiversity: Presence of key plant and animal species in rehabilitated lands
- 3.) Soil carbon status: quantified by:
  - Measuring carbon stocks in trees
  - Measuring understorey and herbaceous plants including grasses
  - Measuring soil C stocks
  - Measuring litter of C stocks

The methodology used to measure carbon stocks in farming and other terrestrial ecosystems consists of taking carbon stocks, and is a part of the major global effort to slow the accumulation of atmospheric CO<sub>2</sub> by absorbing C into soil and vegetation. The difference in carbon stocks taken at different time periods is an indication of the amount of carbon sequestered within that period and the role of different technologies in such sequestering can be evaluated.

- 4.) Ratio of C/N budgets for evaluating sustainability of different land use systems. This is also a good indicator of soil fertility status
- 5.) Level of income at household level
- 6.) Improved livelihoods  
The number of rural families that have diversified income sources (farm and non-farm) is determined.

**Table 3.4 Monitoring and evaluation responsibilities**

UNEP	DMP CU	Execom	Steering Committee
Monitor the agreed M&E plan in accordance with the terms of agreement with GEFSEC	Establish reporting guidelines for country leaders, and ensure that they meet reporting dates and provide reports of suitable quality	Receive half-yearly activity and progress reports, sub-regional coordinators' / advisors' reports, and all substantive reports from countries; and as a 'peer-review' group use them to annually review the progress of work in the project as a whole	Receive consolidated half-yearly activity and annual progress reports, and all substantive reports, and provide policy guidance to the project on any matters arising from a reading of these reports
Receive consolidated half-yearly and annual activity, progress and financial reports and copies of all substantive reports, from DMP CU	Review and comment on half-yearly and annual activity and progress reports, sub-regional coordinators' / advisers' reports, and all substantive reports submitted by countries	Advise DMP CU on implementation problems that emerge, and on desirable modifications to the workplan for the succeeding year	Assist the DMP CU and Execom in developing linkages with other projects, thus ensuring the wider impact of project work
Task manager or deputy to attend and participate fully in general project meetings, and meetings of the Execom and SC	Prepare consolidated half-yearly progress reports and annual summaries for UNEP, and forward substantive and financial reports, with comment as appropriate, in a timely manner to UNEP	In particular, review progress and any problems in relations with stakeholders, affecting success in project impact	Provide overall guidance for the project implementation
Engage and prepare terms of reference for independent M&E consultants to conduct the mid-term reviews and final evaluation	Carry out a programme of regular visits to countries to supervise activities, and pay special attention to those countries with serious implementation problems	Advise DMP CU on the appointment of internal STAT teams or recruitment of external scientific advisers, and on the need for specialized training courses	
Facilitate the selective review of the project by STAP and/or GEFSEC			
Carry out such other monitoring as is determined in collaboration with DMP CU	Establish terms of reference for any scientific advisers (or internal STAT teams) to be engaged as consultants to advise on particular areas of expertise, and/or provide specialized training for participants. Receive and evaluate the reports of these advisers, and act on any problems noted within them	Monitor progress in the capacity-building programme of the project, and advise DMP CU on steps to enhance this programme	

Notes:

DMP CU consists of the DMP Coordinator, the two additional Sub-regional (ICRISAT) Coordinators, together as appropriate with the Programme Administrative Officer.

**The Execom consists of the following members: One Anglophone/Eastern African Representative, one Francophone/West African Representative, one representative each from UNEP (Task Manager), UNDP, ICRISAT and the DMP Coordinator.**

**The Steering Committee consists of 14 members:**

One National Co-ordinator per country (9), one representative of the International Agricultural Research Centers (1), one representative from the convening center (ICRISAT), one representative each from UNEP and UNDP (2) and the DMP Coordinator as its ex-officio member.

The DMP CU will be guided by the Execom to conduct quality control on submitted reports.

It is recommended that the national coordinator report be endorsed by the national steering committee before being sent to the sub-regional coordinator. It is recommended that national reports be sent to the sub-regional coordinator with copy to the global coordinator. The sub-regional coordinator will be in position to synthesize reports for onward transmission and provide quick response to national coordinators. TORs for the sub-regional coordinator must be clearly designed by ICRISAT to ensure seamless flow of information and funding between the DMP CU and national levels.

**Table 3.5 Monitoring and evaluation reports**

This refers to the 6-monthly administrative and financial reporting, with a fixed format to be respected by coordinators at the national and global levels, i.e. from country to ICRISAT and from ICRISAT to UNEP (see annexes 6a and 6b pp. 19-20). ICRISAT financing rules (justification of at least 75% of expenses) will be applied to all reports.

Report	Format and Content	Timing	Responsibility
<b>Activity and Progress Reports</b>	(Reports will use a standard format to be developed following the UNEP Progress Report model)		
Document the completion of planned activities, and describe progress in relation to the annual operating plan	Person reporting and Date  Activity name and accomplishments within each activity this half-year	Half-yearly	Country coordinators and CG and ARIs leaders, to DMP Coordinator for use as described in Table 3.4 (above)
Review any problems or decisions with an impact on performance	Targets for the next half-year  Comment on performance on progress toward project goals, and problems/constraints		
Provide adequate substantive data on methods and outcomes for inclusion in consolidated project half-yearly and annual progress reports	Report on any unanticipated results and opportunities, and on any checks to project progress  Any highlights		
The Project Implementation Review (PIR) reports		Yearly	
<b>Consolidated Half-yearly Progress Reports</b>	(Reports will use a standard format to be developed following the UNEP Progress Report model)		UNEP Task Manager / DGEF to GEF Secretariat
Provide a summary of half-yearly reports of progress, for UNEP monitoring and transmission	<b>Summary of Country Coordinators' reports and participating CG and ARIs</b>  Report on progress in each project activity, within each Country and in the project as a whole  Activities of scientific advisers and specialized training programmes  Summary of problems and proposed action  Highlights	Half-yearly, within 30 days of end of each reporting period, but not required where a Consolidated Annual Summary Report is due	DMP Coordinator with input from Sub-regional Coordinators for forwarding to UNEP and [Execom] and SC
<b>Consolidated Annual Summary Progress reports</b>	(Reports will use a standard format to be developed following the UNEP Progress Report model)		
Presents a consolidated summary review of progress in the project as a whole, in each of its activities and in each output	A consolidated summary of the half-yearly reports, with evaluation  Summary of progress and of all project activities	Yearly, within 45 days of end of the reporting period	DMP Coordinator [with Execom] forwarding to UNEP and SC
Provides summary review and assessment of progress under each activity set out in	Description of progress under each activity and in each output		

the annual workplan, highlighting significant results and progress toward achievement of the overall work programme	Review of delays and problems, and of action proposed to deal with these		
Provides a general source of information, used in all general project reporting	Review of plans for the following period, with report on progress under each heading		
<b>Financial reports</b>	(Standardized format to be developed compatible with UNEP form in Annexes 4, 5a and 5b)		
Details project expenses and disbursements	Disbursements and expenses in categories and format as set out by the DMP Financial Officer, together with supporting documents	Half-yearly	All contracted institutions, to DMP Coordinator
<b>Summary financial reports</b>	(Standardized format, see Annex 4, 5a and 5b)		
Consolidates information on project expenses and disbursements	Disbursements and expenses by category. Requirement for coming period [Annexe 5a]	Half-yearly, within 30 days of end of period	DMP Financial Officer, for forwarding to UNEP
<b>Financial audits</b>			
Annual audit by an audit team appointed by the ICRISAT?? / CGIAR?? / UN Board of External Auditors	Audit of ICRISAT accounts for project management and expenditures	Annual	ICRISAT

**Table 3.6 Principal Reports by title, number, timing and responsibility**

This refers to the technical/scientific reporting. The global coordinator will provide a standardized format for technical/scientific reporting as soon as possible after the initial methodology workshop. Any additional scientific publication or related disseminated material must be attached to the national reports. For results dissemination and utilization, refer to the draft plan in annex 2.

<b>Report, number and title</b>	<b>Format and Content</b>	<b>Expected date</b>	<b>Responsibility</b>
Reports on particular aspects as listed in the workplan, annex 2	Content will follow guidelines provided by DMP CU. There will be no standardized format.	Periodic. Expected dates as below	leaders to DMP Coordinator (Consolidated project-wide reports by the DMP coordinator will follow certain reports, for forwarding to UNEP and SC 3 .months after submission of from countries....)
1. Biodiversity database	As above		As above
2. Biodiversity inventory, with review of causes of land degradation	As above		As above
3. Social analysis of demonstration site populations	As above		As above
4. Comparative information on management regimes at demonstration sites with revisions to database	As above		As above
5. Mid-term report on	Summary of outcomes and progress,		As above

training programmes	with plans for the balance of the project period		
6. Integration of scientific with community information on resources	Content to follow guidelines provided by DMP CU	As above	
7. Preliminary results from measurement and experimental programmes	As above	As above	
8. Final results of measurement and experimental programme	As above	As above	
9. Technical and policy recommendations	As above	As above	
10. Potential sites for replication of demonstrated agrotechnologies	As above	As above	
11. Final report on training programmes	Detailed statement on output of training programmes	As above	
12. Final report on country reports	Summary of Country results and achievements	As above	
13. Final Project report	Summary and internal evaluation of project results and achievements	Within 4 months of end of project	DMP Coordinator, SC

## ANNEX 4

### UNEP INVENTORY OF NON-EXPENDABLE EQUIPMENT PURCHASED AGAINST UNEP PROJECTS UNIT VALUE US\$1,500 AND ABOVE AND ITEMS OF ATTRACTION

As at \_\_\_\_\_

Project No. \_\_\_\_\_

Project Title \_\_\_\_\_

Implementing Agency: \_\_\_\_\_

Internal/SO/CA (UNEP use only) \_\_\_\_\_

FPMO (UNEP) use only) \_\_\_\_\_

Description	Serial No.	Date of Purchase	Original Price (US\$)	Present Condition	Location

The physical verification of the items was done by:

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## **ANNEX 5A: FORMAT FOR CASH ADVANCE STATEMENT**

### **Cash advance statement**

Statement of cash advance as at .....

And cash requirements for the quarter of .....

Name of cooperating agency /

Supporting organization

Project No.

Project title

_____
_____
_____

#### **I. Cash statement**

1. Opening cash balance as at ..... US\$ \_\_\_\_\_

2. Add: cash advances received:

<b>Date</b>	<b>Amount</b>
.....	.....
.....	.....

3. Total cash advanced to date US\$ \_\_\_\_\_

4. Less: total cumulative expenditures incurred US\$ (\_\_\_\_\_)

5. Closing cash balance as at ..... US\$ \_\_\_\_\_

#### **II. Cash requirements forecast**

6. Estimated disbursements for quarter  
ending ..... US\$ \_\_\_\_\_

7. Less: closing cash balance (see item 5, above) US\$ (\_\_\_\_\_)

8. Total cash requirements for the  
quarter ..... US\$ \_\_\_\_\_

Prepared by \_\_\_\_\_

Request approved by \_\_\_\_\_

Duly authorised official of cooperating agency/ supporting  
organisation

**ANNEX 5B: FORMAT OF QUARTERLY PROJECT EXPENDITURE ACCOUNTS FOR SUPPORTING ORGANIZATIONS**

Quarterly project statement of allocation (budget), expenditure and balance (expressed in US\$) covering the period

..... to .....

Project No. .... Supporting Organization .....

Project title: .....

Project commencing: ..... (date) Project ending: ..... (date)

Object of expenditure by UNEP budget code	Project budget		Expenditure incurred				Unspent balance of budget allocation for year	
	Allocation for year.....		For the quarter .....		Cumulative expenditures this year .....		.....	
	m/m (1)	Amount (2)	m/m (3)	Amount (4)	m/m (5)	Amount (6)	m/m (7)	Amount (2)-(6)
1100 Project personnel								
1200 Consultants								
1300 Administrative support								
1400 Volunteers								
1600 Travel								
2100 Sub-contracts								
2200 Sub-contracts								
2300 Sub-contracts								
3100 Fellowships								
3200 Group training								
3300 Fellowships								
4100 Expendable equipment								
4200 Non-expendable equipment								
4300 Premises								
5100 Operation								
5200 Reporting costs								
5300 Sundry								
5400 Hospitality								
99 GRAND TOTAL								

Signed: \_\_\_\_\_

Duly authorized official of supporting organization

**NB: The expenditure should be reported in line with the specific object of expenditures as per project budget**

**ANNEX 5C: UNEP/GEF REPORT ON PLANNED PROJECT CO-FINANCE AND ACTUAL CO-FINANCE RECEIVED**

<b>UNEP/GEF REPORT ON PLANNED PROJECT COFINANCE AND ACTUAL COFINANCE RECEIVED</b>						
(report required as at 30 June and 31 December during project execution)						
<b>Title of Project:</b>						
<b>Project Number:</b>	PMS:GF/			IMIS:GF/		
<b>Name of Executing Agency:</b>						
<b>Project Duration:</b>	<b>From:</b>		<b>To:</b>			
<b>Reporting Period:</b>						
<b>Source of Cofinance</b>	<b>Cash Contributions</b>			<b>In-kind Contributions</b>		<b>Comments</b>
	Budget original	Budget latest revision	Received to date	Budget original	Budget latest revision	Received to date
<b>Additional Cofinance:-</b>						

<b>Total</b>	0	0	0	0	0	0	
							<i>All amounts in US dollars</i>
<b>Name:</b>							
<b>Position:</b>							
<b>Date:</b>							

## **ANNEX 6A: Format of Half-Yearly Progress Report to GEF**

### **1. IDENTIFIERS**

**Country:**

**Project title:**

**Focal Area:**

**Implementing Agency:**

**GEF Funding:**

**Co-funding:**

### **2. FINANCIAL STATUS**

(Commitment and disbursement data as of the date of the report).

### **3. IMPLEMENTATION PROGRESS**

(Statement of progress of the project components in relation to agreements or plans. Assessment of Overall Status. Report on the reasons, in the event of delays, cost over-run or positive deviations).

### **4. ACHIEVEMENT OF PROJECT ACTIVITIES**

(Assessment of likelihood that project objectives will be achieved).

### **5. SPECIFIC ASSESSMENT OF FACTORS RELATING TO THE BIODIVERSITY FOCAL AREA**

**ANNEX 6b Format for Half Yearly Progress Report to UNEP**

**as at 31 March, 30 June, 30 September and 31 December**

Implementing Organization: \_\_\_\_\_

Project No: \_\_\_\_\_

Project Title: \_\_\_\_\_

Reporting Period: \_\_\_\_\_

1. Project Personnel required (Task Manager/Project Coordinator and Administrative Assistants)

Name / Functional Title	Nationality	Duration of Contract	Fee (in US\$)	Brief Terms of Reference	Object of Expenditure (code per the budget e.g 1101, 1301 etc..)

2. Experts/Consultants required:

Name / Functional Title	Nationality	Duration of Contract	Fee (in US\$)	Brief Terms of Reference	Object of Expenditure (code per the budget e.g 1201, 1202 etc..)

3. Sub-contracts required:

Name and Address of Organisation	Object of Expenditure (code per the budget e.g 2201, 2301 etc..)

4. Major items of equipment ordered: (Value over \$1,500)

Please attach to the 2nd quarter (April - June) and 4th quarter (Oct - Dec) progress reports an **inventory** of all non-expendable equipment, indicating date of purchase, description, serial number, quantity, location, cost and remarks, and for vehicles, give mileage report (see separate inventory list format).

5. Status of the implementation of the activities listed under **WORKPLAN** in the project document, and status of documents, reports, manuals, guidelines, etc.

(a) List actual activities/outputs\* **completed/produced** under the following headings where appropriate:

(Please tick appropriate box)

(i) **Meetings** (envisaged under the project)

Intergovernmental (IG) Mtg ☐ Expert Group Mtg ☐ Training/Seminar Workshop ☐ Others ☐

Title \_\_\_\_\_

Venue and Dates \_\_\_\_\_

Convened by \_\_\_\_\_ Organized by \_\_\_\_\_

Report issued as doc. no. /symbol \_\_\_\_\_ Languages \_\_\_\_\_ Dated \_\_\_\_\_

For Training Seminar/Workshop, please indicate: No. of participants \_\_\_\_\_ and attach **Annex** giving names and nationalities of participants.

**Annex (Participants List, Quarterly Progress Report))**

Name	Nationality

(ii) **Printed Materials**

Report to ☐ (IG) Mtg ☐ Technical Publication ☐ Technical Report ☐ Others

Title \_\_\_\_\_

Author(s)/Editor(s) \_\_\_\_\_

Publisher \_\_\_\_\_

Symbol (UN/UNEP/ISBN/ISSN) \_\_\_\_\_

Date of publication \_\_\_\_\_ (when the above reports have been distributed, attach the distribution list).

(iii) ☐ **Technical Information** ☐ **Public Information**

Description \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Dates \_\_\_\_\_

(iv) **Technical Cooperation**

☐ Grants and Fellowships ☐ Advisory Services ☐ Others (describe)

Purpose \_\_\_\_\_

\_\_\_\_\_

Place and Duration \_\_\_\_\_

For Grants/Fellowships, please indicate:

Beneficiaries Countries/Nationalities Cost (in US\$)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(b) Status of activities/outputs **underway**:

- (i) Meetings, seminars, workshops study tours, training courses, fellowships under preparation
- (ii) Status of documents, reports, manuals, guidelines being prepared
- (iii) Status of studies, surveys underway
- (iv) Status of implementation of other activities

6. Summary of the problems encountered in project delivery (if any)

7. Actions taken or required to solve the problems identified in (5) above

## **ANNEX 7: FORMAT FOR TERMINAL REPORT**

### **TERMINAL REPORT (For External Projects Only)**

**Implementing Organization** \_\_\_\_\_

**Project No** \_\_\_\_\_

**Project  
Title:** \_\_\_\_\_

**1. Project Needs and Results**

Re-state the needs and results of the project.

**2. Project activities**

Describe the activities actually undertaken under the project, giving reasons **why some activities were not undertaken, if any.**

**3. Project outputs**

Compare the outputs generated with the ones listed in the project document.

List the actual outputs **produced but not included in previous Progress Reports** under the following headings

(Please tick appropriate box)

**(a) MEETINGS (UNEP-convened meetings only)**

☐ Inter-governmental (IG) Mtg. ☐ Expert Group Mtg. ☐ Training Seminar/Workshop ☐ Others

Title: \_\_\_\_\_

\_\_\_\_\_

Venue and  
dates \_\_\_\_\_

Convened by \_\_\_\_\_ Organized by \_\_\_\_\_

Report issued as doc. No/Symbol \_\_\_\_\_ Languages \_\_\_\_\_

Dated \_\_\_\_\_

For Training Seminar/Workshop, please indicate: No. of participants \_\_\_\_\_ and attach **annex** giving names and nationalities of participants.

**(b) PRINTED MATERIALS**

☐ Report to IG Mtg. ☐ Technical Publication ☐ Technical Report ☐ Others

Title: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Author(s)/Editor(s)

\_\_\_\_\_

Publisher

\_\_\_\_\_

Symbol(UN/UNEP/ISBN/ISSN)

\_\_\_\_\_

Date of publication

\_\_\_\_\_

(When technical reports/publications have been distributed, attach **distribution list**)

**(c) ☐ TECHNICAL INFORMATION**

**☐ PUBLIC INFORMATION**

Description \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Dates

\_\_\_\_\_

**(d) TECHNICAL COOPERATION**

☐ Grants and Fellowships

☐ Advisory Services

☐ Staff Missions

☐ Others (describe)

Purpose \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Place and duration

\_\_\_\_\_

For Grants/Fellowships, please indicate:

Beneficiaries

Countries/Nationalities

Cost(in US\$)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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(f) **OTHER OUTPUTS/SERVICES**

For example, Networking, Query-response, Participation in meetings etc.

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4. **Use of outputs**

State the use made of the outputs.

5. **Degree of achievement of the objectives/results**

On the basis of facts obtained during the follow-up phase, describe how the project document outputs and their use were or were not instrumental in realizing the objectives/results of the project.

6. **Conclusions**

Enumerate the lessons learned during the project execution. Concentrate on the management of the project, indicating the principal factors which determined success or failure in meeting the objectives set down in the project document.

7. **Recommendations**

Make recommendations to:

- (a) Improve effect and impact of similar projects in the future;
- (b) Indicate what further action might be needed to meet the project objectives/results.

8. **Non-expendable equipment (value over US\$1,500)**

Please attach to the terminal report a **final** inventory of all non-expendable equipment (if any) purchased under this project, indicating the following:

Date of purchase, description, serial number, quantity, cost, location and present condition, together with your **proposal** for the disposal of the said equipment.

## **ANNEX 8a: PRINCIPAL CONTRACTED PERSONNEL, AND INSTITUTIONAL ARRANGEMENTS**

### **RESPONSIBILITIES OF PROJECT STAFF AND COUNTRY COORDINATORS**

THIS DOCUMENT SETS OUT THE TERMS OF REFERENCE FOR PERSONNEL AND FOCAL POINTS UNEP, THE GEF IMPLEMENTING AGENCIES, THE INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS, PROJECT EXECUTING AGENCY AND (1) THE NATIONAL AGRICULTURAL RESEARCH SYSTEMS (NARS), (2) INTERNATIONAL AGRICULTURAL RESEARCH CENTERS (IARCS), (3) ADVANCED RESEARCH INSTITUTES FOR THE GEF FUNDED PROJECT ENTITLED “DESERT MARGINS PROGRAMME”

#### **IMPLEMENTING AGENCY STAFF**

##### ***UNEP Task Manager (part time)***

1. The Implementing Agency Task Manager will receive all consolidated progress reports, all substantive reports, and all financial reports from the DMP Coordinator of the Executing Agency, ICRISAT. He/she will comment on them and report to UNEP/DGEF. He/she will be a member of the Executive Committee of DMP. He/she will be particularly responsible for monitoring project progress on behalf of UNEP, in accordance with the Monitoring and Evaluation Plan (Annex 3), and report on this through the UNEP/DGEF to the GEF Secretariat.

##### ***UNEP/DGEF Focal Point at the DMP Steering Committee***

2. The particular task of the UNEP DMP Steering Committee Focal Point is to ensure compatibility between project activities and GEF goals and requirements. He/she will follow the process of the project for GEF purposes through regular consultation with UNEP Task Manager. He/she will be particularly responsible for identifying issues arising from the DMP project implementation that are valuable inputs for the GEF yearly project implementation review exercise (PIR).

##### ***UNEP Fund Management Officer (FMO) (part time)***

3. The task of the Fund Management Officer is to review financial reports and requests from ICRISAT, and ensure a smooth flow of funds according to the Disbursement Schedule. He/she will receive copy of financial reports directly from ICRISAT DMP / Program Financial Officer.

#### **ICRISAT DMP STAFF AND CONTRACTED PERSONNEL**

##### **A. STAFF**

##### ***DMP Coordinator, based at Sadoré, Niger*** (Full-time, contract paid from DMP Project Fund ).

4. The DMP Coordinator will have the overall responsibility for project execution and coordination between the organizations, units and individuals within the project, as well as externally. He/she will be directly involved (with the Programme Administrative Assistant) in the drawing up of contracts, and in monitoring compliance with contract conditions, especially reporting schedules. He/she will have responsibility for arranging meetings of the Executive Committee, Steering Committee (virtually or otherwise) regional business meetings. He/she will act as the focal point for all formal correspondence and reports between Country coordinators, CG participating centers. ARIS and DMP/CU. He/she will work

closely with the project Executive Committee on the conduct and development of the project, ensuring that reporting schedules are maintained, and (as required) assist in editing and disseminating project results. In consultation with the Programme Administrative Assistant, raise travel plans and make travel arrangements for project participants. The DMP Coordinator will serve as secretary to the Steering Committee meetings. He/she will liaise with the Implementing Agency concerning the overall guidance, monitoring and evaluation of the project. The DMP Coordinator will oversee the activities of sub-regional coordinators (in ICRISAT offices in West Africa in Niamey, Niger and Southern Africa in Bulawayo, Zimbabwe). He/she will give assistance to the DMP project Country Coordinators. He will arrange for DMP internal Ad-hoc Scientific and Technical Advisory Teams for assisting country partners with problem issues.

***Programme Financial Officer, based at Sadoré, Niger (Part-time paid)***

5. The Programme Financial Officer will act as responsible officer for the management of the GEF funds for DMP at ICRISAT. He/ she will be in charge of regular monitoring of the budget and the cash flow. He / she will also be responsible for preparation of contracts for project participants and will assist the DMP Coordinator in monitoring financial performance of the project. Will receive and review financial reports by the country DMP Team Leaders. Will prepare financial reports on the project to UNEP for monitoring and reporting to the GEF Secretariat. Will perform other duties within the financial administration of the project as required. He/she will copy final reports to Fund Programme Management Officer at UNEP. He/she will liaise with country DMP Team Leaders in financial matters.

**Additional Responsibilities include:**

Accounting and procurement including:

- Maintain books and accounts records on Sunsystems, in accordance GEF with standards and financial guidelines; exercise budgetary control on expenditures for budget holders to remain within allocated budget; issue monthly statements of expenditures to users and interested parties; prepare monthly bank account reconciliation; prepare monthly treasury cash in flow and cash out for cash requirement on operations;
- Procurement and custodianship of assets, including (a) implementation of administrative and financial policies and procedures; (b) budget preparation and control; (c) procurement of supplies and services; (d) planning and control of logistical support activities; (e) recommending and improving administrative procedures to NARS for effectiveness and efficiency in accounting records keeping;
- Prepare books for internal and external audits; prepare response to audit observations as appropriate; ensure compliance with audit recommendations.
- Seek guidance from the DMP Coordinator where necessary including: (a) monitoring of MOU, MOA; (b) monitoring financial transactions with all partners. (c) liaise with bank(s).
- Ensure internal control and study control systems and procedures relating to all the functions in the accounting units at PEA and initiate such changes as may be found necessary to improve productivity and performance
- Maintain close contacts with NARS to exchange information to ensure coherent operation at respective locations.
- Ensure that terms and conditions in the financing agreements between partners and DMP/UNEP are strictly adhered to and implemented including timely, complete and correct reports to partners.
- Will perform any other duties that may be assigned by the Project Coordinator including participation in various meetings as necessary.

***Programme Administrative Assistant, based at Sadoré, Niger (full time)***

6. Under the overall and direct supervision of the Global Coordinator:

- Assist the Coordinator to manage daily operational and administrative task of the program
- Help to prepare reports and working document (presentation, slides, brochures, etc.) in relation of the consortium mandate
- Assisting in organizing meetings, workshops, seminars etc. Communicating with the designated focal points in the countries for all practical arrangements concerning the workshops
- Assist the coordinator to provide information to DMP stakeholders, UNEP-GEF collaborators
- Act as liaison between the DMP and other partners, to ensure clear communication on the consortium activities and complete any other duties related to the program.
- Will perform any other tasks assigned by the DMP Coordinator

***Chairman of the Steering Committee (The Director General of ICRISAT)***

7. Together with the DMP Coordinator and Project Steering Committee provides guidance for the overall execution of DMP, as required. Will keep in close and regular liaison with the DMP Coordinator as focal point, and provide advice, as required, to the Programme Financial Officer on the drawing up of contracts and on allocation of the project budget. He/she will provide Scientific oversight. Separation and interrelation of the responsibilities of the Steering Committee on the one hand, and the DMP Coordinator, Programme Financial Officer on the other, are set out in greater detail in Annex 2, Table 4.1.

***Sub-regional coordinators (two)- one Farming System specialist in West Africa based at Sadoré and a Soils Scientist in Southern Africa based in Bulawayo (Zimbabwe) (full-time paid at 50% DMP project and 50% ICRISAT)***

8. Will report to the DMP Coordinator for the progress and conduct of project work in their areas. Under the supervision of the DMP Coordinator, will have responsibility to ensure Technical backstopping to undertake contracted tasks to Country Team Leaders. He/she will be responsible to the DMP Coordinator for timely reporting on progress, and for ensuring that financial records are maintained by the contracted institution. In addition to the above, will follow up the progress of work in associated countries to ensure that a coherent programme is being undertaken, and integrate their reports into a regional summary. Will advise the DMP Coordinator as focal point if there are difficulties impeding progress in any associated country. Will carry out coordination visits. Will facilitate visits by Country Coordinators and Advisors (STAT) and by other visitors.

***9. Natural Resources management Officer (full time)***

- She/he needs to have skills in genetic diversity analysis and assessment, database management and ecosystems modelling. He/She will need to develop and carry out detailed assessment of the status of biodiversity in the project sites including making an inventory, and ecogeographic assessment. He will develop strategy to meet Project requirements.
- She /he will develop strategies and contribute to the study of the relationship between biodiversity and the climatic and socio-economic and policy variables at the project benchmark sites
- She/he will develop strategic and contribute to the assessment of the impact of climate change, land degradation, land use change processes occurring at the project sites on its biodiversity.
- She/he will develop strategies for the sustainable use and conservation of biodiversity in the project sites.
- She/he will assist in the training of relevant project implementation partners on techniques of biodiversity conservation and sustainable use.

### ***Country Coordinators***

9. The Country Coordinators will be appointed by the lead national institutions.

The nine Country Coordinators will be responsible for the progress and conduct of project work in their areas and report work progress to the DMP Coordinator. Under the guidance of the DMP Coordinator will ensure for maintaining an adequate partnership to undertake the contracted tasks, and for carrying out the DMP country work programme according to the terms of reference of each contract. Based on agreed project activities, the Country Coordinators will facilitate budget allocation and disbursement of funds within the terms of the contract. He/she will be responsible for timely reporting on progress, and for ensuring that accurate financial records are maintained, and regularly reported to the DMP Coordinator by the contracted institutions. Will be required promptly to advise the DMP Coordinator of difficulties that arise which may impede the progress of work.

### **CG CENTERS and ARIs Focal Points**

Each CG Center and ARI participating in the project will appoint a focal point to act as a contact person/liaison between the center/institution and DMP CU.

The focal point will be responsible for the progress and conduct of project activities in their center/institution. He/She will be responsible for ensuring that all technical and financial report are prepared and submitted to the DMP Coordinator according to agreed project work plan and contractual obligations.

Will advise the DMP Coordinator if there are difficulties impeding progress in achieving contracted tasks.

## ANNEX 8b: CONTRACT ARRANGEMENTS <sup>1</sup>

### MANAGEMENT COORDINATION

1. The DMP Coordinator, a full-time contract appointee who will be the focal point for project management, is hired on 3-years renewable contract by the ICRISAT, and is stationed in Sadore Niamey, Niger.

### SUB-REGIONAL COORDINATION

2. This is the responsibility of the two ICRISAT appointed staff, one in West Africa (Niamey, Niger) and the other in Southern Africa (Bulawayo, Zimbabwe). Apart from support for facilities and payment for necessary DMP-related travel (which are provided by the project) blocks of their time are to be provided through institutional arrangements by ICRISAT.

### COUNTRY ARRANGEMENTS IN GENERAL

3. Country Coordinators are directly contracted by the lead Institution in each country to manage work as described in Annex 8a (above). ICRISAT will also maintain contracts with these institutions for the financial management of project work. Each cooperating institution within a country will have formalized contracts through letters of understanding between the lead Institution and themselves. These letters confirm the **institutional commitment** to support the work of DMP and provide services as appropriate. The disbursement of funds is subject to the signing of contract by collaborating institutions.

### WEST AFRICA

4. The Sub-regional coordination is to be provided by ICRISAT, Sadore Niamey, Niger through the DMP Coordinating Office.

5. The DMP work in Burkina Faso is to be managed under institutional contracts signed between INERA Burkina Faso and ICRISAT who will handle the funds. INERA will also subcontract with other DMP partners in Burkina Faso as appropriate.

6. The DMP work in Mali is to be managed under institutional contracts signed between IER Mali and ICRISAT who will handle the funds. IER will also subcontract with other DMP partners in Mali as appropriate.

7. The DMP work in Niger is to be managed under institutional contracts signed between INRAN, Niger and ICRISAT who will handle the funds. INRAN will also subcontract with other DMP partners in Niger as appropriate.

8. The DMP work in Senegal is to be managed under institutional contracts signed between ISRA, Senegal and ICRISAT who will handle the funds. ISRA will also subcontract with other DMP

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<sup>1</sup> Annex 8c provides selected information on each of the international and national institutions which will hold contracts for use of GEF funding.

partners in Senegal as appropriate.

#### EAST AFRICA/KENYA

9. The DMP work in Kenya is to be managed under institutional contract signed between the Kenya Agricultural Research Institute (KARI) and ICRISAT who will also handle the funds. KARI will also subcontract with other Kenyan DMP partners as appropriate.

#### SOUTHERN AFRICA

10. The DMP work in Botswana will be managed under institutional contract signed between the Botswana College of Agriculture (BCA) and ICRISAT who will handle the funds. BCA will also subcontract with other Botswana DMP partners as appropriate.
11. The DMP work in Zimbabwe will be managed under institutional contract signed between Agricultural Research Council of Zimbabwe and ICRISAT who will handle the funds. The Agricultural Research Council will also subcontract with other Zimbabwe DMP partners as appropriate.
12. The DMP work in South Africa will be managed under institutional contract signed between the Potchefstroom University for CHE, Faculty of Natural Sciences, School of Environmental Sciences and Development within the focus area: Environmental Sciences and Management and ICRISAT who will handle the funds. Potchefstroom University will also subcontract with other South African DMP partners as appropriate.
13. The DMP work in Namibia will be managed under institutional contract signed between the Desert Research Foundation of Namibian (DRFN) and ICRISAT who will handle the funds. DRFN will also subcontract with other Namibian DMP partners as appropriate.

## **ANNEX 8c: SUMMARY INFORMATION ON THE PARTICIPATING INSTITUTIONS**

### **International Institutions**

#### **1. INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS (ICRISAT)**

##### ***History and Mandate***

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, apolitical, international organization for science-based agricultural development. Established in 1972, it is Future Harvest centre of the Consultative Group for International Agricultural Research (CGIAR), it is one of 16 centres, and is supported by more than 50 governments, foundations, and development banks. ICRISAT has approximately 1200 staff, and an annual budget of about US\$24 million.

### **In-country Institutions**

#### **2. INERA, BURKINA FASO**

##### **INERA's Mandate**

The Institute for Environment and Agricultural Researches (INERA) is a specialized Institute of the National Center for Scientific and Technologic Research (CNRST) of Burkina Faso, which main mandates are: (i) to contribute in the implementation of the agricultural and environmental policies, (ii) to organize and manage the agricultural research and to contribute in valorization of the scientific and economic results, (iii) to promote a sustainable natural resources management, (iv) to conduct, follow and coordinate the researches activities carried out by national as well as foreign research structures, privates or publics, in group or individually. To be operational, INERA has a Directorate with decentralized services (regional) with Departments and Research Programs, Laboratories facilities and Support Units.

##### ***Staff***

In 1998, the staff of the Institute was composed of 171 scientists, 206 technicians and 285 administrative and support staff.

##### ***Funding***

INERA funding depended largely of external donors. For period 1995 to 1998 24% of the funding was provided by the World Bank, 5% by the USAID, 13% by the Netherlands, 28% by others donors and 30% by the Government. In the bilateral plan INERA is collaborating mainly with France, the United States, the Switzerland, the Sweden and the Netherlands. Sub-regional or international cooperation existed through the following regional and international centers: ICRISAT, IITA, WARDA, IWMI, the Institute of the Sahel and SAFGRAD. The associative networks put in place from the international agricultural research centers allowed to the scientists to participate in the research activities. The United States (UNDP/FAO), European Union and the World Bank, which financed the National Project for Agricultural Services Development (PNDSA) phase II (1998 – 2001), etc, control the multilateral cooperation...

#### **4. INRAN, NIGER**

##### ***History and Mandate***

The Institute National for Agricultural Research of Niger (INRAN) created in 1975 has the status of Public Institution with scientific and technical aspect which main mandate is to undertake and develop research in all agricultural sectors (agriculture, livestock, forestry, rural and socio-economic development). With the support of its partners (World Bank, European Union, IDRC, USAID), INRAN has developed a prospective vision prospective evolution of the agricultural sector in all its components through a strategic plan approved by all the partners, a systematic approach with a strong interdisciplinarity, a good knowledge of its intervention area, a regionalization of its activities and et a scientific system comprising of four research centers (CERRA), stations and laboratories facilities located in the different agro-ecological zones of Niger

The organization chart of INRAN is as follows: The Governing Board, the Management Committee, the Scientific and Technical Committee and the Directorate General. The Director General is assisted in his task by a Scientific Director, Administration and Financial Officer, and many others administrative support staff.

##### ***Staff***

In 2002, INRAN has 475 staff of which 80 scientists, 17 PhD, 36 MSc/DEA, 13 BSC and 14 other scientists in PhD level on training; administrative and technical managers and support staff.

##### ***Funding and Project Experience***

INRAN receives grants from the Government of Niger, and financial support from many others donors such as the World Bank, European Union, IDRC, and USAID. The annual financial contributions managed by INRAN for the implementation of its different research programs and expertise is around FCFA500 millions from Government and FCFA300 millions from other institutions.

#### **5. ISRA, SENEGAL**

##### ***History and Mandate***

The Institute for Agricultural Research of Senegal (ISRA) created in 1974 has the status for Public Institution with scientific and technical aspect which main mandate is to undertake and develop researches and all agricultural sectors (agriculture, forestry, rearing, fishing and rural and socio-economic development). With the support of its partners (World Bank, European Union, IDRC, USAID), ISRA has developed a prospective vision prospective evolution of the agricultural sector in all its components through a strategic plan approved by all the partners, a systematic approach with a strong interdisciplinarity, a good knowledge of its intervention area, a regionalization of its activities and et a scientific system comprising about thirty research centers, stations and laboratories facilities located in the different agro-ecological zones of Senegal

The organization chart of ISRA is as follows: The Governing Board, the Management Committee, the Scientific and Technical Committee and the Directorate General. The Director General is assisted in his task by a Scientific Directorate, a General Secretariat, the Computer and Management Unit.

##### ***Staff***

In 2001, ISRA has 481 staff of which 118 scientists and research assistants, 27 assistants, 49 administrative and technical managers, 287 technical, administrative and support staff.

### ***Funding and Project Experience***

ISRA is granted by the Senegal State and benefit from the financial support of many others donors such as the World Bank, GTZ, IDRC, European Union, JICA and USAID. The annual financial contributions managed by ISRA for the implementation of its different research programmes and expertise is 10 millions US\$.

## **6. KENYA AGRICULTURAL RESEARCH INSTITUTE (KARI)**

### ***History and Mandate***

The Kenya Agricultural Research Institute (KARI) is a semi-autonomous parastatal organization formed by an amendment of an Act of Parliament in 1979. In its initial stages between 1979 and 1989, KARI comprised the former East African Agriculture and Forestry Research Organisation (EAFRO) situated at Muguga. Between 1986 and 1989, with assistance from the World Bank, KARI was re-organized to absorb the Agricultural Research, and the Veterinary Research Divisions of the Ministry of Agriculture. By 1991 KARI had been re-organized as the main agricultural research institute in the Republic of Kenya. KARI has the mandate for all agricultural research including crops, livestock, natural resources and environmental conservation.

KARI comprises Headquarters as the base for institutional research planning, management, financing and accounting, and research centres as the homes of research programmes. The day to day management of the Institute is the responsibility of the Director assisted by three Deputies and 9 Assistant Directors.

### ***Personnel***

In June 1997 KARI research staff includes 113 PhD graduates, 408 with Masters and 65 research staff with Bachelors. Including all technical, logistic and management support staff, KARI has currently 5,337 personnel.

### ***Funding and Project Experience***

KARI as an institution is funded by the GoK and several donors including the World Bank, the Government of the Netherlands, Department For International Development (DFID, formerly ODA) of the United Kingdom, the USAID, ACIAR, SIDA, Rockefeller Foundation, UNDP, CIDA, GTZ and JICA, to conduct its research and undertake planned development. The second phase of the National Agricultural Research Programme, being implemented by KARI, has funding of over US\$190 million, donors providing about US\$109.6 million while GoK contributes US\$80.8 million.

## **7. BOTSWANA COLLEGE OF AGRICULTURE (BCA)**

### ***History and mandate***

The Botswana College of Agriculture (BCA) was established on 31 May 1991 when Act No.9 – Botswana College of Agriculture Act 1991, enacted by Parliament of Botswana came into effect. The college is a body corporate, and hence a parastatal under the Ministry of Agriculture and an associate institution of the University of Botswana. The objective of the college is to provide education and training in the science and practice of agriculture, and such other allied and related subjects. Besides conducting research, the college runs academic programmes at certificate, diploma and degree levels.

The day to day management of the college is the responsibility of the Principal assisted by the Dean of the Faculty of Agriculture (on academic and research matters).

### ***Personnel***

In January 2002, BCA had 298 staff of which 40 were PhD graduates, 46 with Masters, 22 with Bachelors, and 190 technical/management support personnel.

### ***Funding and Project Experience***

BCA is funded by the Government of Botswana. The college has also received financial support from W.K. Kellogg Foundation, IDRC, European Union and ICRAF for staff training and research. The annual financial contributions managed by BCA for implementation of its various programmes and expertise is US\$ 8.5 million.

## **8. DFRN, Namibia**

The Desert Research Foundation of Namibia is a NGO dedicated to increasing understanding and furthering awareness and skills to improve management of arid environments for sustainable development. This is well represented by its number of government Ministries, e.g. Ministry of Environment and Tourism, of Agriculture, Water and Rural Development, of Mines and Energy, of Basic Education, Vocational Training and Job Creation, and of Lands, Resettlement and Rehabilitation.

Similarly DFRN works with a number of other partner NGOs (from the SADC countries and International NGOs to various networks) and Educational Institutions. In terms of programmes, there are those focused on combating desertification and improved natural resource management versus those focused on integrated water resource management. Other programmes focus on capacity building versus those focused more on applied or even basic information gathering and programmes focused to influence policy.

The Desert Research Foundation of Namibia has taken up the challenge of helping to make sure that environmental sustainability is integrated into the overall concept of sustainable development in Namibia.

DFRN employs around 50 staff of all levels (PhD to Secretarial staff).

Funding: Almost all the activities of DFRN are funded by outside donors. These donors include: GTZ, Danida, SIDA, Norway, The European Union, NORAD and many others. DFRN is currently in the process of developing a long term financial plan, the successful implementation of which is the responsibility of each and every staff member.

## **9. Potchefstroom University for CHE, Faculty of Natural Sciences, School of Environmental Sciences and Development, South Africa**

### ***History and mandate***

The Potchefstroom University was founded in 1869. The University has two residential campuses and currently has 28 000 enrolled students, which include contact and distance education students from all race groups in South Africa. The University has a total staff of 1411. International students and staff come from all parts of the world, including Europe, Russia, Korea, Australia, USA and all over Africa. The Potchefstroom University for Christian Higher Education is based on a Christian foundation, entrepreneurially orientated and responsive to the requirements of the age, the country and the nation. A wide variety of courses are offered by nine faculties at the University. The faculties consist of more than thirty schools which include a large variety of sciences, such as arts, economics

and management, law, engineering, health and natural sciences. The School of Environmental Sciences and Development in the Faculty of Science offers research and development programmes for under- and post graduate students and focuses on the practical application of the interactions between human, economic, physical, chemical and biological factors at all levels. The emphasis is on environmental management, aquatic ecology and management, remediation and sustainable management of ecosystems and atmospheric chemistry and pollution. It includes subject groups such as Geography, Town and Regional Planning, Zoology, Botany, Geology and Microbiology.

### *Funding*

The annual budget of the Potchefstroom University exceeds US\$ 54 million of which 46% is from state subsidies, 4 % from research contracts, 16% from student fees, 6% from private research projects, 5% from investments and 21% from other subsistence incomes. A wide variety of projects are carried out in collaboration with research, development and technological institutions on national and international level, both from the state and private sector.

## **10. Agricultural Research Council (ARC), ZIMBABWE**

### *History and Mandate*

Prior to independence in 1980 the pressure to establish an autonomous agricultural research organization grew with growing awareness of the importance of agricultural research. The establishment in 1970 of the Agricultural Research Council (ARC) as a statutory body was in response to demands by farmers for more participation and influence over the activities and research undertaken by the Department of Research and Specialist Services and other agricultural research elsewhere in the country. In 1971 the ARC through a special subcommittee recommended the creation of an agricultural organization with its own council to which a number of research institutes would be affiliated. In 1975 the ARC was given direct control over the operational funds for research. Agricultural producer associations participate in the ARC via Technical committees and commodity sub-committees to this day and they also make financial contributions towards research undertaken by ARC. Farmers unions are represented in council and in subcommittees at Provinces. These are developments resulting from a review of the ARC undertaken in 1996 and approved by the Minister of Agriculture in July 1997. The ARC which is established by an Act of parliament has twelve members.

### *Composition of Council*

Independent Chairman; An Eminent Scientist; Zimbabwe Farmers Union (2 members); Commercial Farmers Union (2 members); Indigenous Commercial Farmers Union (2 members); Director- Dept of Veterinary Services; Director- Dept Research & Extension; Director- Dept of Agricultural Engineering and Irrigation; and a Ministry of Agriculture representative.

### *Personnel*

The ARC has an Executive Committee comprising the Chairman of Council, three Council nominees and the Chief Executive officer. Directly under Council there are three specialized commodity committees composed of scientists from different professions and institutions (from NARS, Universities, private sector, NGOs, Farmers Unions, Agro-based industries etc) each committee having 13 to 17 members. The ARC has a secretariate which is overseen by a Chartered accountant Chief Executive Officer supported by a scientific Director with an agriculture Ph D level qualification. Both have technician level staff and secretaries. Sub-Committees: Each of the eight Provinces of Zimbabwe has an Agricultural Research Council subcommittee (range of 11 to 15 members) whose mandate is to implement research and development activities with stakeholders on

the ground. Most of the members are representatives of development agents (NGOs, Government research and extension personnel, Ministry of Environment- Natural Resources Department personnel, Local government and Rural District Council project staff etc).

#### *Functions of Council*

To advise the Minister of Agriculture on agriculture research policy.

To provide for the co-ordination and monitoring of public and private sector research with a view of setting policy guidelines for the operation of the national agricultural research system.

To keep under review agricultural research and extension, with particular attention to the adequacy of such research for the needs of Zimbabwe.

To carry out strategic planning activities.

To consider all aspects of agricultural research, and to ensure maximum co-ordination between persons and authorities who are undertaking or are about to undertake any form of agricultural research.

#### *Functions of Executive Committee*

To fund and manage research contracts.

To assist and facilitate in agricultural technology transfer.

To install and implement a central scientific information and communication system.

To develop and implement a strategic management information system.

To review and institute a programme for assessing the impact of research and extension.

To administer and manage the ARC Fund and the Agricultural Research Fund.

#### *Project Experience*

ARC has the requisite experience to handle this project especially the financial disbursements to subcontracted parties. This is built into their mandate (2.6.1 above) and over the last twenty years ARC has worked with contracted research scenarios more than any other institution in Zimbabwe save for the period when there was a lull because of restructuring in the early 90s to 1996.

## **ANNEX 9: DETAILS OF ANNEXES AND MAPS CONTAINED IN THE GEF PROJECT BRIEF**

### **LIST OF ANNEXES:**

<b>Annex Aa</b>	<b>Incremental Cost</b>
<b>Annex Ab</b>	<b>Incremental cost matrix</b>
<b>Annex B</b>	<b>Logical Framework</b>
<b>Annex C1.</b>	<b>STAP Roster Technical Review</b>
<b>Annex C2.</b>	<b>Response to STAP/Council/IA comments</b>
<b>ANNEX C3</b>	<b>TECHNICAL COMMENTS ON WORK PROGRAM GEF/C/18</b>
<b>ANNEX C4</b>	<b>RESPONSE TO TECHNICAL COMMENTS ON WORK PROGRAM GEF/C/18</b>
<b>ANNEX C5</b>	<b>AN ECOLOGICAL MODEL OF LAND DEGRADATION</b>
 <b>OPTIONAL ANNEXES:</b>	
<b>ANNEX D</b>	<b>ROOT CAUSES AND THREATS</b>
<b>ANNEX E</b>	<b>PUBLIC INVOLVEMENT PLAN</b>
<b>ANNEX F</b>	<b>DMP ORGRANIGRAMME</b>
<b>ANNEX G</b>	<b>PROJECT MANAGEMENT STRUCTURE</b>
<b>ANNEX H</b>	<b>PROJECT WORKPLAN</b>
<b>ANNEX I</b>	<b>BUDGET</b>
<b>ANNEX J</b>	<b>CONSTRAINTS TO SUSTAINABLE AGRICULTURE AND BIODIVERSITY USE</b>
<b>ANNEX Ka</b>	<b>RAINFALL ZONES MAP</b>
<b>ANNEX Kb</b>	<b>DMP LAND DEGRADATION MAP</b>
<b>ANNEX Kc</b>	<b>DMP COUNTRIES AND SITES</b>
<b>ANNEX Kd</b>	<b>PROJECT SITES</b>
<b>ANNEX L</b>	<b>Globally Significant Ecosystems in DMP Member Countries</b>
<b>ANNEX M</b>	<b>PROCESS OF ECOSYSTEM DEGRADATION</b>

## **ANNEX Aa: INCREMENTAL COSTS**

### **1. BROAD DEVELOPMENT GOALS**

The broad development goals of each country are summarized under section A of the project brief.

### **2. GLOBAL ENVIRONMENTAL OBJECTIVES**

The project brief identifies a number of threats to the conservation and sustainable use of biodiversity in the 9 project sites (see also Annex D). There are a number of baseline activities already addressing these threats by promoting sustainable development. All of them are important, however they will not address the full scale of the problem of natural resource degradation in sub-sahelian Africa. This project will use its regional network of sites; to understand regional patterns and trends in land degradation, including loss of biodiversity and their causes; identify best practices from the 9 participating countries; test best practices; and develop national strategies to scale-up successful approaches. The project will leverage existing experience and pool knowledge to more effectively address the problems facing biodiversity conservation and sustainable use throughout the 9 participating countries.

### **3. BASELINE**

Below is a brief summary of planned activities at GEF project sites, for the duration of GEF project. The activities are summarized under the GEF project output of the LFA to which they are expected to contribute. They are also described in more detail, by country in each country LFA.

#### ***Output 1: Ecological Monitoring and Evaluation***

USD 10.9 million in baseline expenditure will support this output. Soil and vegetation inventories, including biodiversity are fairly widespread across the project sites (Kenya, Zimbabwe, Burkina Faso, Mali, Niger). Levels of details, coverage and the age of data varies across countries. Supplementary work by the DMP project will be necessary to generate consistent baseline data. Some countries, and project sites have begun modelling climate change, hydrological cycles (Kenya, Zimbabwe, Burkina Faso, Senegal, Mali, Niger) and are studying the impact of land use on the resource base, including levels of degradation, soil fertility, and changes in biodiversity and cover. These programmes will be strengthened by the DMP, and harmonized to generate regional sub-sahelian perspective on the impacts of land use and climate change on the resource base. Finally some countries are looking into socio-economic change in the project sites and potential measures for adapting to climate change, including deriving lessons learned from indigenous and project practices in agriculture, pastoralism and agro-forestry (Kenya, Burkina Faso). The project will link together all project sites for information sharing to derive best practices across the eco-region.

#### ***Output 2: Biodiversity Conservation and Sustainable Use***

USD 3.6 million in baseline expenditure is planned which will support this output. Sustainable use and rural development activities cover agricultural, pastoral; agro-forestry and forest, land uses. A couple of initiatives are planned to identify and re-popularize sustainable indigenous land use practices (Zimbabwe, Senegal). A number of activities are planned to help communities improve their management of soil and water resources, retain soil fertility, avoid soil erosion, and make best use of water resources (Zimbabwe, Burkina Faso, Senegal, Niger). The DMP will take the latest lessons from the field, indigenous knowledge and scientific research from across the region to update and rationalize approaches to water and soil management at project sites. Rural development initiatives are planned to help local communities build the capacity to organize themselves into

collectives and cooperatives, increase their levels of productivity and add value to farm gate prices (Kenya, Burkina Faso). Finally there are a number of baseline activities to rehabilitate pastoral areas, encourage natural regeneration of over-used species, and to re-afforest degraded areas, and stabilize sand dunes (Burkina Faso, Senegal, Niger). The DMP will build on the foundations laid by the community development and rehabilitation activities, building on the broad base of experience.

#### OUTPUT 3: NATIONAL, SUB-REGIONAL AND LOCAL CAPACITY BUILDING

USD 5.2 million in baseline funding is planned which will support this output. Two initiatives are planned to build local government natural resource management capacity, and improve extension services to farmers. (Namibia, Senegal). Zimbabwe is planning to build the capacity of pastoralists to monitor the condition of their own pastoral resources. Natural resource management initiatives are planned to help communities organize, plan and manage the use of their own natural resources, especially community lands. Activities include the formation of rural management units; building conflict resolution skills; helping pastoral communities to reduce their risk exposure to the effects of climatic variation; and to help communities manage village woodlots (Kenya, Namibia, Burkina Faso, Senegal, Niger).

#### OUTPUT 4: ALTERNATIVE LIVELIHOODS

USD 1.9 million in baseline financing is planned, that will support this output. A couple of initiatives are planned at project sites to encourage the development (as opposed the modification of) new rural enterprise and livelihood ventures. Both Kenya and Burkina Faso are planning to promote alternative rural enterprise, by making rural credit available to seed new ventures, and provide renewable sources of energy for rural initiatives, and provide business development support for new enterprises. In Senegal activities are planned to domesticate new wild fruit, for commercialisation.

#### OUTPUT 5: POLICY AND LEGAL FRAMEWORKS

USD 1.6 million in baseline funding is planned, that will support this output. A number of initiatives are planned to generate a policy and regulatory environment to encourage sustainable use of natural resources. Zimbabwe is developing policy guidelines to further facilitate community-based management of natural resources, as well as monitoring and evaluation of the natural resource base. Namibia has evaluated policy effecting land degradation, and plans to develop policy guidance to address the problem. Burkina Faso is finalizing its Biodiversity Strategy and Action Plan, and is developing a national eco-strategy. These efforts will be consolidated and expended under the DMP.

#### OUTPUT 6: EXTENSION OF SUSTAINABLE NATURAL RESOURCE MANAGEMENT

USD 3.0 million in baseline funding is planned that will support this output. Activities to scale-up best practices in land use, are mainly confined to information dissemination and exchange, and awareness raising. Zimbabwe is planning a number of workshops and is training extension workers in sustainable land use practices, and there is some local and national advocacy to scale-up conservation tillage practices. Niger plans to disseminate best sustainable land use practices. The DMP will make a sustained effort to stimulate proactive scaling-up of best practices through the development of national strategies.

#### OUTPUT 7: STAKEHOLDER PARTICIPATION

USD 2.2 million in baseline funding is planned, that will support this output. Most activities under output 2 above will be implemented through a participatory approach. Zimbabwe in particular is approaching stakeholder participation as a central strategy to foster sustainable land use.

#### 4. GEF ALTERNATIVE

The basic rationale used for separating incremental from non-incremental costs are as follows:

- **Outputs 2, 3, 4, 7:** All sustainable use and alternative livelihood activities will generate greater domestic benefits than under the baseline. Therefore only technical assistance, through a participatory process to remove barriers is considered incremental. It will not include the subsidization of economic inputs for any sustainable use or alternative livelihood. The domestic benefits of these activities are intangible and uncertain.
- **Output 6:** Selected and strictly necessary small-scale demonstration, including capital investments, is considered incremental in so far as it is necessary to catalyse the adoption of alternative livelihoods or sustainable practices. Because of the limited scale of the demonstrations, domestic benefit will be minimal although tangible.
- **Output 7:** Once proven it will be of interest of host governments to scale-up win-win alternative livelihoods, sustainable land use practices. However catalysing scaling-up activities is considered incremental, including helping governments to develop a strategy, and ensuring they have the capacity to implement the strategy. Catalytic activities in themselves will have little domestic benefit.
- **Output 5:** The impacts of policy and legislative change are expected to have domestic benefit. Incrementality is therefore confined to catalysing the adoption and administration of recommended policy and regulatory changes. This includes all activities to identify and build national consensus around the expected benefits, and securing sufficient capacity to administer new policies and regulation. The domestic benefits of these activities are intangible. Domestic benefits will accrue from implementing recommendations, which are not incremental costs.
- **Output 1:** Incrementality in monitoring and evaluation activities will be confined to activities to fulfil implementing agency and GEF project requirements; and baseline data collection and interpretation necessary to support an adaptive management approach for the project. The domestic benefits of these activities are intangible and uncertain.

##### ***Output 1: Ecological Monitoring and Assessment***

The GEF will fund all activities to complete inventories of biodiversity and ecosystem functions in each of the project sites; identify temporal and spatial changes and trends in baseline data and their causes, including the development and application of indicators; and regional synthesis and interpretation of data sets; and provide necessary data for an adaptive management approach to project implementation. All additional data collection beyond that required for adaptive management will be co-financed. To show sustainability of M&E beyond the life of the project, all M&E activities should be funded from independent sustainable financial backers by the beginning of the second last year of the project.

##### ***Output 2: Biodiversity Conservation and Sustainable Use***

The output will introduce pre-identified sustainable land use practices with similar or increased potential for profit over those practiced in the baseline. The GEF will finance all barrier removal costs of introducing these technologies; community training in approaches; community extension advice; community capacity building and institutional strengthening to support adoption of new practices. All factors of land use production including land, labour,

equipment, and agricultural inputs will be cofinanced. For habitat and ecosystem rehabilitation activities the GEF will fund the costs additional to least cost practices expected under the baseline, such as pasture improvement with non-native mono-cultures.

#### OUTPUT 3: NATIONAL, SUB-REGIONAL AND LOCAL CAPACITY BUILDING

The GEF will fund the cost of training local government agencies to support and provide extension advice on best practice land uses identified under output 2. This will include training extension workers in new techniques and building the capacity of local land planning agencies in the principles of eco-system management, to support new practices, as part of a broader landscape approach to land use, biodiversity conservation and sustainable use. National efforts to build capacity to monitor climate change will be co-financed.

#### OUTPUT 4: ALTERNATIVE LIVELIHOODS

As with Output 2 the GEF will finance all barrier removal costs of fostering alternative livelihoods; including community training in technical and business aspects of proposed alternative livelihoods; on-going community extension advice; community capacity building and institutional strengthening for cooperatives, collectives and existing micro-credit schemes to support adoption of alternative livelihoods. All factors of land use production including land, labour, equipment, and agricultural inputs will be co-financed.

#### OUTPUT 5: POLICY AND LEGAL FRAMEWORKS

The GEF will fund costs of reviewing project lessons and existing policy and regulation and their impacts, developing recommendations to support sustainable land use; conduct a national consultation process to draft/ modify regulation and policy for consideration by national legislature; and build government capacity to implement new regulations and policy. Governments will co-finance the costs of considering, adopting and administering new policy and legislation.

#### OUTPUT 6: EXTENSION OF SUSTAINABLE NATURAL RESOURCE MANAGEMENT

The GEF will finance limited small-scale demonstrations in projects sites where necessary to foster adoption of new practices. As successful approaches are identified the GEF will finance the costs of developing a scaling-up strategy with participating governments, including a broad consultation process; assist in setting-up government implementation units and build the capacity of implementation units to implement a scaling up strategy; and help identify co-financing for implementation of these strategies to match government commitments. The costs of implementing these strategies will be fully co-financed and implementation will begin by the second last year of the project.

#### OUTPUT 7: STAKEHOLDER PARTICIPATION

The GEF will fund the full costs of ensuring full participation of stakeholder groups in project design and implementation. This will include training project staff, extension workers, and participating government agents in participatory approaches; the costs of ongoing consultations with local stakeholders during project implementation, and the costs of institutionalising the consultation process to ensure sustainability of participatory approaches beyond the life of the project. Institutionalised participatory processes set-up by the project will be fully cofinanced from

sustainable sources by the second last year, to demonstrate sustainability of project impact. The GEF will also fund the costs of stakeholder participation in regional project management processes.

#### PROGRAM MANAGEMENT, OPERATING COSTS, MONITORING AND EVALUATION

All project management costs will be fully financed by the GEF. This will include the costs of the project coordination unit, the costs of project reporting including financial reporting, monitoring reports and meetings, project implementation reviews and independent evaluations.

### **5. SCOPE OF ANALYSIS**

The scope of analysis includes the geographic, institutional, market, policy and legislative factors impacting on the projects target sites, as well as the costs and benefits generated from the project activities.

### **6. COSTS**

This is a sustainable use project that builds on a substantial baseline, and is complemented by a significant co-financing ratio. The total project costs are USD 49,507,307, while project co-financing amounts to 64% of this total, to cover activities generating tangible domestic benefits.

**Annex: Ab Incremental Cost Matrix for GEF Funding (US\$ million)**

<b>Component</b>	<b>Cost Category</b>	<b>Domestic Benefit</b>	<b>Global Benefit</b>
<b>Ecological Monitoring and Assessment</b>	Baseline	10.935	<p>Better management information on trends in land degradation/desertification and in broad ecosystem conditions that will enhance national capacity to identify and respond to national threats. These are mainly</p> <ul style="list-style-type: none"> <li>- Land degradation</li> <li>- Deforestation</li> <li>- Overgrazing</li> <li>- Fuel wood and wood harvesting</li> <li>- Uncontrolled fires</li> </ul> <p>Full inventory of threatened and endangered species and habitats and monitoring of changes in biodiversity of global significance. This will include assessments of the genetic diversity losses that may result from the expansion of cropped land, the fragmentation of rangelands associated to increasing grazing pressure and wood harvesting, harvesting of medicinal plants etc... Scientific base to establish relationships between biodiversity status and loss in productivity and stability of the ecosystem.</p>
	Incremental	11.450	
	Co-funding	6.984	
	GEF	4.466	
	Total	22.385	
<b>Testing and Implementation</b>	Baseline	3.564	<p>Sustainable harvesting regimes for fruits, woods, fuel wood, medicines and other natural products will be made available.</p> <p>Adoption of superior technologies which will directly benefit the farmer, his/her family and the community.</p> <p>Potential for economic exploitation as an alternative livelihood; promotion of eco-tourism; wildlife tourism</p> <p>Development and implementation of sustainable harvesting regimes, validation and adoption of sustainable ecosystem rehabilitation techniques. This will include:</p> <ul style="list-style-type: none"> <li>- Creation of community reserves (jardins du desert)</li> <li>- Conservation of woody plant biodiversity in parklands,</li> <li>- Rescue of endangered crop biodiversity</li> <li>- In-situ conservation of endangered crop, forage and medicinal plant species</li> <li>- Conserving habitats rich in wild relatives of crops.</li> </ul>
	Incremental	7.263	
	Co-funding	5.086	
	GEF	2.177	
	Total	10.827	

<b>Component</b>	<b>Cost Category</b>	<b>Domestic Benefit</b>	<b>Global Benefit</b>
<b>Capacity building</b>	Baseline 5.213 Incremental 12.719 Co-funding 8.969 GEF 3.750 Total 17.932	Introduction and/or promotion and enhancement of community based land use planning capability and agricultural development to increase production and productivity in resource conservation. Training of stakeholders (scientists, extension agents, NGOs) to better work with rural communities Build capacity of stakeholders in land use planning, control of bush fires, regulation of transhumance and pastoral resources etc...	Community involvement in natural resource management leading to more effective biodiversity conservation and reduction in natural resource degradation. Use of community-based participatory approaches to enhancing the return of natural resource assets Build up of stakeholders awareness and skills in Natural Resource Management.
<b>Alternative Livelihoods</b>	Baseline 1.932 Incremental 3.927 Co-funding 2.960 GEF .967 Total 5.860	Design and implementation of productive activities such as: - Utilization of improved crop varieties, animal breeds and inputs such as fertilizer micro-doses. -Adoption of intensive production technologies - Access to basic services and micro-credits - Support to women and other vulnerable groups - Promotion of crop diversification such as the Introduction of date - Poverty reduction	Intensification of selected agricultural activities with positive impacts on controlling biodiversity loss  Diversification of income sources allowing to set aside threatened ecosystems,  Lift barriers to the sustainability and replicability of appropriate harvesting techniques  Improve access to services, micro-credits and education.

Component	Cost Category	Domestic Benefit	Global Benefit
<b>Policy and legal framework</b>	Baseline 1.574 Incremental 3.147 Co-funding 1.720 GEF 1.427 Total 4.721	Existing policies and legislations will be altered to strengthen the participation of local communities in the management and equitable sharing of benefits accrued from the outcomes of this project	Current development policies and legislations pertaining to agriculture, forestry, and pastoralism will be reviewed with the participation of all stakeholders in order to identify and remove policy and legal barriers for sustainable management of biological resources.  Promotion and adoption of new guidelines and policies that promote conservation and sustainable use of biodiversity.
<b>Up scaling of NRM Options</b>	Baseline 2.989 Incremental 7.073 Co-funding 4.571 GEF 2.502 Total 10.063	Developing, testing and promoting livelihoods strategies, sustainable development activities, micro-credits, inputs and export supplies across selected project sites in each of the nine countries	Developing, testing and demonstrating sustainable biodiversity management and conservation technologies and models in selected project sites in each of the nine countries. Up-scaling of sustainable use of biodiversity
<b>Stakeholder participation</b>	Baseline 2.149 Incremental 3.926 Co-funding 3.246 GEF .680 Total 6.075	Benefits accrued from enhancing stakeholder participation collaborating at the national level - sharing of experiences	Fully effective national participation in transboundary biodiversity conservation  - Increased awareness of biodiversity conservation - Improve access and equity in resource use for all.
<b>Other Non-GEF financed site specific operations</b>	Baseline 15.0 (salaries) Incremental 0 GEF 0 Total 15.0	Baseline activities related to improved health service deliveries, education and improved rural infrastructure.	N/A

Component	Cost Category	Domestic Benefit	Global Benefit
<b>Total</b>	Baseline	28.358	
	Incremental	49.507	
	Co-funding	33.537	
	GEF	15.970	
	Total	77.865	

## Annex B: Global Logical Framework (DMP)

OBJECTIVES AND ACTIVITIES	INDICATORS	MEANS OF VERIFICATION
<b>Wider Objectives (Goal)</b> To conserve and restore biodiversity in the Desert Margins through sustainable utilization	<ul style="list-style-type: none"> <li>• Rates of biological diversity loss and land degradation minimized</li> <li>• Biological diversity is preserved and restored</li> </ul>	<ul style="list-style-type: none"> <li>• Government reports to CBD on national status of biodiversity</li> <li>• Database and expert system</li> <li>• Survey, monitoring and site reports</li> </ul>
<b>Specific Objectives (Purpose)</b> To develop and implement strategies for conservation, restoration and sustainable use of dry land biodiversity (to enhance ecosystem function and resilience)	<ul style="list-style-type: none"> <li>• Community base NRM strategies in place</li> <li>• Capacity to independently manage NR sustainably</li> <li>• Improved ecosystem stability</li> <li>• Improved livelihoods</li> <li>• Ecosystems are preserved and restored</li> <li>• Lands degradation is reduced</li> <li>• Populations and grassroots communities control and apply sustainable management techniques of biological diversity</li> <li>• Equal access to resources is guaranteed to all</li> </ul>	<ul style="list-style-type: none"> <li>• Annual reports to GEF, UNDP and UNEP</li> <li>• Government reports to CBD on national status of biodiversity</li> </ul>

OBJECTIVES AND ACTIVITIES	INDICATORS	MEANS OF VERIFICATION
<p><b>Expected Outputs</b></p> <ol style="list-style-type: none"> <li>1. Improved understanding of ecosystem status and dynamics with regard to loss of biodiversity</li> <li>2. Strategies for conservation, restoration and sustainable use of degraded agro ecosystems developed and implemented</li> <li>3. Capacity of stakeholders and target populations enhanced</li> <li>4. Alternative livelihood systems tested and promoted</li> <li>5. Sound policy intervention/guidelines for sustainable resource use formulated, adopted and implemented</li> <li>6. Participatory natural resources management methods are implemented</li> <li>7. The target populations are involved at each stage of the project's cycle</li> </ol>		

OBJECTIVES AND ACTIVITIES	INDICATORS	MEANS OF VERIFICATION
<b>OUTPUT 1</b> Improved understanding of ecosystem and dynamics with regard to loss of biodiversity	At least 10% of communities in target areas promoting sustainable ecosystems management technologies by 3 years	National government reports to CBD/Ext. evaluation reports
<b>ACTIVITIES</b> 1.1 Undertake an inventory of economically and ecologically important species leading to and analysis of social impacts on ecosystem function  1.2 Identify mechanisms and process contributing to ecosystems stability and design participatory approaches to enhance community involvement  1.3 Produce user friendly information packages based on existing scientific and accumulated indigenous knowledge  1.4 Inventory (identification and quantification) of endangered species  1.5 Study of the mechanisms and process of ecosystems and biological diversity degradation  1.6 Deepen the knowledge on reproduction	1.1 (a) A list of economically and ecologically important species available by end of year 1 1.1 (b) At least one social impact analysis exercise carried out by year 2  1.2 (a) A significant (> 50%) of major mechanisms and processes identified by mid-third year 1.2 (b) Designed participatory approaches implemented at each site by beginning of year 4  1.3 (a) At least one synthesis report of scientific and indigenous knowledge produced by end of year 4 1.3 (b) User friendly information packages produced by year 5  1.4 (a) List of known endangered species is known 1.4 (b) The scale of the threat is determined for each species  1.5 Causes and mechanisms of ecosystems and biological diversity degradation are understood  1.6 Knowledge on reproduction biology and regeneration of <i>vegetal and animal species is improved</i>	<ul style="list-style-type: none"> <li>• Written reports available</li> <li>• Minutes of stakeholders meeting</li> <li>• Written report</li> <li>• Information packages published by year 5</li> <li>• Catalogue of endangered species available including scale of threat</li> <li>• Published reports/articles</li> </ul>

OBJECTIVES AND ACTIVITIES	INDICATORS	MEANS OF VERIFICATION
<p>biology and regeneration of vegetal and animal species</p> <p>1.7 Identification and enhancement of local knowledge related to the preservation and restoration of biological diversity</p> <p>1.8 Development of common framework for site stratification and characterization of specific bench marks</p> <p>1.9 Provides support to NARS for the development of standardized data collection methodologies, storage and management systems for an understanding of ecosystem status and dynamics with regards to the loss of biodiversity</p> <p>1.10 With assistance of all participating researchers assess the scientific, technical and social skills required to implement and fulfil all outputs capacity</p> <p>1.11 Develop packages that meet requirements identified in 1.10</p>	<p>vegetal and animal species is improved</p> <p>1.7 Local knowledge is known and enhanced for a better preservation of biological diversity</p> <p>1.8 Common framework developed and available for use</p> <p>1.9 NARS utilize standardized data collection methodologies Existence of database</p> <p>1.10 Skill assessment done by each participating IARC in its area of expertise</p> <p>1.11 Skill packages developed and available</p> <p>1.12 Up scaling methodology developed</p>	<ul style="list-style-type: none"> <li>• Field visits, reports</li> <li>• Reports</li> <li>• Reports</li> <li>• Reports</li> <li>• Reports</li> <li>• Publications/reports</li> <li>• Publications/reports</li> </ul>

OBJECTIVES AND ACTIVITIES	INDICATORS	MEANS OF VERIFICATION
<p>1.12 Develop an up scaling methodology to infer south-south trends at a regional level through the use of system modeling, remote sensing and GIS tools for extrapolation strategies</p> <p>1.13 Integrate biophysical and socio-economic approaches to modeling that allow the screening of scenarios that will lead to best bet management practices and policies</p>	<p>1.13 Integrated modeling approach developed and in use</p>	
<p><b>Output 2</b></p> <p>Strategies for conservation, restoration and sustainable use of degraded agro-ecosystems, developed and implemented</p>	<ul style="list-style-type: none"> <li>• At least 3 technologies developed by year 3</li> <li>• At least 1 technology implemented at each site by year 5</li> </ul>	<ul style="list-style-type: none"> <li>• Studies report</li> <li>• Field visit</li> <li>• National programme reports and external reviews/evaluations</li> </ul>
<p><b>ACTIVITIES</b></p> <p>2.1 Identify, document and evaluate existing best practices</p> <p>2.2 Pilot selected technologies that enhance conservation, restoration and sustainable use of biodiversity</p> <p>2.3 Disseminate, promote and facilitate adoption and implementation of best</p>	<p>2.1 Appropriate practices identified and documented within first year</p> <p>2.2 Best practices identified through evaluation by year 2</p>	<ul style="list-style-type: none"> <li>• Studies report</li> <li>• Field visit</li> <li>• Publication</li> <li>• Technical files</li> <li>• Ibid</li> <li>• Inventory of local know how is available</li> </ul>

OBJECTIVES AND ACTIVITIES	INDICATORS	MEANS OF VERIFICATION
<p>practices and proven technologies</p> <p>2.4 Elaborate techniques and technologies adapted to conservation and restoration of ecosystems and biological diversity</p> <p>2.5 Enhance knowledge and local know-how for a sustainable and integrated management of biological diversity</p> <p>2.6 Participate in the implementation of benchmark site characterizations and an overall synthesis</p>	<p>2.3 Majority of communities in project area are implementing at least one alternative income generating activity</p> <p>2.4 The elaborated techniques are disseminated and applied by 50% of the population</p> <p>2.5 Knowledge and local know-how are listed and adapted technologies are disseminated and adopted by 50% of the population</p> <p>2.6 IARCs are taking the lead in overall synthesis and participative in implementation of site characterization</p>	<p>how is available</p> <ul style="list-style-type: none"> <li>Review and monitoring reports, field visits</li> <li>Synthesis reports from each IARC publications</li> </ul>
<p><b>Output 3</b></p> <p>Capacity of stakeholders and target populations enhanced</p>	<ul style="list-style-type: none"> <li>At least 10% of target populations able to apply sustainable community based NRM principles with limited outside assistance by end of project</li> <li>90% of partners have their intervention capacity strengthened</li> <li>All communities are set up and operational</li> </ul>	<ul style="list-style-type: none"> <li>Reports</li> <li>External evaluation and monitoring reports</li> </ul>
<p><b>Activities</b></p> <p>3.1 Undertake training needs assessment of stakeholders in relation to biodiversity and land degradation</p> <p>3.2 Strengthen knowledge base of</p>	<p>3.1 Training needs off all stakeholders and target population assessed in year 1 and 2 using participatory approach</p>	<ul style="list-style-type: none"> <li>Training reports</li> <li>Attendance registers</li> </ul>

OBJECTIVES AND ACTIVITIES	INDICATORS	MEANS OF VERIFICATION
<p>stakeholders through relevant training programmes</p> <p>3.3 Promote participatory approaches in planning and implementation of sustainable technologies</p> <p>3.4 Inform and sensitize partners of the causes of ecosystems degradation factors within the adoption of a sustainable management of natural resources</p> <p>3.5 Organize training resources and experience sharing among partners</p> <p>3.6 Generating and production of information dissemination packages for all levels of stakeholders across sub-regions and countries (cross referenced to activities in national log frame)</p> <p>3.7 Develop training packages and appropriate policy guidelines that meet requirements identified in 3.7 and undertake training as appropriate</p>	<p>3.2 At least three training activities (information, implementation, evaluation) carried out in each member country per year from year 3</p> <p>3.3 Resource institutions for training identified and training materials prepared by year 2</p> <p>3.4 At least 2 to 3 sensitization meetings organized at each project site by year 2</p> <p>3.4 Effective linkages and information sharing taking place</p> <p>3.5 One training session per annum at each pilot site from year 2 to 4 of project</p> <p>3.6 Information dissemination packages produced by year 2</p> <p>3.7 Training packages and policy guidelines developed by year 3</p>	<ul style="list-style-type: none"> <li>• Reports</li> <li>• Minutes of meetings reports</li> <li>• Minutes of meetings</li> <li>• Training reports</li> <li>• Reports</li> <li>• Reports</li> </ul>
<p><b>Outputs 4</b></p> <p>Alternative livelihood systems tested and promoted</p>	<ul style="list-style-type: none"> <li>• At least one alternative livelihood activity being practised in target areas by end of project</li> </ul>	<ul style="list-style-type: none"> <li>• Review and monitoring reports, income levels</li> </ul>
<p><b>Activities</b></p> <p>4.1 Identify, inventorize and document</p>	<p>4.1 More than 50% of economically and ecologically</p>	<ul style="list-style-type: none"> <li>• Inventory reports of all possible</li> </ul>

OBJECTIVES AND ACTIVITIES	INDICATORS	MEANS OF VERIFICATION
<p>economically viable livelihood options</p> <p>4.2 Empower communities to develop and manage livelihood options sustainably</p> <p>4.3 Facilitate establishment of best-bet livelihood options</p>	<p>viable livelihood options identified by the 6<sup>th</sup> month of the project life</p> <p>4.2 A number of community based organization and communities trained in business management issues related to livelihood</p> <p>4.3 Majority of communities in project area are implementing at least one alternative income generating activity</p>	<p>alternative livelihoods in project areas available</p> <ul style="list-style-type: none"> <li>• Training reports</li> <li>• Monitoring and field visit reports</li> </ul>

OBJECTIVES AND ACTIVITIES	INDICATORS	MEANS OF VERIFICATION
<b>Output 5</b> Sound policy intervention/guidelines for sustainable resource use formulated, adopted and implemented	<ul style="list-style-type: none"> <li>At least one policy guideline formulated in a participatory manner at local community level by year 2</li> <li>Formulated guidelines are tested at least one per country site by project end</li> </ul>	<ul style="list-style-type: none"> <li>Policy documents compiled</li> </ul>
<b>Activities</b> 5.1 Review and document existing policies on natural resources management, identify flaws and harmonize conflicting policies  5.2 Jointly with local communities, develop lay versions of relevant policy documents, guidelines  5.3 Implement policy recommendations on a pilot scale at the sites	5.1 Review and harmonized policy document presented for adoption (to policy makers) by end of 5 <sup>th</sup> year  5.2 Revised policy documents/guidelines in place by 5 <sup>th</sup> year  5.3 At least one policy recommendation being tested in each site piloted	<ul style="list-style-type: none"> <li>Policy analysis documents are available</li> <li>Improved policy is published</li> <li>Recommended policy discussed with all stakeholders and critically assessed</li> </ul>
<b>Output 6</b> Participatory natural resources management methods are implemented	<ul style="list-style-type: none"> <li>Participatory Natural Resources Management methods are published, known and used by local communities in at least 50% of project sites</li> </ul>	<ul style="list-style-type: none"> <li>Reports, field visits</li> <li>External evaluation and monitoring reports</li> </ul>
<b>Activities</b> 6.1 Promote integrated soil fertility and water management methods  6.2 Promote land development methods and holistic management strategies of pastoral spaces and peripheral zones of	6.1 50% of target populations have one or two integrated soil fertility technologies  6.2 Holistic management strategies of pastoral lands exist	<ul style="list-style-type: none"> <li>Field visits</li> <li>Reports</li> <li>Field visits</li> </ul>

OBJECTIVES AND ACTIVITIES	INDICATORS	MEANS OF VERIFICATION
<p>wildlife reserve</p> <p>6.3 Promote the integration of vegetal species (herbaceous and ligneous) with multiple use in the systems of lands use</p> <p>6.4 Ensure integrated management of biological diversity by households and farmers associations so as to improve their incomes</p> <p>6.5 Provide support to NARS for the development of natural resource management methods and technologies that include strategies for implementing and promoting conservation, restoration and sustainable use of degraded ecosystems (cross referenced to activities in national log frames)</p>	<p>6.3 Multiple use vegetal species have been introduced in project pilot sites</p> <p>6.4 Income improved from integrated management of biodiversity</p> <p>6.5 Number of training courses organized – number of NARS trained</p>	<ul style="list-style-type: none"> <li>• Reports</li> <li>• Field visits</li>   <li>• Reports</li> </ul>
<p><b>Output 7</b> The target populations are involved at each stage of the project's cycle</p>	<ul style="list-style-type: none"> <li>• All the components are involved in the design, implementation and follow-up/evaluation of the project</li> </ul>	<ul style="list-style-type: none"> <li>• External review and evaluation reports</li> <li>• Minutes of meetings</li> </ul>
<p><b>Activities</b></p> <p>7.1 Guarantee the participation of the most vulnerable groups in the design, implementation and follow-up/evaluation of the projects</p> <p>7.2 Establishment of a permanent dialogue framework using participatory tools</p>	<p>7.1 Women and other vulnerable groups formed at each project site</p> <p>7.2 Existence of a permanent dialogue group in each country by year 2 and functional</p>	<ul style="list-style-type: none"> <li>• Reports</li> <li>• List of memberships of different dialogue groups</li>   <li>• Field and monitoring</li> </ul>

OBJECTIVES AND ACTIVITIES	INDICATORS	MEANS OF VERIFICATION
7.3 Scientific team exchange visits and information sharing between sub-regions and countries to facilitate technology transfer	7.3 One sub-regional and one inter-country exchange visits organized per year	reports <ul style="list-style-type: none"> <li>• Field reports</li> </ul>

<b>ASSUPTION AND RISKS</b>		<b>Risk level</b>
<b>Goals/Objectives</b> (Specific objectives/global objectives)	9. Migratory flows 10. Security of tenure 11. Climatic change of natural disaster 12. Ownership of the project by the populations 13. Social and political stability	L M L L L
<b>Outputs/Goals</b> (Expected results/specific objectives)	5. Pauperisation 6. Extreme drought 7. Brain drain 8. Social stability maintained	L L M
	1. Constant political support 2. Social peace not threatening 3. Extreme climatic variation 4. Adequacy of environment	L L M M
<b>Pre-conditions for starting of the project</b>	A. Project's approval with States support B. Agreement of the focal point C. Stakeholder collaboration (Farmers association in place) D. Involved parties agreement E. Co-funding F. GEF funding	Fulfilled condition Fulfilled condition Fulfilled condition Fulfilled condition Fulfilled condition Pending

L = Low risk; M= Medium; H = High

## **Annex C1. STAP Roster Technical Review**

### **Desert Margins Programme**

Review by STAP member

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### **Global priority in the area of biodiversity**

The desert margins of Africa, which are regionally well-covered by this proposal, are a globally-significant location of plant and animal biodiversity. Arid lands are often overlooked in the quest to protect biodiversity, since it seems intuitive to concentrate on areas of abundant life (the humid tropics) first. A carefully considered approach would note, however, that many desert margin systems are very species rich, with high levels of endemism. For example, just one of the systems targeted by this proposal, the succulent karoo of Namaqualand in South Africa and Namibia, contains around 7000 plant species, about half of which occur nowhere else. This includes about 80% of the global flora of succulent plants. It has been identified as a conservation priority area by at least one major conservation NGO (Conservation International). The Sahelian zone, also covered by this proposal, has a rather depauperate flora (1200 species, 40 endemics), but the Sudanian zone immediately to its south has about 3000 plant species, one third endemic, and several hot-spots of its own, such as the inselbergs of the Jos Plateau.

The richness of the desert margins is apparently due to their antiquity and the unique environmental stresses found there. Furthermore, there are a priori reasons to believe that the African desert margins contain gene pools useful to humankind. They have already been the source of several important crops (Sorghum and Citrullus (watermelon) spring to mind) and medicinal plants (eg Harpagophytum). The genetic resources for drought resistance, which could be crucial in a climatically-changed world, are likely to reside in the desert margins.

Finally, experience has shown the desert margins to be highly susceptible to degradation – perhaps more so than many other systems. They are not so arid as to forbid human use, but insufficiently moist to support intensive use. The high inter-annual variation in rainfall mitigates against simple, fixed management rules and sedentary populations.

### **Cost effectiveness**

This is very hard to judge from the material provided in the proposal. The key problem is estimating the probability that this intervention will protect biodiversity which otherwise would be lost, and that it will do so indefinitely into the future. The actual mechanisms by which such protection will be achieved are somewhat faith-based: the discovery and dissemination of best land-use practices seems to be the main one. It is reasonable to assume that the impact of the project on biodiversity

conservation will be positive, but its actual magnitude is impossible to judge, and will probably evade accurate measurement at the end of the brief project period as well.

The ratio of alternative costs to baseline costs is reasonable (about a doubling), but the baseline is probably very approximate. My guess is that the sum of investment over a five-year period by national and local governments, NGOs and the international community exceeds the \$28 million estimated in the project baseline. The proportion of co-funding to GEF request is also reasonable (54:46).

Given that the proposal covers a very large swathe of Africa (9 countries) with an extrapolation potential in Africa of about 5 million km<sup>2</sup> in which about 100 million people live (both my rough estimates), the project expenditure of \$34 million (\$16 million from GEF) would be cost effective even if the success rate of the project is modest. Historically, success in mitigating and reversing land degradation in the desert margins has been less than modest.

### **Adequacy of project design**

The proposal contains the elements that would be expected in a well-designed project: a history of extensive consultation with stakeholders, a well-thought out geographical distribution of effort, a balance of ecological, agronomic, social and economic analyses, capacity development, and built-in monitoring and evaluation. The actual content of these elements is somewhat vague, as is the detailed nature of the interventions. The right phrases are present in the outline, but there is a huge gap between saying that sustainable/participatory/biodiversity-conserving/carbon storing technologies will be developed and disseminated, and actually doing so; and another between doing it and proving it. The devil is in the details, and the details are sparse. The approach of not imposing a one-size-fits-all a priori technological fix is laudable, but a case-by-case participatory approach is likely to be slow if not guided by at least some idea of where the potential interventions might lie. The individuals and organisations involved in the proposal presumably have such ideas, but they do not appear in the proposal.

## **Feasibility**

The funding level and institutional apparatus (including human resources and facilities) are adequate to undertake a significant action. Technically, all the things proposed by the project have been tried and shown to be possible (but not necessarily impactful).

It is unlikely that clearly demonstrable impact will be evident by the end of five years.

Desert margins are slow-response systems – a series of dry years can completely mask any progress, and a fortuitous series of wet years may completely supersede any project impact. Add the inherent slowness of participatory processes and cultural adoption, and experience suggests decades rather than years as the time needed to declare success or failure.

## **Implementation**

The key issue will be adoption at the local scale. This is not intended as a research proposal, but as an implementation of techniques of land use in the desert margins which have been shown to be beneficial (or at least less-damaging) to biodiversity. It is unlikely that the short-term benefits of such techniques will be so obvious and overwhelming that spontaneous and sustained adoption will occur. The project has wisely chosen sites where the participating organisations have a history of work and have already built up a relationship with local communities; otherwise this approach would be completely unfeasible in the given timeframe.

## **Operation**

The institutional situation is complex, involving nine countries, nineteen sites, ten institutions and 40 individual tasks. Since biodiversity loss in this context is primarily a local process, there is no fundamental necessity for tight operational coordination between nations and institutions. There is a need for information sharing. A less-complex project management structure, with more exchange within working-groups (ie, specifically focussed on particular common tasks) and fewer, smaller meetings of purely management structures is suggested. (Bi-annually means every two years; I presume the intention for executive meetings is semi-annual, ie 6 monthly).

## **Maintenance**

The plans for post-project economic and institutional continuance are very unspecific. There will no doubt continue to be national and international support for this kind of project, as there has been in the past, but the prospects of ramping up the baseline support to double its pre-project level in five years are slim.

The financial sustainability generating mechanisms are weak: the items in paragraphs 42-45 are largely a strategy of hope.

## **Scientific and technical merits**

### **Strengths**

- located in an area of high biodiversity, under threat
- participatory approach
- well-distributed geographically over a significant target region
- good institutional mix, some strong partners, NARI's, CG Centres, APIs and NGOs

### **Weaknesses**

- Vague on details of each project element. What will be monitored? How? In whom will capacity be developed? How? How will successful technologies be identified? How disseminated?

- No strong unifying conceptual model (Annex M is fine as far as it goes, but does not provide a clear guide to intervention, and misses as many mechanisms as it includes). The long list of causes of biodiversity loss (Annex D) does not clearly link to the proposed plan of action (or to Annex M): which, if any, of these root causes will be tackled?
- Indicators of success either unlikely to be demonstrable after 5 years, or only indirectly related to the key objectives

## **Suggested improvements**

1. Be specific about project elements, even if briefly in the Annexes, and give a few concrete examples in the main text.
2. Make the linkages between biodiversity, desertification and climate change more explicit.
3. Provide more quantitative statements about the impact and extrapolation domain. What is the land area footprint of the communities who will be directly engaged? What is the area occupied by communities who face similar problems? How many endemic species may be involved? What area is covered by the vegetation types targeted?
4. Better integrate the parts of the proposal. Many of the annexes are not called out from the main text. Why are they there?
5. A few key references would improve credibility: for instance to the NAPs which formed the basis of the plan.

## **Relationship to GEF objectives**

### **Risks**

There is very little risk that this project will do harm, either to biodiversity protection or to any other GEF objective (eg avoidance of climate change). There is a potential risk created by direct or indirect subsidisation of land use practices at the margin, allowing their persistence when all logic would suggest that they should be abandoned. This can be avoided by careful structuring of external benefit flows to local communities, to ensure that unsustainable practices are not perpetuated.

There is a real risk that no measurable biodiversity benefit will be attributable to this project in the short or possibly even in the medium to long term. The reviewer has no opinion regarding whether this risk is higher or lower in the case of this project relative to other GEF biodiversity interventions. There are many potential sources of failure: wrong or incomplete identification of root causes and unsustainable interventions are historically the most likely.

### **Benefits**

The proposed action, in concert with the baseline actions, has the potential to help protect biodiversity.

The principle benefits are likely to be in the area of combating desertification. It is perverse that this proposal has to be submitted to a biodiversity window. There is a real and demonstrable chance that at least local remediation or avoidance of degradation could be achieved.

Actions that increase net primary productivity, decrease soil loss and increase the amount of biomass returned to the soil, will with high confidence increase carbon storage in arid lands. The absolute amounts are likely to be small: carbon densities and biomass stocks in hot and arid lands are intrinsically limited.

The benefits of improved land cover in terms of avoided siltation and atmospheric dust burdens are potentially large. Although mentioned by the proposal in passing, they are not quantified or expanded on.

### **Regional context**

One of the strong points of the proposal is its good regional coverage.

### **Replicability**

The replicability domain is large in Africa, but probably small beyond the continent. The key to replication will be the successful matching of demonstratively beneficial change packages (technology, policy, cultural practice, economic incentive) to their receiving environment.

### **Added value**

A very difficult question to answer, given the difficulty in separating what outcomes are attributable to the project, and what to baseline interventions. Certain aspects, such as biodiversity documentation and monitoring, are unlikely to have occurred under baseline conditions. A systematic effort has gone into partitioning the tasks between baseline, co-funding and GEF funding.

### **Sustainability**

The environmental aspects of this proposal are targeted at sustainability, and the participatory approach has a better chance of achieving local-scale social sustainability than pure top-down technology interventions (but may not be sustainable at the national policy level). The likely weak link will be the economic sustainability after the project.

### **Secondary issues**

Linkages to other focal areas

Strong potential linkages to climate change and combating desertification

Linkages to other programmes

Probably good, given the range of organisations involved, several explicitly mentioned.

Action plans at regional level

Good regional approach.

Other environmental benefits or damages

Mostly positive environmental benefits, no obvious damage.

Stakeholder involvement

Good at local and institutional level; not as obvious at policy level.

Capacity building

Provision has been made for capacity building, although the details are unclear.

Innovation

Not deeply technically innovative, but novel in the sense that a targeted desert margins programme at this scale has not previously been attempted.

## **Annex C2. IA Response to STAP Comments**

### **GLOBAL PRIORITY IN THE AREA OF BIODIVERSITY**

We fully agree with the assessment of the reviewer that the “arid lands are often overlooked in the quest to protect biodiversity”. Indeed the desert margin systems are very species rich, with high levels of endemism. Besides the example of the succulent karoo of Namaqualand in South Africa and Namibia we know that Niger alone has 1700 plant species of global significance. Senegal has listed important plant and tree species threatened by different stresses in their national annexe.

South Africa has the third highest level of biological diversity in the world, with 7.5% of the world's vascular plants, 5.8% of the world's mammal species, 8% of the world's bird species, 4.6% of the world's reptile species, 16% of marine fish species and 5.5% of the world's recorded insect species.

In terms of the number of endemic species of mammals, birds, reptiles and amphibians, South Africa ranks as the 5th richest country in Africa and the 24th richest in the world (DEAT 1997). This diversity is caused by variation in climate, geology, soils and landscape form. However, South Africa also has the highest concentration of threatened plant groups in the world (Cowling & Hilton-Taylor 1994). Approximately 3 435 of South Africa's plant groups are considered to be globally threatened with extinction (Hilton-Taylor 1996). A further 204 groups are estimated to be threatened at a local level

Many of these ecosystems harbor significant hot-spots for birds, wildlife and medicinal plants.

Furthermore there is ample evidence to support the conclusion of the review that the African desert margins contain gene pools useful to humankind. Pearl millet, bambara nut (*Voandzeia subterranean*), cowpea, okra and sorrel are to be added to the list of important crops originating from the area. There are also animal genetic resources in wild and domesticated species. Among the latter, there are cattle breeds which have developed some resistance to trypanosomiasis (N'dama, Kouri).

As the Third Assessment Report (TAR) on Climate Change indicates, there is no doubt that the Earth's climate is changing. The last sixty years were the warmest in at least the 1000 years. And with the current knowledge that above certain temperatures the fertility levels of today's major crops drop drastically there is no doubt that the African desert margins may turn out to play a key role in providing germplasm of food and medicinal crops for drought resistance in changed climates.

### **COST EFFECTIVENESS**

The reviewer is correct to point out that the maintenance of protective interventions over the longer-term is difficult to assess. This is indeed a major challenge for the DMP, but the issue goes beyond this particular project. The sustainability of any interventions in highly variable and fragile environments depends on the adoption of adaptive management practices that incorporate the capacity to respond to change. Within the DMP one of the key mechanisms to promote this will be the series of demonstration sites which provide a wide range of socio-economic and biophysical conditions and thence a strong comparative base from which to derive information on appropriate responsive mechanisms. This in turn is clearly dependent on maintaining these sites and the information systems derived from them over the longer term – an issue discussed under the heading of Maintenance below.

A great deal of genetic erosion is taking place in the desert margins. In the sahel for example, many local landraces initially of 120 and more growing-days have all but disappeared due to drought. Many ecosystems are threatened. By rehabilitating these ecosystems, the project seek to reintroduce lost or displaced species.

There is also a wealth of proven interventions and technologies which have been developed by the DMP partners in the past 20-30 years of research efforts. (Among them we can cite the International Agricultural Research Centers of the CGIAR (ICRISAT, ILRI, IFDC, TSBF, ICRAF), the Advanced Research Institutes (CEH, IRD, CIRAD), and the National Agricultural Research Systems (NARS).

These technologies and/or interventions while not mentioned in detail in the project brief are available (and listed in the country Annexes) to serve as a spring board for field demonstration and adoption. They include the followings:

- Sand dunes stabilization
- Contour bunding
- Wind en water erosion
- Drought resistant crop varieties
- Integrated nutrient management
- Watershed management approaches to conserve wetlands, oases that harbor important migratory birds and useful endemic species
- Water harvesting and conservation

Furthermore, it is important to point-out that economic evaluation of best practices will be undertaken and only those that are both economically viable as well as environmentally friendly will be promoted. The promotion of this kind of win-win strategies will lead to spontaneous spread and adoption of best practices in a wider area. For example Dutch supported projects on Indigenous Soil and Water Conservation and Promotion of Farmer Innovations in Africa have shown that rapid spontaneous spread can happen by using farmer-to-farmer/village-to-village exchange visits etc.

So there is no doubt that the proposed program will be cost effective and its success rate more than modest even though certain benefits will be difficult to quantify.

## **ADEQUACY OF PROJECT DESIGN**

The reviewer has identified an issue which is inherent to the problems being addressed by this project. The project addresses the convergence of a range of problems of land and resource degradation and biodiversity loss which are driven by a wide range of external factors of which climatic and demographic change impacts are the most dramatic. These drivers of change are not constant and it is indeed essential as the reviewer comments to provide by building capacity for adaptation rather than seeking monolithic solutions.

Furthermore it is essential that the ‘solutions’ are ones which fit the priorities and goals of the land-users and are not simply ‘fixes’ imposed from outside – hence the highly participatory nature of this project. Nonetheless interventions can not be endlessly postponed. The situation is already critical. The institutions collaborating in this project embody expertise across a wide range of social, economic, cultural and agro-ecological disciplines which will enable, early in the project, the opportunity to offer appropriate technologies and interventions (as outlined above) for alternative adaptive management practices to the land-users and other stakeholders. Brief descriptions of examples of such practices are given also under the section on Scientific and Technical Merits.

Implementation of the ‘protective practices’ then becomes a matter of partnership. The comments of the reviewer on implementation below are very pertinent to the approach described here .

The necessary framework is in place to ensure the success of the project:

- 1) Strong complementary expertise of partners  
ICRISAT in crop biodiversity and natural resource management  
ILRI in pasture lands restoration  
ICRAF in agroforestry systems  
TSBF for soil fertility management  
IFDC for integrated soil nutrient management  
ARIs in models development and upscaling  
Specialized NGOs in medicinal plants  
NARS in local expertise on above
- 2) Availability of interventions developed over the past 20-30 years of research and development activities.
- 3) Sound mechanisms of participation that are put in place with well defined roles and responsibilities of each stakeholder including the full participation of resource users as full partners in DMP.

The project will focus its activities in the dissemination and up scaling of these already characterized interventions using participatory approaches.

## **FEASIBILITY**

We agree with the assessment of the reviewer that desert margins are slow – response systems and that a series of dry years can completely mask any progress, and a fortuitous series of wet years may completely supersede any project impact. These are already stated in the project assumptions and risks section of the Logical Framework Analysis (LFA).

However, some key interventions such as water and soil conservation technologies, sand dunes stabilization and capacity building activities will lead to impact during the lifetime of the project.

Biodiversity conservation strategies developed and agreed upon by rural communities will continue to be implemented and will have permanent positive impacts in the years ahead. Techniques for sustainable use of biodiversity, by-laws and regulations will also remain in place. This may well influence government policies and resource allocations toward biodiversity conservation.

## **IMPLEMENTATION**

Agree

However, the key ingredients for success are:

- 1) The stakeholders involvement in the implementation that has taken 4 years to build
- 2) Proven local management techniques / approaches developed by partnering farmers over generations
- 3) Proven technologies developed by partners over 20-30 years life span
- 4) Prior work at some DMP selected sites including site characterization (Kenya, Burkina Faso, Niger and Botswana with IDRC and other donors support).

Therefore, implementation has a solid base necessary for achieving project outputs and success/impact as outlined above.

## **OPERATION**

The review finds the operational framework and the institutional situation complex and makes a valid suggestion to emphasise sharing of information. Though the information sharing is there, it needs to be made more explicit. The information is not only shared in the envisaged steering and executing committee meetings and between the ad hoc thematic advisory teams, but also through email network between members of the committees and thematic teams on continuous basis. Perhaps the role of modern information techniques was considered so obvious that its elaboration was ignored.

Therefore the reviewer is correct in stating that some additional clarity is required.

We now propose to remove the middle layer in the organigramme referring to the sub-regional level (see revised organigramme in project brief). So we now have the national steering committees that will meet annually for national programming purposes and an overall DMP steering committee to ensure regional coordination. The DMP steering committee will meet once a year at one location to review and approve the yearly workplans and conduct a second meeting through electronic media. Other groups will only meet when the need arises.

## **MAINTENANCE**

The problems of the desert margins will not go away over the period of the project. Success in achieving the objectives of the DMP will however create clearer and more focused opportunities for addressing the problems. The project members will work throughout the time to seek further and longer-term funding to maintain the demonstration sites and extrapolate the successful strategies over a wider area of the desert margin zones.

Furthermore:

- 1) With the coming to force of the biodiversity (CBD) and the CCD Conventions, there is now a general consensus among nations that preservation of national resources and halting environmental degradation are highest national priorities. For example the South African Government has committed itself to investing in the combating of desertification (UNCCD), the CBD and the Climate Change Conventions, by supporting large interventions on the National scale, such as landCare, Working for Water and others. In the Millenium Africa Recovery Programme (MARF), their president has committed himself to ongoing assistance in these fields of expertise and programme as listed in the DMP/GEF project.
- 2) Interest of development investors is geared toward supporting such national priorities
- 3) Under the CBD and CCD, development or the setting up of national funding mechanisms are being encouraged
- 4) Local communities themselves are aware of the importance of conserving their natural resources including biodiversity to support sustainable livelihoods
- 5) Benefit sharing activities arising from the sustainable use of conserved biodiversity such as the use of medicinal plants, ecotourism.

These are the foundations that will ensure economic and institutional continuance of the project.

## **Scientific and Technical merits**

### **STRENGTHS**

These are commendable and welcome comments by the reviewer

### **WEAKNESSES**

We agree that many of the details were not listed in the project brief even though many of them are outlined in each country documents. More specifically, the project will in terms of:

### **MONITORING**

To assess baseline status and inventory the number of major ecosystems, endangered plant and animal species, level of land degradation (low, medium and severe) and environmental quality from which to gauge trends in environmental changes due to interventions. These will include:

- a) reversing genetic erosion by quantifying the number of species recovered or rescued
- b) number of degraded ecosystems that would be rehabilitated
- c) improvement in land use systems by knowing the percentage of croplands, grazing lands, woodlands and wetlands rehabilitated.
- d) soil chemical and physical characteristics
- e) changes in natural resource use

### **How**

Following tools will be used: GIS, remote sensing, plant genomic approaches for species differentiation, population dynamics, indigenous knowledge, simulation modeling

Capacity development will be done at different levels:

- local communities capacity in preserving biodiversity
- traditional medicine practitioners trained in sustainable harvesting of medicinal plants
- local communities in in-situ conservation of plants and animals
- NGOs in technology exchange
- government technical department personnel in most aspects of biodiversity management and in land conservation technique, policy formulations, etc..
- NARS – skill upgrade of national scientists including on the job and degree training (project sites will be made available for field research of MSc and PhD students).
- IARCs and ARIs will house and/or support thesis research

### **Identification of successful technologies**

In addition to the numerous interventions that have already been documented in the literature (e.g. book on proven technologies by ICRISAT/INRAN), in publications and from lessons learn from successful baseline project interventions and from the project development phase (PDF-B), there are farmer-proven and adopted techniques to be identified, tested and disseminated.

### **How disseminated**

- Through workshops, printed media, TV, radios, field days, bulletins,
- Public awareness activities, brochures, project reports, newsletters
- Farmer to farmer technology exchange activities

- Farmers exchange visits – West African farmers visiting East and Southern Africa and vice versa

### Strong Unifying conceptual model

One which was not earlier described in the project brief. **Conceptual framework for biodiversity loss and conservation at the desert margins** is, however, available and will guide project interventions. ).

The main elements of the model are described in the appendix below.

### Indicators of success

These have been reviewed and the LFA has been revised accordingly. Main indicators added include the following.

- Innovative new technologies
- Scientific and technical informations
- Provide predictions of shifts in plant pests, diseases and weeds and livestock diseases
- Crop varieties able to maintain yields under severe droughts
- System of coping with more frequent and more severe droughts
- Systems for monitoring biodiversity conservation, especially of the wild relatives of crop and medicinal plants
- Systems of plant and animal production that emit less GHG, principally CO<sub>2</sub>, nitrous oxides, methane
- Cost-effective system for sequestering carbon both in biomass and in the soil
- Macroeconomic policies that encourage sustainable use of biodiversity
- Innovative system for recuperating lands with modern biomass plantations

### SUGGESTED IMPROVEMENTS

1. Project brief and Annexes have been revised to reflect the insertion of more project elements. Further project details are outlined in each country documents (Which will be part of the appraisal documentation and are presently available for review at DMP Coordination Unit or from UNEP/GEF project file)
2. Linkages between biodiversity, desertification and climate change are now been made explicit in Annex M.
3. Better integrated the parts – Brief has been reviewed to comply with this useful comment. Annexes are now well referenced in the main text
4. Key references have been called in and are listed at the end of the project brief.

### RELATIONSHIP TO GEF OBJECTIVES

### RISKS

Agree with first part of the review that there is very little risk that the project will do harm, either to biodiversity protection or to any other GEF objective.

We believe however that:

- 1) most subsidies have been removed through structural adjustment programs in most of the participating countries and it is unlikely that they will pose potential risks
- 2) benefits sharing that will accrue from the sustainable use of biodiversity and ecotourism form strong potential economic benefits to help shift from rural communities practicing environment destroying activities to more environment friendly interventions. Therefore risks are substantially reduced.

## Benefits

Agree with reviewer that the project has the potential to help protect biodiversity. However the project is geared to do more than that. It will transform this potential into reality. In contributing to mitigate land degradation, the project will remove a major threat to biodiversity loss.

While the evidence for ecological benefits from biological diversification through the practice of agroforestry is not well documented in dryland agroecosystems, there is increasing evidence from the moist tropics illustrating the benefits of mature agroecosystems. Soil microbial biomass and macrofauna are often increased in systems containing trees and will play an important role in nutrient cycling. These mature systems also lead to an increase in associated biodiversity in terms of wild fauna and flora.

The use of microsymbionts will enhance the ability of tree to become established on degraded soils and, in turn, these trees will improve the soil inoculum potential in previously impoverished dryland sites, which can be of benefit to intercrops. In such environments, trees and other perennials establishment will increase net primary productivity, decrease soil loss (thru erosion) and will increase the amount of biomass returned to the soil, thus leading to increased carbon stocks in the desert margins.

It is estimated that the amount of atmospheric dust living the Sahel is huge as more than 100 million tons of dust per annum is blown westward over the Atlantic from Africa (*Middleton et al., 1986*). It has recently been speculated that the super-saturated, high-energy Sahelian winds may have contributed to the increased frequency and intensity of Atlantic hurricanes observed in recent times. It has been suggested that the dust laden Sahelian air transported during the summer monsoon into the eastern Atlantic by the easterly winds in association with the Inter Tropical Convergence Zone contain sufficient energy to accelerate the formation of severe storms and energize the formation and maintenance of hurricanes (*Macleod, 1998*). The project will contribute to a significant reduction of this atmospheric dust burdens.

## REGIONAL CONTEXT

We agree with this assessment

## REPLICABILITY

Agree that it is wider in Africa. However, many of the successful elements and lessons learnt can be incorporated into adopted mechanisms elsewhere to form successful models of replicability.

## ADDED VALUE

The integrated approach to biodiversity conservation taken by the project may make it difficult to clearly separate between the benefits of the baseline and project activities. However, the project has been designed to fill the gaps in the baseline that so far have been hampering environmentally sustainable dryland development in Africa's desert margins. The project is specifically targeting gaps that will integrate biodiversity conservation into land management strategies and practices. The project itself is designed to produce a synergy between the baseline activities and activities funded by GEF and other donors leading to increased benefits than the sum of the two.

Moreover, specific project interventions will bring about:

- More biodiversity conservation awareness
- More sustainable use and conservation of biodiversity within the broader context of land management
- Enhanced stakeholders participation through capacity building
- Development of policy and legal frameworks from enhanced biodiversity conservation etc..
- Benefit sharing...

## SUSTAINABILITY

On maintenance and financial sustainability mechanisms, the reviewer has raised a very pertinent question. Fund raising is always a major problem. However, Desert Margins Program is dealing with very fundamental issues in the nine desert margins countries and all of them are developing and adopting the National Action Programs (NAPs) to combat desertification and the UNCCD. Therefore, while envisaging DMP as an integral part of the NAPs, (and in turn as part of national socio-economic development plans) it will give a certain degree of confidence of continuation of DMP with secure funding base. Consequently paragraphs 42-45 can be taken as more than just a "strategy of hope".

Economic sustainability will be assured through successful demonstrations and adoption of sustainable livelihoods, benefit sharing activities and win-win land use strategies. As an example, the Agroforestry Parklands of the Sahel is an example of a win-win land use strategy. These Parklands represent well developed traditional agroforestry system based on large mature trees that provide a range of non-timber forest products.

We give here an example on how to capture economic and environmental benefits with multistrata agroforests.

These are the Agroforestry Parklands (*Boffa, 1999*) which predominate in semi-arid West Africa, and for example, cover 90% of the agricultural land area of Mali. While the area of these parklands may have expanded in recent decades, it is generally considered that parkland tree densities have declined due to a lack of regeneration (*Boffa, 1999*). This decline is thought to arise from increasing human and livestock population pressure, and the consequent shortening of the regenerative fallow period. Prospects for the conservation and regeneration of these parklands may depend on the influences of market demand for the traditional tree products, the sustainability of indigenous management systems, more clearly articulated agreements regarding land and tree rights and the domestication of the parkland species.

In the Sahel, livestock contribute about 70% of farm cash income but its production is constrained by the availability of dry-season fodder. Vendors bring 40-70 kg bundles of *Pterocarpus erinaceus* fodder 30-50 km into markets in Bamako, Mali and make US\$6-12 day<sup>-1</sup> from this activity (*ICRAF, 1997*). This laborious activity is the result of overexploitation of natural stands close to the city, making the establishment of fodder banks close to market an obvious agroforestry alternative. Trials suggest that such fodder banks produce 4.5t ha<sup>-1</sup>, which converts to gross income of US\$630 y<sup>-1</sup> on the basis of an average price of US\$0.14 kg<sup>-1</sup>. This level of income should be attractive to maintain its sustainability as average annual per capita income in Mali is US\$270 (*ICRAF, 1997*).

## **Secondary issues**

### **Linkages to other focal areas**

These linkages are well established at country level through coalition developed at NAPs, SRAPs, NEAPs levels. Countries are party to the 3 conventions and will be reporting the project outcomes to the appropriate COPs.

### **LINKAGES TO OTHER PROGRAMMES**

This project is an integral part of NARS activities, collaborating IARCs and ARIs, programmes. It will collaborate with emerging CGIAR global challenge programmes on climate change and desertification as well as link with UNEP and UNDP work, both members of the DMP.

### **ACTION PLANS AT REGIONAL LEVEL**

No comment

### **OTHER ENVIRONMENTAL BENEFITS**

No comment

### **STAKEHOLDER INVOLVEMENT**

Agree to improve the involvement of policy makers at the national level by involving them proactively at the policy and legal frameworks review stage and subsequently in new policy formulation.

### **CAPACITY BUILDING**

DMP will develop capacities, both institutional and human, within and throughout the “DMP partnership community”. At project coordination and other institutions level the capacity building is obvious. On site level, farmers/resources users will not only gain from the project activities, but they also serve as a major contributors in identifying in testing appropriate land/biodiversity management techniques. Furthermore, farmers are also a built-in extension mechanisms of DMP. They are a primary vehicle in disseminating successful approaches to their fellow farmers in the vicinity of the demonstration areas and even beyond. Farmers are not objects of DMP efforts only, but very strong (and fully fledged ) partners.

### **INNOVATION**

The reason that the project is not perceived as deeply innovative is probably the fact that it will draw from the existing body of information and research on dryland management, which is extensive, and

adapt and upscale practices in a wider geographical area. This is indeed the main challenge of the project, to obtain upscaling and sustained impact, of practices that have so far mainly been tested at research stations and on a very limited pilot basis in farmers' fields.

## **Annex C3. Technical Comments on Work Program GEF/C/18**

### **Swiss Constituency**

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**N°A-2: Regional (Burkina Faso, Botswana, Kenya, Mali, Namibia, Niger, Senegal, South Africa, Zimbabwe): Desert Margin Programme, Phase I; (UNEP/UNDP); GEF: 16.335 USD million; total: 49.507 USD million**

#### **Main Concerns**

- Partnership: in order to gain not only a financial but also institutional sustainability, the institutional mix of strong international and rather weak NARIs and NGOs should be based on a strong component of institutional capacity building and organization development. In order to achieve this, it is important to build lasting institutional partnerships. The proposal lacks ideas on how this could be achieved and on how responsibilities develop over time. Who has the lead in what particular process over the duration of the programme? When do international centers have no comparative advantage over national structures and experiences?
- Regional benefit: How exactly is Niger supposed to be benefiting from South Africa, for example? What is the comparative advantage of an African regional scale rather than a sub-regional one?
- Approach: The overall objective states that the main strategy of the programme is demonstration and capacity building. With complex issues such as these, where solutions may consist of strategies and baskets of technologies to choose from, it has long been shown that demonstration is not an approach that leads to impact. There is no element of dissemination or adoption of strategies by the local population. There should be a strategy to make local people understand and not just adopt “solutions” that may result from the proposed activities. The programme concentrates on development approaches that have long been abandoned by most agencies. More refined mechanisms are needed to improve the potential for impact. Technologies are important, but so is a solid approach to disseminate knowledge.

**We would expect that the CEO -upon second review- will be given credible answers to the questions and concerns raised here.**

**T E L E F A X**

**Sender:**

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Ref.No.: Date: December 11, 2001

To: Mr. Mohamed T. El Ashry  
Chief Executive Officer GEF  
Telefax No.: 001-202-522-3240 (-3245)  
also sent by Email to: [melashry@worldbank.org](mailto:melashry@worldbank.org)

Subject: **German Comments on Work Programme of December 2001**

No of pages incl. this page:

Dear Mohamed:

Please find attached our comments on the GEF work programme December 2001. Comments on the biosafety projects will be provided until December 20, 2001.

Best regards,

Ingrid Hoven

## **Regional Desert Margin Programme Phase I**

**(Burkina Faso, Botswana, Kenya, Mali, Namibia, Niger, Senegal, South Africa, Zimbabwe)**  
Comment on a GEF programme proposal

The project has been under discussion for 5 years; preparation on the part of the executing agency is done by ICRISAT Niamey. The reasons for the long preparatory period are not mentioned in the project document. UNEP explained during the GEF Council of December 2001 the reasons. It would be helpful if this could be included in the project proposal.

1. Programme draft and selection of the intervention zone

The programme has been drafted on the basis of talks held and investigations made in the 9 countries concerned. Its merit is its well-targeted approach of intervening in marginal zones.

2. Duration of the project

The envisaged duration of 6 years seems to be rather short, given the fact that the project essentially aims at improving competencies, i.e. not only at acquiring know-how and skills, but also their application.

3. Project targets and impact

Having been formulated for 9 countries, the targets and impact have been spelled out in rather general terms – it is not clear always what is to be evaluated and which capacities are to be strengthened – and they are not applicable equally everywhere. Thus, support for “more effective drought management policies and strategies” or strategies for a land utilisation plan can be provided more easily on a broader intervention basis (e.g. 14 zones in Namibia) than on that of just one zone (Mali). Nonetheless, by and large they are realistic and meaningful (although some of the indicators seem to be too ambitious, e.g. 90 % of the partners have improved their intervention capacity).

4. Distribution of funds

Without further explanations it is somewhat difficult to understand the reasoning behind the distribution of the funds envisaged to the 7 programme components (ecological monitoring and evaluation; biodiversity conservation and sustainable use; subregional, national and local capacity building; alternative livelihoods policy and legal framework; extension of sustainable natural resource management; stakeholder participation); example: why are almost \$ 11.5<sup>2</sup> million envisaged for M+E measures, but just about \$ 7.2<sup>3</sup> million for implementing the biodiversity conservation and sustainable use component which is a major programme target and is to be designed in a particularly participation-oriented manner?

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<sup>2</sup> Elsewhere, the amount is \$ 10.9 million (or \$ 22.4 million in the Annex)

<sup>3</sup> \$ 3.6 million (\$ 10.8 million in the Annex)

## **Annex C4. Response to Technical Comments on Work Program GEF/C/18**

### **Response to Swiss Comments**

#### **Approach**

We agree with the statement that “more refined mechanisms are needed to improve the potential for impact.” In this regard, the approach adopted by the project is participatory in nature. All stakeholders will actively participate in all aspects of the project. The approach of the project is to identify locally available technologies and know-how and build on this with the active participation of the holders of this knowledge. So the elements of understanding is there since it is their knowledge and refinements is carried out with their active participation. In other words, adoption/utilization of such technologies or outputs is guaranteed for the participating communities. Nevertheless and in order to go beyond the participating communities, the project has developed a “Results Utilization Plan”.

The project has put in place a “Review Mechanism” that will evaluate and fine-tune activities in order to have the envisaged impact( see Annex 3 of the project document).

#### **Partnership**

The institutional mix proposed by the project is essentially based on complementarity of competencies of all the partners. In this regard, the partnership would act as an important vehicle for building a lasting institutional partnership that addresses weaknesses of NARS and NGOs.

First of all, there are 2 levels of activities in this project: one at the national (nine countries) and the other at the sub-regional (three sub-regions)

At the national level, the activities are driven and implemented by NARS with support from IARCs and ARIs. At that level, the comparative advantages are with the national institutions. At this level the NARS are working in collaboration with NGOs, Community-based Organizations (CBOs) and the communities themselves. For instance, in the project document, specific activities are clearly spelled out on both formal and informal training of participants, which provide capacity building of individuals as well as institutional strengthening. Moreover, informal training through workshops and group training constitutes capacity-building and institutional strengthening activities. In addition, the fact that NARSs are working with NGOs and CBOs is in itself a capacity building and institutional strengthening for NARSs and CBOs.

We expect that over the six years period of this project, such national institutions or NARS will build on and improve individual and institutional capacities.

At the sub-regional level, there are a number of cross-cutting issues that need to be tackled for a cross-fertilization of ideas. NARS at this level do not have a comparative advantage, which lies with IARCs and ARIs. These latter institutions will identify these issues (in collaboration with NARS and sub-regional organizations such as CORAF/WE CARD, ASARECA and SACCAR) and develop training package strategies and activities to tackle these issues. Over the course of this project and beyond, we expect that capacity to do this type of sub-regional activities would be developed in the sub-regional organizations.

#### **Regional benefit**

There are many advantages in working at African Regional levels. One such advantage is an exchange of information, ideas and practices in areas, which may have different social structures but share common ecological environmental situations.

For example, all the nine participating countries regardless of which region or sub-region they come from have extensive drylands that are undergoing degradation and losing biodiversity. In this regard, an exchange of information, ideas and solutions would be useful even though such solutions from one area may need to be adapted based on particular socio-economic conditions. Using the example of South Africa and Niger, NARS researchers from South Africa who have been working with large industrial units are now turning their attention to small scale and resource-poor communities. In Niger on the other hand, NARS researchers have acquired the necessary expertise due to the fact that they have always work with such resource poor communities. This project would therefore facilitate an exchange of the much-required expertise among the nine participating countries.

## **Response to Germany's Comments**

### **Reasons for the project long gestation period**

- 1) Complex project involving 9 countries of whom each has to prepare a proposal after an extensive consultation at the national level.
- 2) The need to harmonize the various national submissions and ideas to ensure a common vision;
- 3) The need for political endorsement by each participating country;
- 4) The need to negotiate adequate co-funding in order to access GEF funding.
- 5) The need to provide adequate time for two implementing agencies (UNEP and UNDP) to develop a common understanding of the project and formulate an implementing strategy.
- 6) Time taken to implement the PDF-B (12 months)

### **Program draft and selection of intervention zone**

We agree with the comment that the merit of the program is its well-targeted approach of intervening in marginal zones.

### **Duration of the project**

We agree. Normally to achieve the objectives indicated in this paragraph will require a minimum of 10 years. But given the difficulty of securing a single project of 10 years duration, the consortium led by ICRISAT required a 6-years project with hope that it will leverage additional resources from other donors for an additional four years. The consortium will take the lead in leveraging resources.

### **Project targets and impact**

We agree that the synthesis provided from the 9 national submissions did not do justice to such individual submissions. In actual fact, details of what is to be done, evaluated and which capacities are targeted for strengthened are provided in the individual submissions and they vary from one country to another. On the issue of unrealistic indicators, we agree that taken literally, some of the indicators do appear ambitions. They become more realistic however if viewed within a particular context. For example the "90% of partners" have their intervention capacity strengthened refers to "boundary partners" that is people or communities with which the project is in direct contact throughout the six years period. It is possible to influence a large proportion of such partners over a six years period as opposed to more remote partners who may benefit but on a much longer timeframe (details for what is to be evaluated, when and by whom and the utilization of such reviews are presented in Monitoring and Evaluation Plan, see Annex 3).

### **Distribution of funds**

We agree that some explanation is needed to fully understand the distribution of funds to the project components. The lack of clarity with regards to this specific issue raised is due to inconsistent component labeling for which we apologize. The correct label for the Monitoring and Evaluation as currently indicated in the budget should be "Ecological Monitoring and Assessment" as indicated in the Annex 1, and refers to the establishment of baseline indices, which are land degradation, biodiversity losses and comprise specific activities such as:

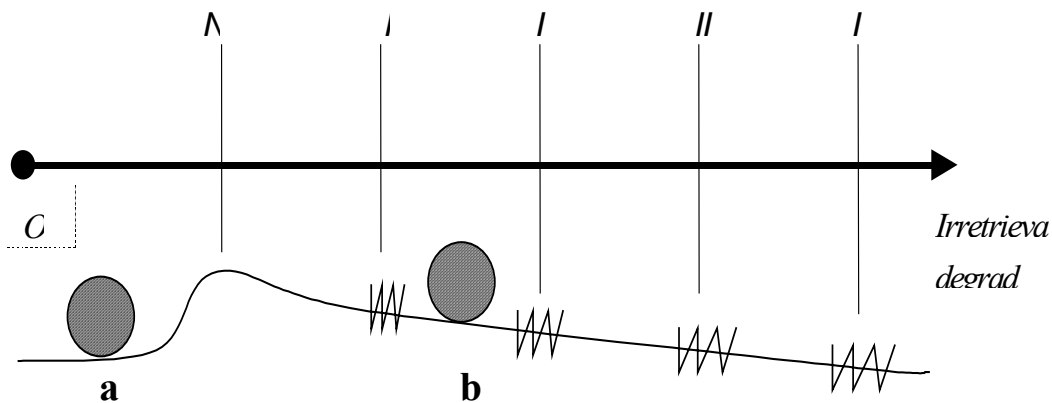
- inventory of endemic species
- inventory of endangered species
- documentation of IK
- characterization of benchmarks
- standardization of data collection
- modeling
- scaling up methodologies
- etc.

We have now ensured consistent labeling of the various components through out the project document. Finally, it should be noted that the budget for classical monitoring and evaluation of the project is US\$120,000.

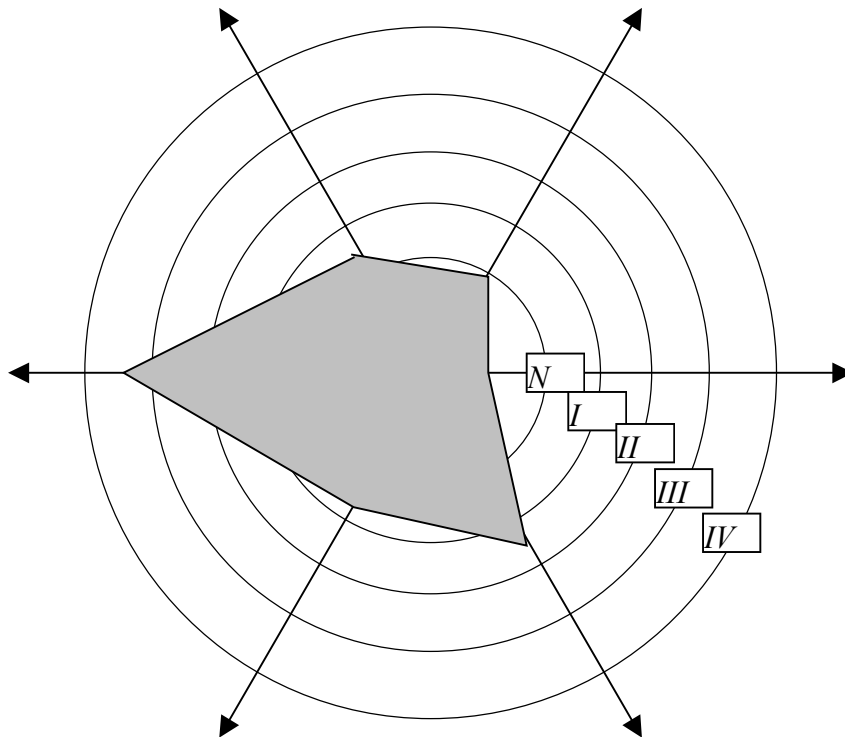
## Appendix C5: An ecological model of land degradation

Drawn from 'Degradation and recovery in socio-ecological systems: a view from the household/farm level by *R.J. Fernandez et al. (2001 in press)*

- Biodiversity loss is one component process of desertification, i.e. dry land ecosystem degradation.
- Desertification is a multi-dimensional problem, with many conceivable causes and a network of consequences that encompass a wide range of spatial and temporal scales.
- Degradation and restoration of a landscape are two sides of the same problem, involving both natural and social forces
- The supply of desired ecosystem goods and services is governed by a subset of a few variables, which include both biophysical and socioeconomic one and are often variables of relatively slow dynamics.
- The framework can be visualised into a set of three inter-related graphs.
- In Figure 1, a continuous axis represents the biophysical state of a particular ecosystem from sustainable state near the origin to a desertified stage defined as a decrease of biological productivity that is not reversible in the temporal scale relevant to the decision-makers at a specified level with the resources available. The degradation process along the axis is stepwise. there are a number of thresholds defined as to include the resources and reach of action that can be harnessed for restoration at a low level of intervention. Thus “reversibility” is a concept not totally independent from the scale of analysis and contingent on the physical, technological and institutional/political resources available.



**Figure 1:** The horizontal line above represents a hypothetical, composite state variable for a particular system. The line below is a representation of the ball-in-the-cup metaphor for system dynamics. The “resistance”, zigzag symbols represent buffering actions without which the system will continue a trend to its degradation (towards the right).



- In Figure 2, the complexity of the factors implied in the status of an ecosystem is visualised by a snowflake-type diagram of the various components of degradation biophysical as well as relevant socioeconomic. The axes can be scaled so that degradation thresholds are figured as concentric circles.

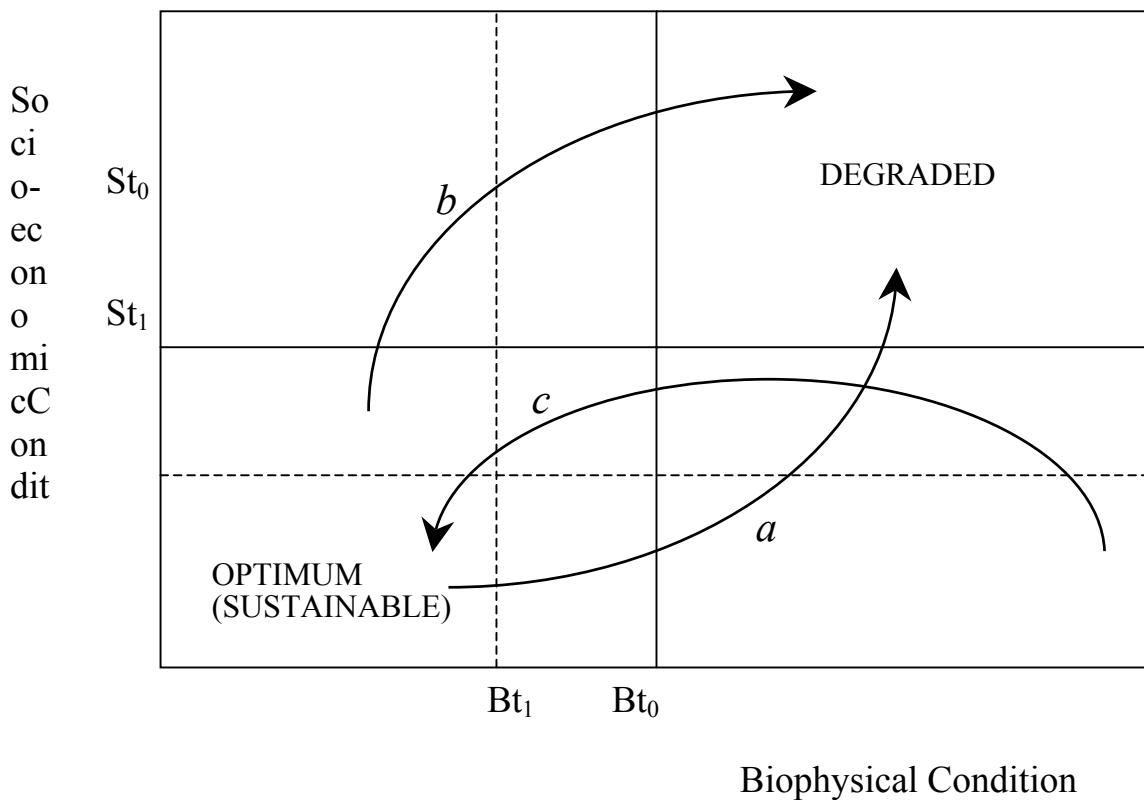
Figure 2: “Snowflake” diagram suggested as a useful multivariate way of portraying and tracking degradation. Each of the radii represents one relevant state variable, with the center point representing its extreme non-degraded value. Circles indicate deterioration thresholds and are labelled as in Fig. 1. This example represents the state of a system using 6 variables: two of them are within the threshold of natural variability, and the rest requiring external resources at different levels of intervention to be restored. The shaded area quantifies the degree of overall system deterioration.

Analyses of several different ecosystem types show that the number of crucial variables that govern the trajectories of the desired ecosystem services is likely to be somewhere between three and five (*Gunderson and Holling, 2001*) with at least one biophysical and one socio-economic variable. In figure 3 a system component (farm, community, district) can be plotted against the two axis representing one of the biophysical and one of the socio-economic variable. the thresholds on the two axes define a domain of socio-economic and environmental sustainability (down-right quadrant including the origin of the axes) and a domain of desertification (top-left quadrant beyond the thresholds).

- The positions of the thresholds determining the actual boundaries of resilience are not fixed. They could be seen as fluctuating naturally from year to year around a certain average position.

- The position of the thresholds can be shifted through changes in the system and through external factors. Climate change, for example, could have this type of effect, either in a positive or a negative way.
- Management and policies could contribute to expand the domain of resilience (by pushing the threshold on each axis away from the origin) and thus build and maintain the adaptive capacity of the ecosystem.

Fig. 3. Two-dimensional representation of a system's possible state.



## **Annex D: Causes, threats and impacts on biodiversity loss**

<i>Causes</i>	Threats	Impacts
<b>Poverty</b>	Land degradation:	Poverty Loss of dryland biodiversity
<b>Population pressure</b>	Over-cultivation	Loss of livelihood opportunities
Government policies	Overgrazing	Impair vegetation regrowth
Inappropriate land tenure (substitution of rangeland by cropland)	Urbanization	Mass migration – environmental refugees, rural-urban
Failure to enforce laws or inadequate legal and institutional framework	Deforestation	Food insecurity
Lack of awareness	Unsustainable land management practices	Loss of traditional knowledge
Commodity pricing and terms of trade	Hunting and poaching	Ecosystem fragmentation and habitat loss
Climate change	Exotic invasive species	Species extinction
Drought	Excessive use of agro-chemicals	Loss of local landraces
Inadequate international cooperation and partnerships	Indiscriminate introduction of GMOs	Soil degradation – soil erosion, salinization etc.
Inadequate education and capacity building	Unsustainable resource extraction	Pollution of soils, water and air
Inadequate data and information	Wildlife/human conflicts	Reduction in soil carbon pool and above-ground sink function
War and civil unrest	Land use conflicts	Lowering of ground water table
Inadequate energy supply	Household vulnerability	Changes in ecosystem boundaries
	Uncontrolled fires	Loss of productivity
	Dependence on fuel wood	

## **Annex E: Public Involvement Plan**

### **PARTNERS AND THEIR ROLES IN THE DMP IMPLEMENTATION**

#### **Local stakeholders**

The PDF-B exercise has allowed the participation of local stakeholders as full partners of the DMP. These involve men and women of target communities, farmer associations, traditional leaders, pastoralists and agro-pastoralists. They will contribute directly to the implementation of the project and be consulted by the other partners in project decision forums

#### **NARS and NGOs**

NARS and NGOs of the selected countries affected by desertification and the loss of biological diversity are at the heart of the DMP. NARS include all of a country's public and private agricultural research institutions, such as government departments, universities, and non-profit establishments that conduct research or contribute to the development or adaptation of technology and policies that support agricultural and rural development. The NARS form the essential links with extension services, the private sector, educational institutions, and government ministries. They work with farmers and farmers' organizations on the identification of research problems and on technology transfer. For the purpose of this Program, NARS will be the focal point of agricultural research in each country.

NGOs have a catalytic role in this Program. They function best at the grassroots level and work with farmers and other resource users, and farmers' organizations, developing new approaches to agricultural and environmental problems. Their role as full partners in the development and implementation of DMP has been clarified during the PDF-B implementation. There have been examples of NGOs assisting governments in experimenting with establishing community extension systems and transferring responsibilities to them.

#### **INTERNATIONAL AGRICULTURAL RESEARCH CENTERS (IARCs) / UNITED NATIONS AGENCIES**

The IARCs under the CGIAR participating in the DMP include ICRAF, ICRISAT, IFPRI, ILRI, and IPGRI. ICRISAT, on behalf of the consortium, is taking a leadership role in the development and implementation of this Programme.

ICRISAT's regional mandate is to improve agriculture in the semi-arid tropics (SAT), and its global mandate is to conduct research on six food crops: sorghum, pearl millet, finger millet, chickpea, pigeonpea, and groundnut. ICRISAT's scientists in sub-Saharan Africa are located in Niger (ISC), Mali, Nigeria, Zimbabwe, Malawi, and Kenya.

ICRAF's mission, as stated in its charter, is "to increase the social, economic and nutritional well-being of peoples of developing countries through the use of research and related activities to integrate woody perennial species in farming and related land-use systems in order to increase productivity, profitability, sustainability, diversity of output, and the conservation of natural resources". This mandate is pursued in thirteen African countries and six countries in Southeast Asia and Latin America. The relevant countries of the DMP are Burkina Faso, Kenya, Mali, Niger, and Senegal.

ILRI's mandate is to measurably and sustainably improve the livelihood of resource-poor livestock keepers, make animal products more affordable and accessible for the poor and conserve natural resources in developing countries through partnerships and alliances for innovative livestock research, training and information exchange". Key agroecological research and associated activities that have had impact on sustainable agricultural production in sub-Saharan Africa and are relevant to this initiative include: the development of feed resources suited to the specific needs of various agroecological zones, studies on the role of crop residues and manure for nutrient cycling in crop-livestock systems, grazing management practices that improve the carrying capacity of rangeland, prevent degradation and maintain plant species diversity, and policy studies on farmers' land use decisions and impact on productivity and land degradation.

IFPRI was established to undertake research on food policy issues and to help developing countries devise appropriate policies to ensure the optimum use of new agricultural and resource management technologies. With its national and international collaborators, IFPRI has been conducting agricultural policy research in the Sahel for over a decade. IFPRI's research conducted under this Initiative would be under part of its broader research program on "Policies for Sustainable Development of Fragile Rainfed Lands". Thus, insights and methods from work being carried out in other parts of the world on similar issues could contribute to the DMP.

IFDC undertakes research and provides assistance, advisory services, and training for the transfer and use of improved fertilizer and related technology, and for the implementation of appropriate economic policies. IBSRAM conducts adaptive research in 23 countries in Africa and Southeast Asia.

TSBF. The overall goal of the Tropical Soil Biology and Fertility (TSBF) Programme aims to contribute to human welfare and the conservation of environments in the tropics by developing adoptable and sustainable soil management practices that integrated biological, physical and socioeconomic processes that regulate soil fertility and optimize the use of organic and inorganic resources available to the land uses.

UNEP's desertification control programme has its origin in the 1977 Desertification Conference in Nairobi. Since 1999 UNEP has expanded its programme beyond desertification in drylands. It presently includes all types of land degradation in different ecological regions and rainfall areas from arid lands to humid tropics

Since 1978, UNEP and UNDP, in a joint venture, have assisted countries in the Sudano- Sahelian region to develop and initiate national action plans to combat desertification. This partnership has now been extended to assist all developing countries in designing their national action plans under the CCD.

UNEP and UNDP are two of the implementing agencies for the GEF, which was created to assist developing countries to respond to global environmental concerns. Following the Earth Summit in Rio, the global Conventions on Climate Change and Biodiversity chose GEF as their funding mechanism.

#### **ADVANCED RESEARCH INSTITUTES (ARIs)**

ARIs associated with the DMP include the Center for Ecology and Hydrology (CEH), Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD) (France), and Institut de Recherche pour le Développement (IRD) (France).

The Centre for Ecology and Hydrology (UK). The Centre for Ecology and Hydrology (CEH) has a scientific staff of about 500, and is a component Centre of the UK Natural Environment Research Council. CEH is also a member of the Edinburgh Centre for Tropical Forests, an implementing agency for Development Projects. CEH was formed in 2000 by the merger of four former institutes (Institute of Terrestrial Ecology, Institute of Hydrology, Institute of Freshwater Ecology and the Institute of Virology and Environmental Microbiology). CEH has been involved in the development of the Desert Margins Programme from the start (1995).

The staff of CEH have many areas of expertise relevant to the GEF component of the DMP and can contribute to DMP as collaborators in the field work and/or as providers of training packages, in the following areas:

- Rapid biodiversity assessment of the impacts of environment degradation and rehabilitation
- Use of DNA molecular techniques for assessment of soil biodiversity and the genetic diversity of flora and fauna
- Assessment of carbon sequestration in natural ecosystems and agroecosystems
- Assessment and modelling of tree-crop-grassland interactions, especially for water and nutrient competition
- Assessment of diversity and ecology of mycorrhizal fungi and their importance in ecosystem function and the nutrient cycling of production systems
- Use of mycorrhizal fungi as indicators of environmental degradation /rehabilitation
  - Evaluation of hydrological processes at all levels: especially for the prediction of seasonal rainfall and the improvement of predictions of future climate; sustainable watershed management; etc.
- Agroforestry for environmental rehabilitation and household benefits, including income generation from indigenous fruits, fodder, medicinal products, other NTFPs; etc.
- Domestication of new tree crops, using vegetative propagation and cultivars selection
- Assessments of the hazards to potable water of deep nitrogen percolating to the water table as a result of deforestation and environmental degradation
- Modelling environmental and ecological impacts at sub-regional, regional and global scales.

#### Institut de Recherche pour le Development (IRD)

IRD brings its long-standing expertise in the monitoring of dryland climate, soils, and vegetation, using ground-based measurements and remote sensing.

Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement (CIRAD) specializes in agriculture in the tropics and subtropics and contributes to the economic development of these regions through research, experiments, training, and dissemination of scientific and technical information.

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**Table 1. National, sub-regional, and international partners in the DMP Consortium**

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Focal Institution	Country/region
<b>1. NARS/NGOs</b>	
Institut d'études et de recherches agricoles (INERA), Association Six-S (NGO)	Burkina Faso
Agricultural Research Department, Thusano Lefatsheng (NGO)	Botswana
Kenya Agricultural Research Institute (KARI)	Kenya
Environment Liaison Center International (NGO)	
Institut d'économie rurale (IER)	Mali
Institut national de recherches agronomiques du Niger (INRAN)	Niger
Ministry of Agriculture, Water and Rural Development, Research and raining	Namibia
Institut senegalais de recherches agricoles (ISRA), Bureau Pedologie	Senegal
Platform Rurale des Paysans des Etats Membres du CILSS (NGO)	
National Department of Agricultur (NDA)	South Africa
Department of Research and Special Services, ENDA-Zimbabwe (NGO)	Zimbabwe
<b>2. International Institutes/United Nations Agencies</b>	
International Center for Research in Agroforestry (ICRAF)	Nairobi, Kenya
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)	
International Fertilizer Development Center (IFDC)	Patancheru, India
International Food Policy Research Institute (IFPRI)	Muscle Shoals, AL, USA
International Livestock Research Institute (ILRI)	Washington, DC, USA
International Plant Genetic Resources Institutes (IPGRI)	Nairobi, Kenya
United Nations Development Programme (UNDP)	Rome, Italy
United Nations Environment Programme (UNEP)	New York, USA, and Regional Office (Africa)
Tropical Soil Biology and Fertility Programme (TSBF)	Nairobi, Kenya
	Nairobi, Kenya
<b>3. Advanced Research Institutes</b>	
Centre de coopération internationale en recherche agronomique pour le développement (CIRAD)	Montpellier, France
Center for Ecology and Hydrology (CEH)	Edinburgh, UK
Institut De Recherche pour le développement (IRD)	Paris, France

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## **ANNEX G: PROJECT MANAGEMENT STRUCTURE**

DMP will have two levels of activity; (i) National activities jointly implemented at the country level by the National Agricultural Research Systems (NARS), International Agricultural Research Centres (IARCs) and Advanced Research Institutes (ARIs), led by National Coordination Committees, chaired by a National Coordinator, and (ii) Sub-regional / regional activities implemented by IARCs and ARIs.

At the national level, IARCs and ARIs, will assist NARS through the Scientific and Technical Advisory Team (STAT) to develop a common framework for site stratification and to characterise specific bench mark sites. The STAT will also provide support to NARS for the development of standardised data collection methodologies, storage and management systems for an understanding of ecosystem status and dynamics with regards to the loss of biodiversity. IARCs and ARIs will also participate in the implementation of studies at the benchmark sites and assist with an overall syntheses at the sub-regional and regional level. In addition, IARCs and ARIs will promote capacity building in the NARS through training courses and collaborative studies at the field level. Through these collaborative studies, IARCs and ARIs will provide support to NARS for the development of natural resource management methods and technologies that include strategies for implementing and promoting conservation, restoration and sustainable use of degraded ecosystems.

At the sub-regional and regional level, IARCs and ARIs will assess the need for new scientific, technical and social science in order to implement and fulfill all the proposed DMP outputs, and then develop appropriate training packages that meet these needs. Such training may be provided by an array of different types of courses, or through scientific team exchange visits and information sharing between sub-regions and countries to facilitate technology transfer. Sub-regional and regional synthesis of results will be developed by IARCs and ARIs through upscaling methodologies for south-south trends and through the use of systems modeling, remote sensing and GIS tools for extrapolation strategies. Biophysical and socio-economic approaches to modeling will be integrated to allow the screening and identification of scenarios that will lead to best bet management practices and policies for rebuilding biodiversity and restoring degraded and collapsed ecosystems. Once appropriate technologies and land use practices have been identified, IARCs and ARIs will assist NARS scientists to assess the training needs of all levels of stakeholders and target populations across sub-regions and countries. They will then develop training packages and appropriate policy guidelines that meet these requirements. They will also generate and produce information / dissemination packages.

### **DMP Steering Committee**

The Steering Committee will meet once a year at one location to review and approve the yearly workplans and conduct a second meeting through electronic media. Other groups will meet only when the need arises. Meetings will rotate between countries and sub-regions. Meetings will be open, and NGOs observers will be invited.

### **Terms of Reference for the DMP GEF Project Steering Committee**

Review and approve final project documents

Promote sound relations between the DMP and other initiatives

Constitute working groups to facilitate implementation of activities and work plans

Determine the programme's priority research areas

Promote effective linking between country and sub-regional aspects of the project

Develop guidelines for the appointment of members of the Scientific and Technical Advisory Team (STAT)

Develop and approve Terms of Reference for specific tasks to be undertaken by the STAT

Appoint members of the STAT

### **Membership of the Steering Committee**

The steering committee is composed of 14 members:

One National Co-ordinator per country (9), one representative of the International Agricultural Research Centers (1), one representative from the convening center (ICRISAT), one representative each from UNEP and UNDP (2) and the DMP Coordinator as its ex-officio member.

### **Executive Committee and its Terms of Reference**

The day to day management of the DMP will be supported by an Executive of the Steering Committee. The Executive will meet (largely) virtually.

### **Membership of the Executive Committee**

It is formed by a committee of 6 members as follows:

One Anglophone/Eastern African Representative, one Francophone/West African Representative, one representative each from UNEP, UNDP, ICRISAT and the DMP Coordinator.

### **Scientific and Technical Advisory Team (STAT)**

The STAT will be an ad hoc grouping of experts, and its membership will be fluid as the need arises. It will comprise the most suitable advisors to address the topic at hand (members will not be appointed on a proportional or country basis)

It will provide ad hoc advice on implementation, both proactive policy advice and problem oriented, as these arise.

The STAT will be appointed by the Steering Committee and its Executive Committee via the Co-ordinator.

### **National Coordinating Committees**

As explained earlier, National Coordinating Committees (NCCs) established during the national workshops, will identify and prioritize the national research problems in collaboration with all partners in the Program, including research and extension institutions, CBOs (farmer's, resources users representatives) local NGOs, and universities. A National Coordinator has been appointed by each NCC in the consortium to coordinate the planned national program in the DMP, allocate research tasks, and share information and resources across the national institutions.

### **Terms of reference of the National Steering Committees**

Select and appoint the National Coordinator

Identify and prioritise research activities within projects for submission by the DMP to donors

Liase with the national GEF Focal Point and ensure sound coordination within government

Liase with the DMP country office

Liase actively with all national partners so as to ensure effective project management, and promote synergy between all aspects and partners of the DMP.

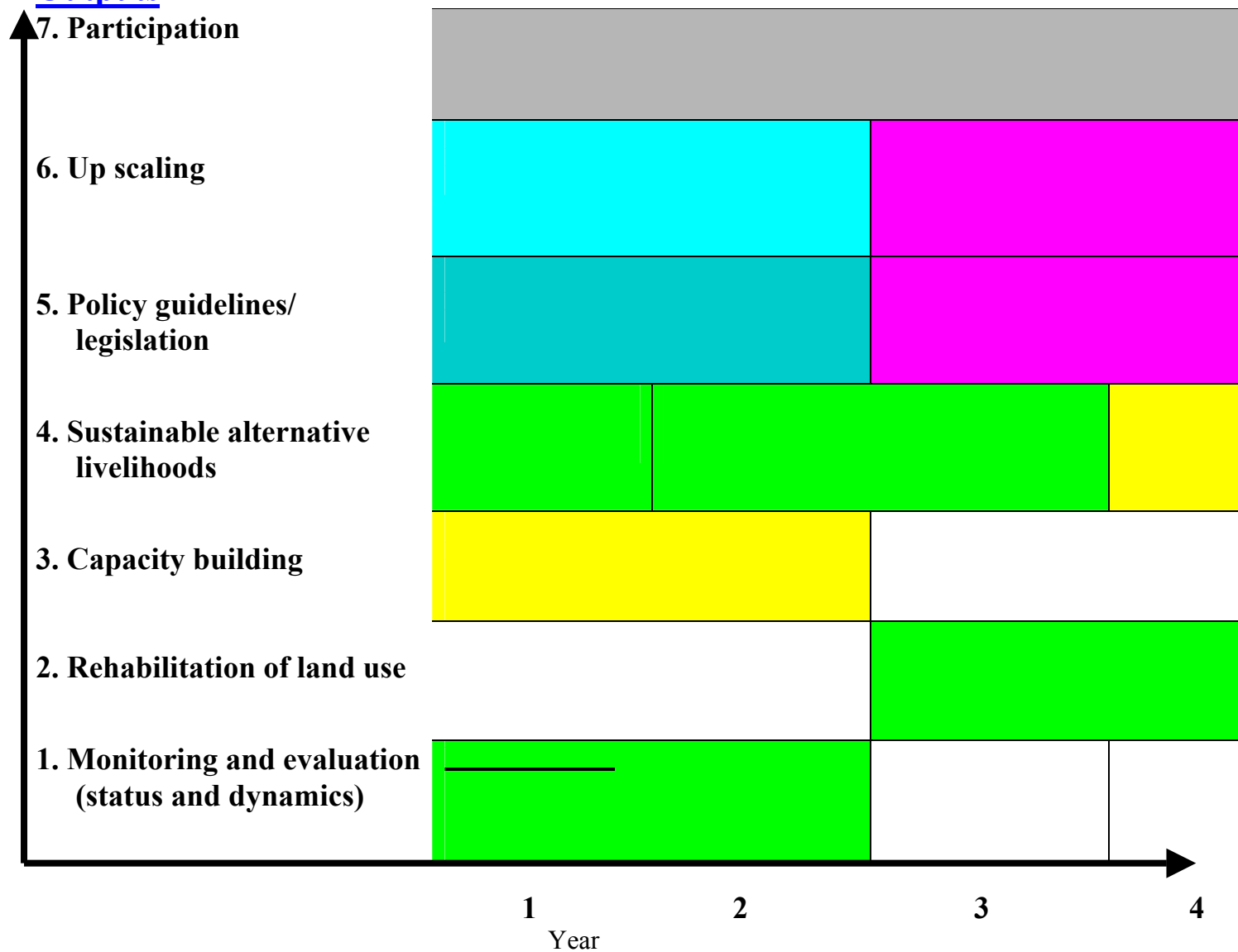
Receive, approve and forward all progress reports to the DMP

### **Global management structure**

ICRISAT will manage logistics, finances, etc on a de-centralized basis in each sub-region. The ICRISAT regional office in Niamey will manage funds earmarked for the West Africa partners, the regional office in Nairobi for partners in East Africa and the regional office in Bulawayo for partners in Southern Africa. Each office will be supported by a sub-regional coordinator supported jointly by ICRISAT and GEF project funds. Sharing of experiences and learning should primarily take place at field level via exchange visits, seminars, etc that involve both francophone and Anglophone countries.

## Major Project activities by Year

### Outputs



## Annex I: Budget by Outputs and Activities

Activities	Project Phase	Baseline	Alternative	Co-funding	GEF
<b>Output 1. Monitoring and Evaluation</b>					
1.1. Inventory of endemic species	1	2,093,863	3,634,370	906,161	634,346
1.2. Ecosystems stability	2	2,415,909	3,740,909	657,143	667,857
1.3. Document IK	1	404,500	581,720	151,850	25,370
1.4. Inventory of endangered species	1	12,400	124,460	106,225	5,835
1.5. Biodiversity degradation	2	497,000	1,132,000	335,000	300,000
1.6. Regeneration	2	12,180	173,960	121,780	40,000
1.7. Restoration of biodiversity	2	717,175	930,175	111,000	102,000
1.8. Characterization of benchmarks	1	276,000	1,313,000	801,000	236,000
1.9. Standardized data collection	1	1,256,133	2,736,133	895,000	585,000
1.10. Identify social skills	2	625,000	1,115,000	310,000	180,000
1.11. Develop packages	3	500,000	1,315,000	580,000	235,000
1.12. Scaling up methodologies	3	1,534,857	4,336,785	1,669,071	1,132,857
1.13. Modeling	3	590,000	1,252,000	340,000	322,000
<b>Total 1</b>		<b>10,935,017</b>	<b>22,385,513</b>	<b>6,984,230</b>	<b>4,466,265</b>
<b>Output 2. Testing and Implementation</b>					
2.1. Document best-bet practices	1	813,043	1,850,727	803,290	235,738
2.2. Pilot technologies	1	401,658	1,738,393	932,400	404,335
2.3. Adoption and implementation	2	1,014,176	2,461,938	1,009,665	438,097
2.4. Conservation and restoration	3	647,371	1,991,716	939,131	405,214
2.5. Enhance IK	3	203,200	1,235,200	792,880	239,120
2.6. Overall synthesis	3	485,000	1,548,640	608,640	455,000
<b>Total 2</b>		<b>3,564,448</b>	<b>10,827,950</b>	<b>5,086,006</b>	<b>2,177,504</b>

Activities	Project Phase	Baseline	Alternative	Co-funding	GEF
<b>Output 3. Capacity building</b>					
3.1. Assess Training needs	1	946,904	2,600,970	912,554	741,512
3.2. Develop training programmes	1	929,029	2,976,617	1,378,469	669,119
3.3. Planning and implementation	2	813,333	2,788,333	1,202,000	773,000
3.4. Sensitize partners	2	1,214,272	2,871,272	1,398,600	258,400
3.5. Organize training courses	2	654,500	3,255,150	2,132,960	467,690
3.6. Information packages	3	338,100	1,104,330	416,250	349,980
3.7. Training packages	3	317,125	2,335,425	1,528,300	490,000
<b>Total 3</b>		<b>5,213,263</b>	<b>17,932,097</b>	<b>8,969,133</b>	<b>3,749,701</b>
<b>Output 4. Sustainable alternative livelihoods</b>					
4.1. Livelihoods options	1	1,047,500	2,500,650	1,008,150	445,000
4.2. Empower communities	1	58,100	670,800	543,100	69,600
4.3. Implement best-bet options	3	826,462	2,687,862	1,408,900	452,500
<b>Total 4</b>		<b>1,932,062</b>	<b>5,859,312</b>	<b>2,960,150</b>	<b>967,100</b>
<b>Output 5. Policy and legal framework</b>					
5.1. Document existing policies	1	757,219	1,838,834	461,615	620,000
5.2. Develop policy documents	2	27,266	805,631	594,365	184,000
5.3. Implement policies	3	789,800	797,165	1,124,365	623,000
<b>Total 5</b>		<b>1,574,285</b>	<b>4,721,630</b>	<b>2,180,345</b>	<b>1,427,000</b>
<b>Output 6. Up scaling of NRM options</b>					
6.1. Promote soil fertility	2	1,027,933	2,740,033	1,017,100	695,000
6.2. Promote integrated land and pastoral spaces	2	415,000	1,545,000	920,000	210,000
6.3. Promote multiple land use systems	3	150,000	1,400,000	650,000	600,000
6.4. Integrated management of biodiversity	3	201,714	1,446,737	1,183,872	61,151
6.5. Support to NARS	2				936,000

<b>Activities</b>	<b>Project Phase</b>	<b>Baseline</b>	<b>Alternative</b>	<b>Co-funding</b>	<b>GEF</b>
		1,195,000	2,931,000	800,000	
<b><i>Total 6</i></b>		<b><i>2,989,647</i></b>	<b><i>10,062,770</i></b>	<b><i>4,570,972</i></b>	<b><i>2,502,151</i></b>
<b>Output 7. Stakeholder participation</b>					
7.1. Participation of vulnerable groups	1	254,333	1,246,797	732,185	260,279
7.2. Permanent dialogue framework	1	100,000	755,000	600,000	55,000
7.3. Scientific teams exchanges	2	1,575,000	3,394,286	1,454,286	365,000
<b><i>Total 7</i></b>		<b><i>1,929,333</i></b>	<b><i>5,396,083</i></b>	<b><i>2,786,471</i></b>	<b><i>680,279</i></b>
<b>Grand Total</b>		<b>28,358,055</b>	<b>77,865,362</b>	<b>33,537,307</b>	<b>15,970,000</b>

## **Annex J: Major constraints to sustainable agricultural production and biodiversity conservation in the countries covered by the Desert Margins Program (DMP)**

### **Environmental constraints**

- Infertile erosion prone soils ;
- Limited and unpredictable rainfall, with frequent and severe droughts;
- Inadequate irrigation which is often poor in quality as well as quantity.
- Reduction of suitable land for agricultural purposes;
- Pests and diseases that limit both crop and livestock production.

### **Technological constraints**

- Inappropriate technology transfer; Some technologies are beyond the capacity of farmers in terms of labour, time and capital; Some technologies are also not adapted to farmers' means, living conditions, as well as specific needs;
- Weak research-extension-farmer linkages. Inadequate coordination of technological information from NGOs, researchers and extension workers;
- Inappropriate and inadequate technological packaging, as well as limited technological awareness;
- Limited involvement of universities in research and extension education and lack of adequately trained personnel;

### **Socio-cultural constraints**

- Indigenous technical knowledge is not taken into account, particularly when introducing new practices; Technology conflicts with local knowledge and time-tested traditional practices;
- Some farmers are not convinced of the added value of technology;
- Gender barriers to technology adoption;

### **Economic constraints**

- Inadequate access to markets for agricultural produce.
- Low market competitiveness for agricultural produce.
- Insufficient funding for agricultural research; Not well oriented agricultural research programmes;
- Limited access to farm inputs and credit;
- High costs of fertilizer inputs and other soil-condition ameliorating methods;
- Competition/conflict between agriculture and livestock enterprise on limited land resources;

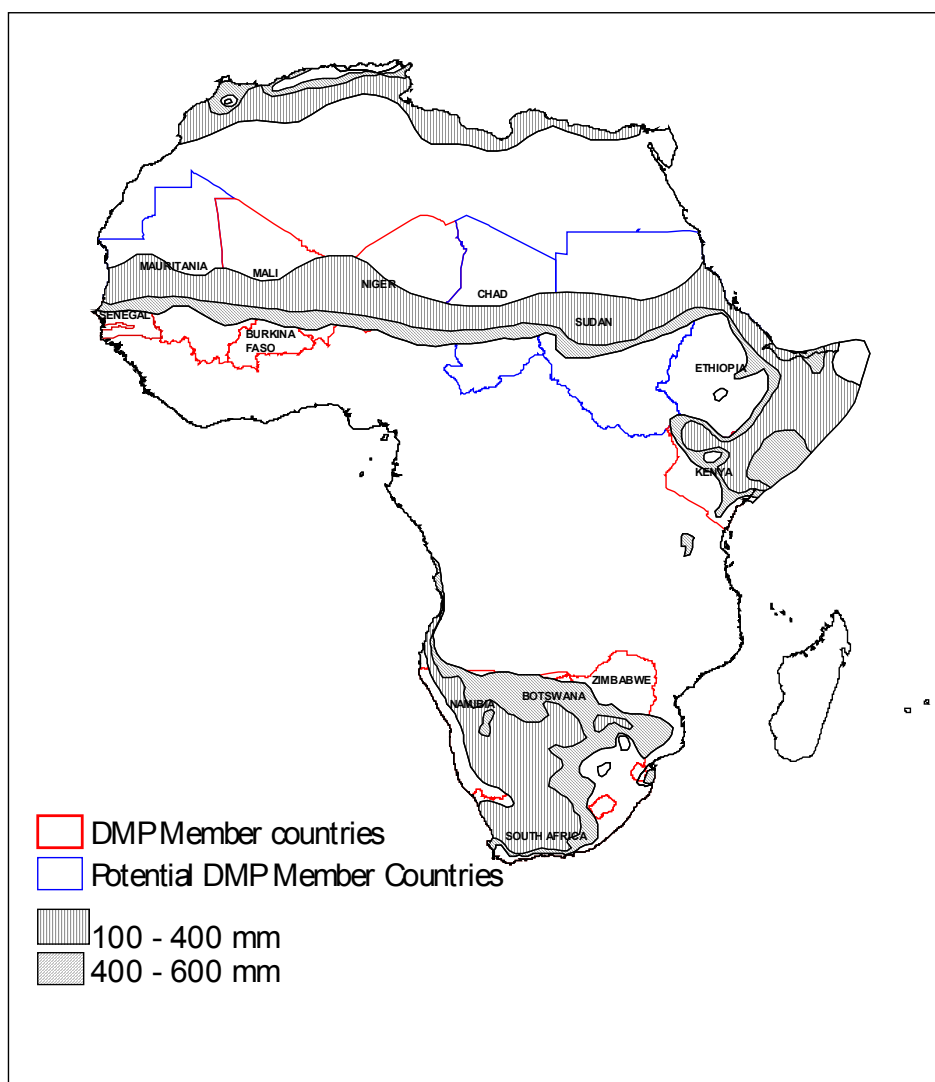
### **Institutional constraints**

- Inadequate integration of research and development activities;
- Lack of coordination among and between agricultural research institutions (IARCs and NARS);
- Inadequate promotion of sustainable agricultural farming systems;

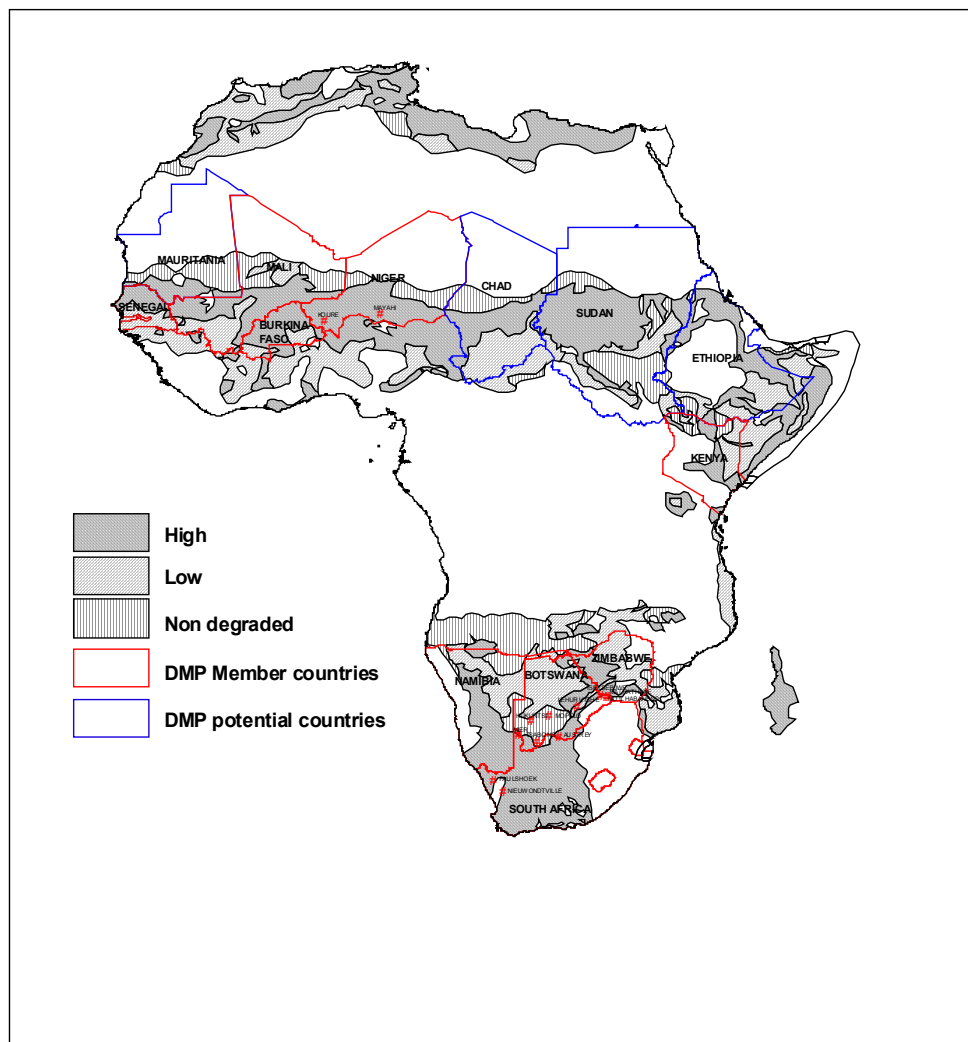
### **Policy constraints**

- Incentives to increase agricultural production are not harmonized within and across countries of the region and sustained;
- Inappropriate land tenure systems that limit access to land and security of tenure;
- Inadequate policy to support sustainable agricultural farming systems;
- Exclusion of the corporate sector from agricultural research;
- Inefficient financial support to implement technology;
- Weak logistics to extend technologies e.g. roads. Telephones and tools;

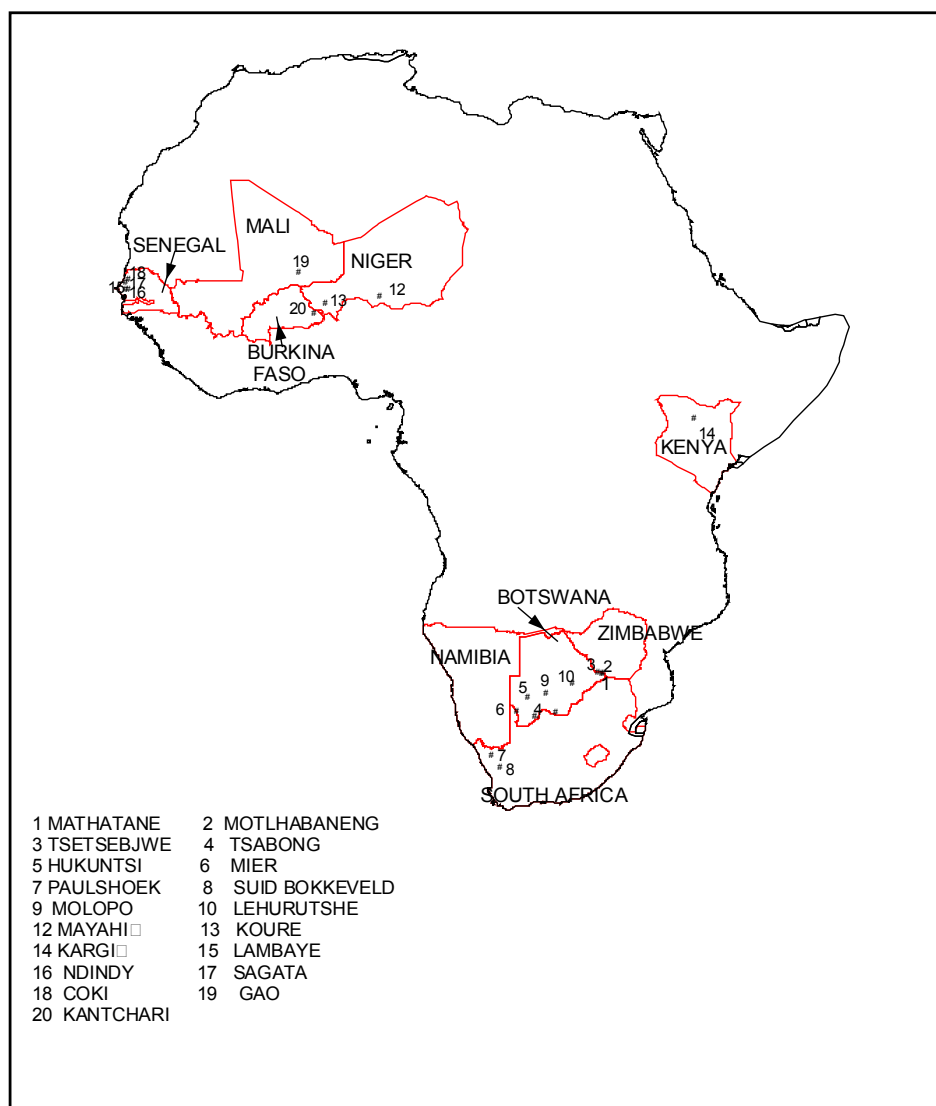
# Annex Ka : Rainfall zones 100 to 600 mm



# **Annex Kb : Land degradation severity and project sites in DMP countries**



## ANNEX kc: DMP Countries and project Sites



## ANNEX Kd: PROJECT SITES

### BURKINA FASO

Three main sites have been selected in Burkina Faso.

1. District of Banh
2. District of Kantchari
3. District of Oursi

### BOTSWANA

Two main sites are selected comprising 5 villages as follows:

District/ Sub district	Village	Coordinates	Altitude (m)
Bobirwa	Mathathane	22° 15N 35.60 S; 28° 45N 29.10 E	722
	Motlhabaneng	22° 10N 10.20 S; 28° 53N 25.60 E	590
	Tsetsebjwe	22° 18N 18.20 S; 28° 20N 43.50 E	886
Kgalagadi	Tsabong	26° 04N 01.30 S; 22° 21N 28.90 E	1002
	Hukuntsi	24° 00N 43.20 S; 21° 47N 43.90 E	1225

### MALI

Project activities will be centered around Gao

### NAMIBIA

This project will mainly focus in four of these 14 sub-zones namely the **Dwarf Shrub Savanna** in the south, the **Mixed Tree and Shrub Savanna** in the southeast, the **Camelthorn Savanna** in the east and the southern parts of the **Forest Savanna and Woodland** in the northeast.

#### DMP Description of project area

Ecological diversity in Namibia is best described in terms of biomes or ecosystems. Namibia's four main terrestrial biomes are **Desert**, **Nama-Karoo**, **Succulent Karoo** and **Savanna**. Although animal distribution data on their own cannot realistically be used to delineate biomes, insect distribution data have helped to confirm the general validity of this categorisation. A similar biome classification has been used by Africa's largest biodiversity project, the Southern African Bird Atlas Project (SABAP) and by a recent diversity analysis of Namibian birds. At a finer scale, Namibia is divided into three broad vegetation categories and fourteen veld types.

The specific sites would be focused on and around Gibeon in the south-central communal farming areas (25° 74'S, 17° 48' E ), Epikuro (21° 21'S, 19° 12'E) and Aminuis (23° 38'S, 19° 21'E) in the eastern communal farming areas. Lessons learned would be shared and expanded to other communal farming areas, in the desert margins, both south and east.

Sites selected for this work are located in the Northern edge of the Nama-karoo region of Namibia. They are complementary to NAPCOD current work in the West (Namib margin) and North of Namibia.

## **NIGER**

Selected sites are given below

<b>East province</b>	<b>West province</b>
Mayahi Coordonnées : 7.67 lat.- 13.96 long. Plaines de l'Est	Kouré: Coordonnées : 2.57 lat. - 13.31 long. Dallols, Plateaux, Fleuves et affluents

## **SENEGAL**

Selected sites are given below

<b>Zone Nord et Centre – Zone Ouest</b>	<b>Zones Centre – Est – Sud - Estuarienne</b>
Zone Nord et Centre : 351 762.15 longitude, 1639 662.18 latitude  Zone Ouest : 308 081.17 longitude, 1567 998.08 latitude	Zone Centre – Est et Sud : 476 662.45 longitude, 1583 695.93 latitude  Zone estuarienne : 306 033.63 longitude, 1569363.11 latitude

## **SOUTH AFRICA**

Selected sites are given below

<b>Northern Cape Province</b>	<b>North West Province</b>
(1) Mier (Kalahari)	Molopo Nature Reserve and adjacent Molopo Agricultural district as buffer area. Molopo is situated in the Kalahari Plains Thornveld and bordering Botswana.
(2) Paulshoek\Leliefontein in Namaqualand	Lehurutshe (Agricultural district) – borders Botswana
(3) Suid Bokkeveld in the Hantam district, Northern Cape	Kudumane ((Agricultural district)

## **KENYA**

Three benchmark sites are selected

1. The Kargi settlement area (Marsabit District)
2. Tarach River (Lopuski Sub-location in Kakuma Division, Turkana District)
3. and Kiambeere area (Gachota division in Mbeere District).

## **ZIMBABWE**

Three sites have been selected

1. Masyingo South
2. Matebeland South and North
3. and the Lowveld areas of Zimbabwe.

These sites represent the semi-arid marginal ecological zones of Zimbabwe

## ANNEX L. Globally Significant Ecosystems in DMP Member Countries

### ZIMBABWE

Globally Significant Resources	Immediate Threats	Intermediate Threats	Root Cause
1. Miombo Woodland Ecosystem  (Masvingo Site) Brachystegia/Julbernardia co-dominant woodlands	Deforestation Overgrazing over browsing Over-utilisation (extraction) of forest products Drought and other episodic events (fires)	Fuel wood for urban and rural populations Increased land clearing for cropping purposes Reduced biomass production per unit of land Increased demand for alternative livelihoods Depleted biodiversity	Population pressure on resources, growth rate > supply. Inherently infertile soils (fragile ecosystem). Poverty drives resource exploitation Lack of NRM skills
2. Acacia Savanna Colophospermum mopane ecosystem (Matebeleland North and South Sites)	Herbivory pressures leading to land degradation Drought Over-utilisation (grazing/browsing) product extraction	Loss of soil and increased infertility Increased sodicity Reduced biodiversity Impaired ecosystem function and reduced resilience	Increased livestock and wildlife numbers Lack of NRM skills and awareness Inadequate NRM policies and knowledge of ecosystem function Poverty
3. Kalahari sands and forest ecosystem (Matebeleland North Site)	Over-exploitation (Timber for construction and firewood) Productivity declining due to reduced biodiversity (Extinction of spp) Drought	Drastic species composition changes Irreversible loss of biodiversity Ecosystem imbalances not understood Wood carvings	Increased human and livestock populations More land frequently opened up for cropping Export demand for timber and increased use in domestic construction Lack of NRM knowledge

## BURKINA FASO

Globally Significant Resources ----- Ressources d'importance mondiale	Immediate Threats ----- Menaces Directes	Inter-mediate Threats ----- - Menaces Intermédiaires	Root Causes ----- Causes Fondamentales
1. Steppe arbustive <ul style="list-style-type: none"> <li>• sols fragiles de fertilité très médiocre</li> <li>• sols à capacité de rétention en eau très faible.</li> <li>• 300 – 500 mm</li> </ul>	<ul style="list-style-type: none"> <li>• Dégradation irréversible des terres et de la diversité biologique</li> <li>• Surpâturage</li> <li>• Dégradation des écosystèmes</li> <li>• Pression des terres agricoles sur les ressources naturelles.</li> </ul>	<ul style="list-style-type: none"> <li>• Méconnaissance des facteurs qui menacent la diversité biologique et les écosystèmes</li> <li>• Absence de techniques / technologies de conservation de la diversité biologique</li> <li>• Absence de technique / technologies de conservation / restauration des ressources naturelles</li> <li>• Absence / insuffisance d'information sur les causes de la dégradation</li> <li>• Manque / insuffisance de cadre de concertation pour les différents acteurs.</li> </ul>	<ul style="list-style-type: none"> <li>• L'accroissement de la population humaine et animale</li> <li>• La pauvreté</li> <li>• La baisse de la pluviométrie</li> </ul>
2. Steppe arbustive et fourrée <ul style="list-style-type: none"> <li>▪ Bassins versants</li> <li>▪ Isohyète 600 mm</li> <li>▪ Végétation de brousse tigrée</li> </ul>	<ul style="list-style-type: none"> <li>• Dégradation</li> <li>• Ecosystème fragile et sensible</li> <li>• Evaporation ...</li> <li>• Vents violents</li> <li>• Erosion</li> <li>• Diminution de la longueur</li> <li>• Pauvreté des sols</li> <li>• Faiblesse des rendements</li> <li>• Baisse de la pluviométrie</li> <li>• Manque de fourrage</li> <li>• Manque d'eau</li> <li>• Assèchement des cours d'eau</li> <li>• Baisse de la nappe phréatique</li> </ul>	<ul style="list-style-type: none"> <li>• Pauvreté</li> <li>• Exode rural</li> <li>• Migration des hommes et des animaux</li> <li>• Diminution de la diversité biologique</li> <li>• Mortalité des animaux</li> <li>• Surpâturage</li> <li>• Diminution de surfaces cultivables</li> <li>• Disparition de certaines espèces</li> </ul>	<ul style="list-style-type: none"> <li>• Climat</li> <li>• Pression démographique</li> <li>• Mauvaise pratique de gestion de l'environnement</li> <li>• Pression foncière</li> <li>• Baisse de la pluviométrie</li> <li>• Déforestation.</li> </ul>

## BOTSWANA

District/ Village and Sub district	Threats
<p>a. Miombo Woodland Ecosystem (Masvingo Site)  – Brachystegia/Julbermadia co-dominant woodlands. Acacia Savanna Colophospermum Bobirwa :Tsetsebjwe, Mathathane and Motlhabaneng villages are within the Mixed type of vegetation zone in the central district in Botswana. The vegetation is mainly comprised of mixed tree species, mostly tall and characterised by a few shrubs as an understorey. Common to all these areas are the mophane ( <i>Colophospermum mopane</i>), mohudiri ( <i>Combretum apiculatum</i>), Modumela ( <i>Kirkia acuminata</i>), Mooka ( <i>Acacia karroo</i>), Motsiara ( <i>Terminalia prunioides</i> ), Mowana ( <i>Adansonia digitata</i>) and shrubs such as the following - Moretlwa ( <i>Grewia flava</i>), Mogwana ( <i>Grewia bicolor</i>), Motlhakola ( <i>Euclea undulata</i>), Moselesele ( <i>Dichrostachys cineria</i>) and many more other shrubs. In general, the area is described as a Mophane Woodland characterised by Semi - Sweet Mixed Bushveld ( Botswana Society, 1992).  Different grass species form the bottom layer of the vegetation strata in these three areas. Common to those areas are the <i>Aristida congesta</i> ( Seloka), <i>Eragrostis rigidior</i> ( Rathathe), <i>Enneapogon cenchroides</i> ( Mosekangwetsi), <i>Schmidtia pappophoroides</i> ( Tshwang), <i>Setaria sphacelata</i> ( Mabele), <i>Setaria verticillata</i> ( Bogoma), <i>Tragus berteronianus</i> ( Segowe), <i>Chloris virgata</i>, <i>Dactyloctenium aegyptium</i> ( Phoka), <i>Urochloa trichopus</i> ( Phoka), <i>Eragrostis lehmaniana</i>, <i>Eragrostis racemosa</i> and others. There are quite a number of forbs growing side by side to grasses as evidenced during the rainy season.</p>	<p>b. Mopane ecosystem (Matebeleland North and South Sites).</p> <p>Motlhabaneng According to the TRRA exercise conducted at Mathathane village on November 4, 1998, the following vegetation species had disappeared: <b>Grasses</b> - Rathathe ( <i>Eragrostis rigidior</i>), Tshwang ( <i>Schmidtia pappophoroides</i>), Tshikitsane ( <i>Stipagrostis uniplumis</i>). Present at that time included Seloka ( <i>Aristida congesta</i>).</p> <p><b>Trees and Shrubs</b> - no record of any disappearance of the below mentioned species: Mohudiri, Mogwana, Motsiara and Mophane although the same species are in high demand for fuel wood.</p>
<p>c. Kalahari sands and forest ecosystem (Matebeland North Site)  Tsetsebjwe : The following grass species were said to have disappeared as a result of lack of moisture: Phoka ( <i>Chloris gayana</i>), Motsikiri ( <i>Eragrostis pallens</i>), Makorwane ? while Seloka grass stands can still be seen all over.</p>	<p>d. <b>Trees and Shrubs</b> - The following trees and shrubs were reported to be on the decline, Mohudiri, Motsiara, Mokosho ( <i>Acacia nigrescens</i>), Mogwana, Moretlwa and Mokabi ( <i>Combretum hereroense</i>). Mophane, Motsiara and Mohudiri specifically are disappearing because of being over-utilized as fuel-wood. Also mentioned along the same line are some medicinal plants such as Monepenepe, Sengaparile (Devil's Claw), Morula ( <i>Sclerocarya birrea</i>) and Modumela.</p>

## Utilisation of Veld Products.

Various veld products are utilized by the residents of the area for many socio-economic benefits. The table below attempts to summarize some of these products and their respective uses.

### Utilisation of veld products.

Tree Species	Uses					Depletion Status		
	fire wood	browse	poles	medicinal	fruits	ok	declining	lost
Mophane	T	T	T			T		
Mohudiri	T	T	T				T	
Mogonono	T		T					T
Moretologa					T		T	
Mhatha		T		T			T	
Mokomotu			T			T		
Motsiara	T					T		
Mokala	T	T				T		
Moselesele	T						T	
Mogwana	T	T			T	T		
Monepenepe				T			T	
Mokabi		T					T	
Mokosho		T					T	
Moretlwa		T			T			T
Morula				T	T		T	
Motshijane				T			T	
Mhaha				T			T	
Mowana					T	T		
Sengaparile				T			T	
Grass Species	grazing		thatching			ok	declining	lost
Rathatha			T					T
Rantafole			T					T
Tshwang	T							T
Makurwane								T
Sedupapula								T
Seloka	T					T		
Sesadile								T
Sesekangwetsi								T
Tshikitshane	T							T
Phoka	T							T
Motshikiri	T							T
Mogorwane	T							T
Pitseesule								T
Other Products	Uses					Availability		
Mophane	food ( protein rich relish)					Seasonal		
Worms								
Honey	food							
Wild vegetables	food					Seasonal		

## NIGER

Biodiversité existante	Causes	Menaces	Impact
<ul style="list-style-type: none"> <li>• Cultures vivrières : mil, niébé, sorgho, arachide</li> <li>• Autres espèces cultivées</li> <li>• Arbres et arbustes</li> <li>• Animale (girafe, oiseaux)</li> <li>• Plantes (Hyphaene T., brousse tigrée, plantes médicinales)</li> <li>• Plantes d'eau (mares, fleuve)</li> </ul>	<ul style="list-style-type: none"> <li>• Faiblesse des revenus</li> <li>• Pression démographique</li> <li>• Aridification du climat</li> <li>• Faiblesse du niveau de technicité</li> <li>• Inadéquation des pratiques culturelles</li> <li>• Faiblesse des revenus</li> <li>• Pression démographique</li> <li>• Aridification du climat</li> <li>• Manque de sources d'énergie</li> <li>• Pauvreté</li> <li>• Inadéquation des pratiques de gestion des ressources naturelles</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Surexploitation des ressources naturelles</b></li> <li>• Déforestation</li> <li>• Erosion éolienne</li> <li>• Mauvaises pratiques de gestion des ressources</li> <li>• Déplacement de l'agriculture dans les zones pastorales et forêts</li> <li>• Déforestation</li> <li>• Erosion hydrique</li> <li>• Mauvaises pratiques de gestion des ressources</li> <li>• Utilisation du bois comme principale source d'énergie</li> </ul>	<ul style="list-style-type: none"> <li>• Perte de la diversité biologique</li> <li>• Accroissement de la pauvreté et insécurité alimentaire</li> <li>• Destruction des écosystèmes</li> <li>• Entrave à la reprise de la végétation</li> <li>• Baisse de la productivité des terres</li> <li>• Exode rurale</li> <li>• Perte du savoir faire local</li> <li>• Perte de la diversité biologique</li> <li>• Accroissement de la pauvreté et insécurité alimentaire</li> <li>• Destruction des écosystèmes et des habitats des espèces animales</li> <li>• Dégradation des sols avec baisse de la productivité des terres</li> <li>• Exode rurale</li> <li>• Perte du savoir faire local</li> </ul>

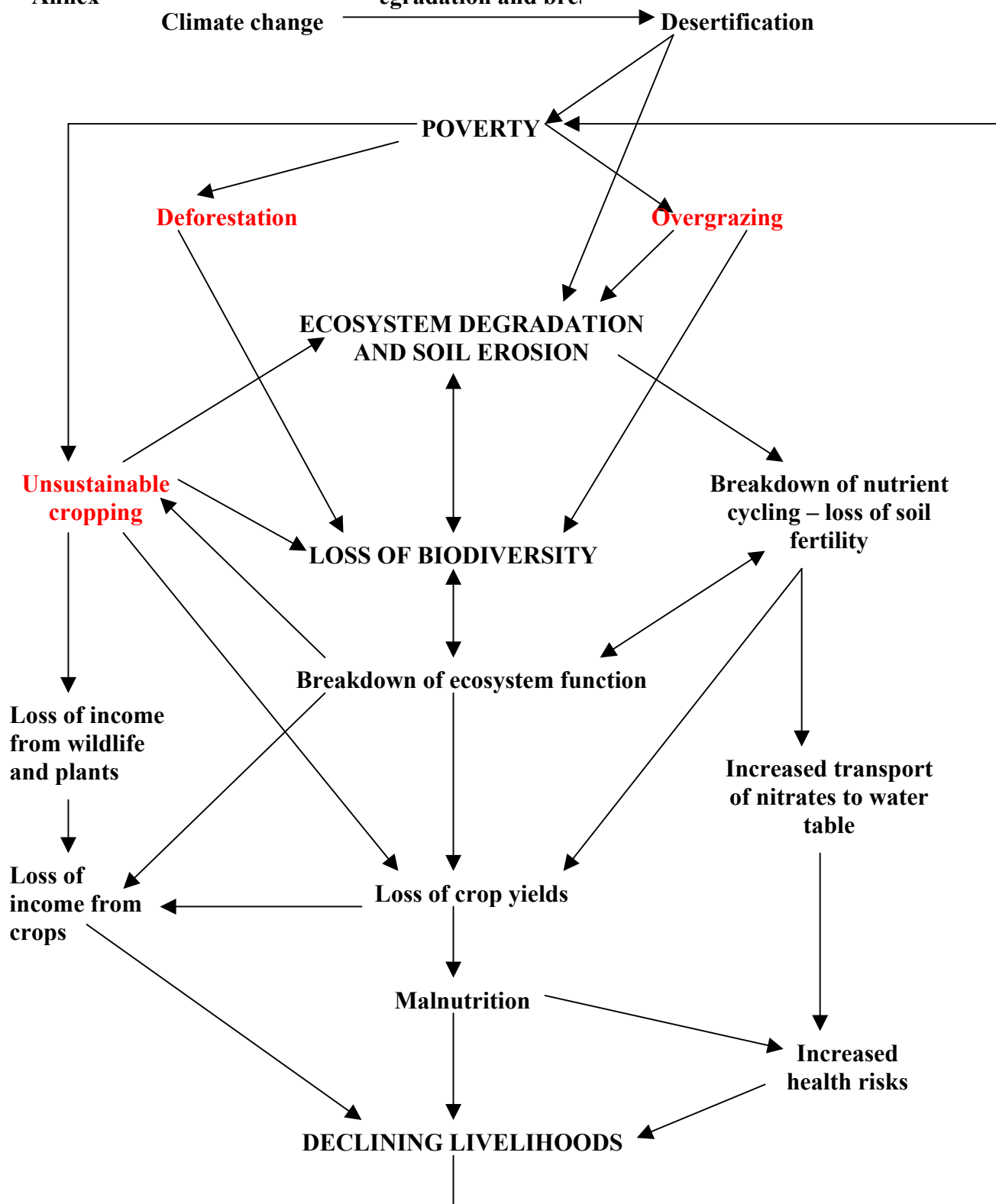
## SENEGAL

Major ecosystems	Threats
<p>1. North and Centre ecosystem</p> <p>Two major sub-ecosystems</p> <ul style="list-style-type: none"> <li>- One formed by species striving on non-leached Alfisols: <i>Acacia raddiana</i>, <i>Balanites aegyptiaca</i>, <i>Boscia senegalensis</i>, <i>Ziziphus mauritiana</i> et <i>Guiera senegalensis</i> et colonisant les sols isohumiques, <i>Faidherbia albida</i>, <i>Balanites aegyptiaca</i>, <i>Combretum sp</i>, <i>Acacia seyal</i>, <i>Borassus aethiopum</i> et <i>Adansonia digitata</i>.</li> <li>- A second ecosystem formed by species striving on hydromorph to pseudogly soils: <i>Parinari macrophylla</i>, <i>Acacia seyal</i> et <i>Combretum glutinosum</i></li> </ul>	<ol style="list-style-type: none"> <li>1. degradation or destruction of these ecosystems</li> <li>2. extension overgrazing</li> <li>3. bush fires and</li> <li>4. illegal wood harvesting</li> </ol>
<p>2. Ecosystem of the West zone</p> <p>Habitat of a great number of endemic species and two types of vegetal cover. A forested zone with tree species and a savanna woodland.</p>	<ol style="list-style-type: none"> <li>1. degradation or destruction of these ecosystems</li> <li>2. extension overgrazing</li> <li>3. bush fires and</li> <li>4. illegal wood harvesting</li> </ol>
<p>3. Ecosystem of the Centre, East and South zone</p> <p>Sudano-sahelian zone with major species composed of <i>Cordyla pinnata</i>, <i>Faidherbia albida</i> et <i>Combretum sp</i>. Other species are also found <i>Pterocarpus erinaceus</i> et <i>Anogeissus leiocarpus</i>.</p>	<ol style="list-style-type: none"> <li>1. degradation or destruction of these ecosystems</li> <li>2. extension overgrazing</li> <li>3. bush fires and</li> <li>4. illegal wood harvesting</li> </ol>
<p>4. Ecosystem of the estuarian zone (or mangrove)</p> <p>A mangrove dominated by <i>Rhizophora racemosa</i>, <i>Rhizophora mangle</i> et <i>Avicennia africana</i>.</p>	<ol style="list-style-type: none"> <li>1. degradation or destruction of these ecosystems</li> <li>2. extension overgrazing</li> <li>3. bush fires and</li> <li>4. illegal wood harvesting</li> </ol>

## KENYA

Major ecosystems	Threats
Lopuski settlement in Turkana District	Over-exploitation by refugee camps
1. Riverine forest ecosystem <i>sp Acacia eliator</i> , <i>A. tortilis</i> , <i>Salvadora persica</i> and <i>Ziziphus Mauritania</i>	
2. Kargi settlement in Marsabit District	High livestock population
Ecological zones (ecosystems) VII – VIII of Kenya with little vegetation cover	Accelerated runoff poor water infiltration
1. Kimbeere area of Mbeere District	

**Annex M• Process of ecosystem degradation and breakdown in agricultural land**



**Note.** The cycle of biophysical and socio-economic processes causing ecosystem degradation, biodiversity loss, and the breakdown of ecosystem function, in agricultural land. Through the development of better understanding of these processes and appropriate interventions, the DMP aims to reverse this cycle.