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PRELIMINARY ISSUES RELATING TO GEF ACTIVITIES CONCERNING LAND DEGRADATION

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I. PURPOSE

1. This paper responds to the request by the GEF Council for a preliminary issues paper on land degradation (desertification and deforestation) as it relates to the GEF focal areas. The paper provides a strategic approach to priorities and suggests action to ascertain the scope of financing activities in the land degradation area under GEF.

II. BACKGROUND AND SCOPE

2. Article 3 of the Instrument establishing the GEF states that the agreed incremental costs of activities concerning land degradation, primarily desertification and deforestation, as they relate to the four focal areas, shall be eligible for funding.

3. Articles 4.8(c) and 4.8(e) of the Climate Change Convention and Article 20.7 of the Biodiversity Convention provide for particular consideration of the countries with arid and semi-arid areas and experiencing desertification and drought.

4. Article 20.2(b) of the Convention to Combat Desertification states that "... Developed country Parties...undertake to promote mobilization of adequate, timely and predictable financial resources, including new and additional funding from the GEF, of the agreed incremental costs of those activities concerning desertification that relate to its four focal areas, in conformity with the relevant provisions of the instrument establishing the GEF."

5. In line with the discussion at the Council's first meeting of the (July 1994), this paper examines the major issues related to land degradation in arid, semi-arid and sub-humid areas, including the breakdown or decline of soil structure, accelerated soil loss by wind and water erosion, increasing salinization of the soil, reduction in soil moisture retention, increase in surface runoff and streamflow variability, increase in dryland lakes salinity, and reduction in biological diversity. It also addresses increases in particulate and trace gas emissions from biomass burning.

6. Section III outlines some key policy and operational considerations for program development in the interface between land degradation and the GEF focal areas. Despite the range of possible activities, GEF's interventions will have to be targeted to ensure significant global environmental benefits, following, inter alia, the guidance of Conventions for which it is the interim financial mechanism. Section IV delineates the nature and scope of the "interface", and identifies, as examples, some activities which could be eligible for GEF funding. Section V and Annex A summarize some Pilot Phase and non-GEF projects which illustrate relevant ongoing work in the "interface". Section VI presents elements of a strategic approach to priorities, and Section VII concludes the paper with suggested action.

III. POLICY AND OPERATIONAL CONSIDERATIONS

7. Development assistance has been active in land degradation control. Accordingly, GEF-funded activities in this field should help achieve results which would not have been feasible otherwise. GEF's incremental cost financing should complement, and make more productive, ongoing efforts in order to increase global environmental benefits.

8. Raising resource productivity and improving human livelihoods are central concerns in dryland degradation control. These human and resource development dimensions should help integrate GEF activities in sustainable development efforts in the drylands.

9. As Sections IV and V show, incremental cost financing of land degradation control activities can help achieve, simultaneously and cost-effectively, global environmental objectives in one or more GEF focal areas. Such opportunities need to be carefully identified, and they need to meet the criteria, priorities and strategy requirements of GEF focal areas.

10. Countries experiencing land degradation themselves typically take actions to stop it, by way of better farming and grazing practices, land use policies and planning, minimizing soil loss, improving water management etc. Baseline scenarios of such actions would involve costs, borne by the concerned countries, related to achieving national objectives. GEF financing in this area will often be just one component in a package of assistance. Such assistance, even as it helps achieve GEF objectives, will support efforts of the Parties to the Convention to Combat Desertification.

11. GEF activities involving land degradation control will have maximum impact when placed in policy and planning frameworks to which governments are committed. Regional, sub-regional and national desertification control action programs under the Convention to Combat Desertification, and similar programs for the forestry sector and international waters, could provide programming contexts for GEF interventions.

12. Just as programs to control land degradation can yield global environmental benefits, projects aimed at the latter can raise land productivity and incomes. The dominant project objective may vary, depending upon whether the focus is national or global; but a good part of the activities could be similar. Review and analysis of the experience of a range of projects and programs of the kind outlined in Section V and Annex A should help determine where GEF interventions could increase global environmental benefits significantly.

13. Since land degradation is closely related to people's use of natural and wildlife resources, people's participation must be a pre-requisite in GEF projects involving land degradation control, as it is in activities under the Convention to Combat Desertification. This will also enable dryland communities advance their short term and long term well-being while helping achieve, and sustain, global environmental benefits.

14. GEF can help develop a reliable scientific framework and fill in the gaps in knowledge (e.g. extent of carbon cycling in drylands; role of climate change in prolonged drought cycles and vice versa; role of dryland microorganism diversity in vegetation and tree growth) which currently

hamper programming in the "interface". GEF's incremental cost financing could play an important role in helping establish the needed scientific framework, taking into account ongoing efforts.

IV. Interface between Land Degradation and GEF Focal Areas

15. The interface between land degradation, including deforestation, and GEF focal areas is significant. Some Pilot Phase projects are addressing aspects of land degradation control. Moreover, desertification and deforestation control projects can help mitigate global warming, conserve biodiversity, and control pollution in international waters. The link between land degradation and stratospheric ozone depletion is currently less well-defined. This section outlines the common ground between land degradation and the other three GEF focal areas.

Land Degradation and Climate Change

16. The impacts of human-induced changes in drylands on the earth's atmosphere and global energy balance have begun to be modelled with some success, given the many complex interactions involved. Perturbations to the atmospheric energy balance appear to occur as a result of changes in albedo, soil moisture levels, surface roughness and atmospheric composition. These phenomena result from land degradation and can induce either warming or cooling in local areas or regions. In very arid regions the surface albedo component dominates the climate response, and desertification could lead to a cooling effect. In less arid regions where soil moisture is higher, areas experiencing land degradation often show warming because of reduced evapotranspiration. Frequent and prolonged droughts are known to increase local and regional atmospheric temperatures in drylands.

Reduction in Carbon Emissions

17. Global anthropogenic input of carbon from energy-related sources is about 6 Gt (Gigaton) annually. Of this only 0.1 to 0.2 Gt is thought to come from traditional energy use in drylands. The net emissions may be much less, perhaps about half as much, since in many rural areas woodfuel production exceeds consumption. Yet in the proximity of human settlements, especially around dryland urban areas, the opposite may often hold. Although dryland input to global carbon emissions may be currently modest, it is expected to grow. Firewood remains the single most important energy source for the majority of people living in drylands. CO2 emissions from firewood, coal and charcoal will increase, with growing populations and inadequate access to other energy sources.

18. Periodic burning of grassland and slash-and-burn agriculture in drylands contribute significantly to carbon emissions and particulates. Grassland burning is traditional in many drylands. For example, Zambia's Chitemene farming system involves burning wood and grasses and application of ash as fertilizer to the soil. Under conditions of slowly increasing populations and rural economic development, such systems may not contribute net GHG emissions. But with growing pressures of people on land, the fallow periods needed for recovery of soil and vegetation become shorter, causing depletion of nutrients, erosion of soil and biodiversity, and an increase in net GHG emissions. GEF's "Alternatives to Slash-and-Burn Agriculture Research Initiatives" project

seeks to build scientific capacity to assess impacts of slash-and-burn agriculture, and expand knowledge of viable alternatives.

19. Degrading dryland soils could be a potentially significant source of carbon emissions. Dryland soils are known to be important storehouses of carbon. Prolonged or frequent drought and soil degradation undermine the soil's capacity to store carbon. However, it is not known to what extent net carbon releases increase as a result of dryland degradation. (See sub-section on Carbon Sequestration/Storage below).

20. GEF-funded activities in the interface between carbon emission reduction and land degradation control, subject to the guidance of GEF Council, could include:

(a) Development of solar, wind, and biogas energy for lighting, water heating, cooking, water pumping and other needs, in such ways as would reduce net CO2 emissions;

(b) Complementing aid efforts aimed at increasing the efficiency of wood-burning stoves and charcoal-producing kilns, and at promoting environmentally sound management of woodlands, forests and grasslands; and

(c) Assisting local communities in introducing viable land management practices in place of grassland burning and slash-and-burn agriculture.

Carbon Sequestration and Storage

21. Recent research shows that dryland soils may be playing a significant role in storing and fixing carbon, and that controlling their loss could help mitigate global warming. However, scientific evidence on the extent of carbon cycling in drylands, and expert consensus on its significance, is not yet definitive.

22. Evidence from across Africa and Asia shows that farmers, on their own, plant trees along field boundaries, as windbreaks and hedges, and around the homestead. They also establish woodlots on farmland not currently used for crop cultivation. In contrast, large capital investments in greenbelts have proven to be not so cost-effective. Development assistance has begun supporting tree planting and mixed tree-and-crop farming efforts of millions of dryland farmers to reduce soil loss, raise farm productivity, and control variability of river and stream flows. Such efforts should also help increase carbon sequestration and storage. UNEP's Community Afforestation and Training Pilot Project in India helped farmers and school children plant millions of trees, and establish rural afforestation training centers. GEF's Village-based Management of Woody Savannah and Establishment of Woodlots for Carbon Sequestration project in Benin is based on community-level action and to improve rural energy management, and increase woody cover and carbon storage.

23. GEF-funded activities in the interface of carbon sequestration/storage and land degradation control, subject to the guidance of GEF Council, could include:

(a) Supporting farmer- and community-based forestry, agroforestry and sustainable dryland agricultural practices, keeping in view their long term contribution to carbon

sequestration, controlling soil loss and sediment pollution in international waters, and conserving biodiversity;

(b) Upgrading of degraded grasslands, with considerable potential for increased biomass and commercial production, under timber/ biomass fuel regimes; and

(c) Targeted research to assess and monitor the extent of dryland carbon cycling and its impact on global warming mitigation, and crop species' adaptation to climate change.

Land Degradation and Biodiversity

24. Drylands are better known for their within-species genetic diversity, rather than between-species variation or "species richness". Yet they contain a significant endowment of plants and animal species, including microorganisms. Dryland species exhibit notably restrictive geographical distributions (endemism), and a wide range of morphological, physical, and chemical adaptations to their harsh environment. For example, the flora in Central Chile, which has a Mediterranean climate, contains some 1500 species in less than 100,000 sq. km. area.

25. Many of the most important food crops originated in drylands. Indigenous crops and fruits from drylands are known for their resistance to disease, stress, and adaptability, and are a valuable source for plant breeding. Over 15 years ago France established the Botanical Conservatory of Porquerolles to protect Mediterranean crop species. With GEF support, Turkey is developing in-situ approaches to protect wild crops (wild wheat, chickpea, lentil, and barley), and woody species (pear, apple, walnut, chestnut, olive, and pistachio) in the semi-arid region of Eastern Anatolia. Guidance from the Biodiversity Convention will be critical to scoping GEF's future role in this field.

26. Dryland species are highly adaptable to environmental stress. This makes them a vital source of genetic material to improve crop varieties and increase their drought tolerance and disease resistance. For example, the yellow dwarf virus-resistant gene found in Ethiopian barley is a prime source of California's US $ 160 million annual barley crop. The high-lysine gene in sorghum also originated in Ethiopia. Soil erosion, overgrazing and frequent drought put at risk crop and grass varieties of global significance. GEF's project in Ethiopia on Farmer-based Approach to Conserving African Plant Genetic Resources seeks to integrate farm-level conservation efforts with national and international gene bank programs.

27. Dryland species are also important sources of commercial and industrial products, e.g. gums, resins, plant-based waxes, oils and biocides. As shown by the International Neem Institute, the Indian Neem tree (Azadirachata indica), which was widely introduced in dry areas, produces compounds that are active against a variety of pests. Dryland plant species (e.g. periwinkle) are sources of valuable pharmaceuticals. Of the principal plant-derived drugs in the United States, about one-third come from dryland species. Aloe vera is an example of a traditional medicinal plant which is now widely used in treating all kinds of skin problems.

28. Drylands provide some critical habitats for wildlife and ecosystemic diversity. Wetlands within drylands (e.g. the Hadejia-Nguru in Nigeria, the El Kala region in Algeria, and Cuatro Ciengas in Coahuila, Mexico) serve as indispensable nesting and breeding grounds for migratory

species, and they are highly vulnerable to land degradation. The El-Kala region provides habitat for white-headed duck, barbery deer and migrant waterfowl, and sustains a hydrological system critical to the Mediterranean region. This fragile ecosystem, like many others (e.g. Parc du Banc d'Arguin in Mauritania; Boucle du Niger; Lake Chad) in drylands, is under threat from excessive pressure on land and water, deforestation and urbanization.

29. Dryland wildlife, when properly managed, can provide a source of livelihood to rural communities and also help conserve biodiversity. In contrast, intensive pressures of people on land and improper resource use deplete wildlife and biodiversity and cause economic loss. A sizeable part of tourism and trade in Eastern and Southern Africa is based on dryland wildlife, which is under stress. The Baoule National Park and Biosphere Reserve in Mali is affected by overgrazing by transhumant livestock, burning of vegetation by herders and settlers, and poaching.

30. Dryland degradation is often marked by mass poverty. Limiting access to protected areas increases pressures on other land. Conserving dryland biodiversity is difficult when local needs are not met. GEF's " Community-based Rangeland Rehabilitation for Carbon Sequestration and Biodiversity" project in Sudan will promote, with the involvement of local communities, such land use practices and rangeland management systems as would increase vegetative over, conserve biodiversity, and raise land productivity.

31. Dryland biodiversity is threatened by unsustainable agriculture, overgrazing, excessive fuelwood collection, improper land use and urbanization. Despite its global significance, biodiversity in drylands has not received the needed attention, even in the Pilot Phase.

32. GEF-funded activities in the interface between land degradation control and biodiversity conservation, subject to the guidance of GEF Council, could include:

(a) Land use planning and management, based on modern technology (e.g. remote sensing and Geographical Information Systems), to guide agricultural, rangeland and urban development, and to minimize degradation of fragile areas critical to conserving significant habitats;

(b) Strengthening national programs for in-situ conservation of ecosystems to protect significant genetic variability of domestic crops (e.g. wheat, maize, sorghum, millet, barley, teff, cotton, beans and potatoes) and animals (e.g. horse, camel, sheep, goat, cattle, llama, Andean camelids, yak);

(c) In-situ conservation of genetic varieties of plants (grasses, shrubs and trees) and micro-organisms (e.g. rhizobium and other fungi and root bacteria) by improving management practices, institutional arrangements and community participation, and by sharing benefits; and

(d) Integrated approaches to conserving dryland biodiversity, such as: co-ordinated development of wildlife management, game ranching, grazing and farming; sustainable extraction of resins and gums, and pharmaceuticals development as part of dryland ecosystems conservation.

Land Degradation and International Waters

33. Dryland river, lake and ground water basins, which are often internationally shared, are critical to the well-being of over 900 million people who live in areas experiencing desertification. The Council is currently engaged in deciding on the scope of its International Waters program. If that scope includes shared freshwater, issues of land degradation, involving sediment pollution and salt intrusion in international rivers, lakes and aquifers, (caused by deforestation, soil and vegetation loss, overpumping of ground water, and salinization), could be directly relevant to programming in that focal area. The magnitude of toxic or chemical pollution from dryland-based sources may not be globally significant today; but strengthening capacities to control or mitigate it may still be necessary.

34. The interface of watershed management, controlling land-based sources of pollution in, and environmental management of, regional seas, could similarly suggest cost-effective ways to achieve International Waters and Biodiversity objectives, simultaneously. The international program of environmental management for the Aral Sea that GEF (Pilot Phase) is helping to develop is a relevant example.

35. Aquifers are a major source of water in many dryland areas and managing international ground water basins is critical for sustained availability of freshwater. In North Africa, Sahel and Southwest Asia, international aquifers are being exploited beyond their recharging capacity, or being polluted, causing basinwide degradation. Dryland countries will be better able to control land degradation through increased co-operation in managing shared aquifers. This should also help conserve dryland biodiversity.

36. Deforestation and land degradation in international watersheds (e.g. the Nile, the Niger, the Indus) in drylands could affect rainfall patterns, raise local temperatures, and cause major variations in the flows of rivers and streams. International co-operation to monitor stream flows, control land degradation, and promote environmental management of shared waters could help conserve terrestrial and marine biodiversity, and enhance carbon sequestration, apart from raising farm and fisheries productivity. UNSO's community and agroforestry project in the Blue Nile catchment area of Lake Tana region in Ethiopia seeks to meet local fuelwood needs and reduce soil erosion in the watershed.

37. Effective mechanisms for environmental management of international waters are critical to the well-being of dryland peoples. Sometimes agreements for such co-operation exist such as the UNEP-catalyzed Zambezi Action Plan, or East African Regional Seas Action Plan. However, for lack of resources, or means of co-ordination and planning, they may not be implemented very well. Strategic GEF interventions, based on linkages between land degradation and international waters, could promote their implementation.

38. GEF-funded activities in the interface of land degradation and International Waters, subject to the guidance of GEF Council, could include:

(a) Watershed management to promote afforestation and soil and water conservation, involving co-operation between upstream and downstream users; and

(b) Strengthening of sub-regional and regional co-operation to control sediment pollution and salt intrusion in international freshwaters (including aquifers), and of co-ordinated implementation of action programs for dryland drainage basins and regional seas.

39. Table I presents the interface between land degradation control and GEF focal areas, broadly characterizing possible activities, without prejudging program priorities, or the extent of GEF's role in relation to that of development assistance agencies which actively address land degradation issues.

V. Relevant Pilot Phase and Non-GEF Projects

40. Some GEF projects already include land degradation control as one component. It is perhaps too early as yet to draw policy, strategy or operational conclusions from them. Nonetheless, past experience of relevant GEF projects should provide insight into possible scope of GEF interventions in this area. A few such projects are briefly outlined in Annex A.

41. Land degradation control projects financed by development aid agencies could potentially interface with GEF focal areas, although they may not, in general, explicitly take into account global environmental objectives. For example, in collaboration with the United Nations Inter-Agency Working Group on Desertification Control, UNEP has been assisting governments in designing land degradation control projects. Similarly, FAO's Scheme for the Conservation and Rehabilitation of African Lands is aimed at land degradation control. The World Bank, regional development banks and IFAD have been assisting dryland countries in designing and implementing agricultural development projects. Three ongoing non-GEF projects which could, inter alia, yield global environmental benefits, are briefly outlined in Annex A.

42. Development assistance in land degradation control is expected to become increasingly sensitive to global environmental objectives. GEF could encourage and support this process. The World Bank is developing a joint program with IFAD to assist dryland countries in controlling land degradation control, alleviating rural poverty, and addressing global environmental objectives.

VI. A Strategic Approach To Priorities

43. Sections IV and V gave some examples of projects in the interface between land degradation control and GEF focal areas, outlining possible nature and scope of GEF interventions, and Section III outlined some key considerations which should guide them. Care needs to be taken that GEF financing would not substitute for other possible financing for land degradation control. Keeping in view the role only GEF can play in a field where development assistance has been active, it is necessary to narrow down priorities for its support. A strategic approach to guiding this process could have the following elements:

(a) Integrating land degradation control in the design of GEF focal area activities in drylands, with emphasis on support to village- and community-level programs, and responsiveness to people's needs;

TABLE I

Interface Between Land Degradation & GEF Focal Areas

Land Degradation Control	GEF Focal Areas					
	Climate Change		Biodiversity		International Waters	
	C. Emission Control	C. Storage	In-situ Conservation	Ecosystem Conservation	Integrated Watershed Management	Coordination of Regional &Sub-Regional Plans
Land Use Planning	• *Planned agriculture, forestry, & human settlements*		• *Protecting endemic species* • *Conserving wetland & critical habitat*	• *Integrated approaches to conservation of biodiversity & livelihoods*	• *Management of shared river basins, lakes, & acquifers*	• *Cooperation among users (e.g. upstream & downstream)*
Farming & Grazing Practices	• *Alternatives to & management of grassland burning & slash-and-burn agriculture*	• *Natural revegetation of rangeland*	• *Conserving local variety crops (landraces) , plant & animal species*		• *Soil conservation* •*Early warning system for drought*	• *Networks for dissemination of best practices & research findings*
Community Forestry & Agroforestry	•*Alternative sources of energy*	• *Community-based afforestation* • *Agroforestry*			• *Protecting hydrologic regimes*	
Water & Watershed Management				• *Managing water use to protect aquifers & ecosystems*	• *Watershed protection, management & revegetation*	• *Networks for exchange of information & monitoring*

Source: GEF Secretariat

Note: Entries in boxes are intended for illustrative purposes, with no implication concerning priorities.

(b) Making ongoing land degradation control efforts more productive through GEF's catalytic role, particularly in sub-regional and regional frameworks; to help countries simultaneously achieve global environmental objectives, based on the potential synergy between GEF's role and that of development finance;

(c) Contributing to review and analysis of relevant experience, especially of development assistance, and holding consultations with governments, concerned institutions and NGOs, as a necessary step in narrowing down priorities;

(d) With the assistance of STAP and concerned institutions, contributing to the establishment of the scientific and technical knowledge base needed for effective programming in the "interface", taking into account, inter alia, ecosystemic differences among dry sub-humid, semi-arid and arid areas.

VII. CONCLUSION

44. If the broad thrust of the approach outlined in this paper is agreed, the Council may wish to request the Secretariat to provide, as necessary, and in consultation with STAP, Implementing Agencies, INCD and concerned institutions, further operational guidance for designing and implementing GEF activities involving land degradation control.

ANNEX A

SUMMARY SKETCHES OF SOME RELEVANT PILOT PHASE AND NON-GEF PROJECTS
(Ref: Section IV, Para.s 40 - 42 of main text)

1. PILOT PHASE PROJECTS

(a) Burkina Faso/Cote d'Ivoire Community-based Natural Resource and Wildlife Management Project (GEPRENAF) - (World Bank)

The project will develop and implement sustainable land-use plans for communities living in an area of over 400,000 ha. in Burkina Faso and Cote d'Ivoire. It will train communities in land use planning and finance small-scale, community-based agricultural productivity improvement schemes, such as: borehole construction for irrigation, animal vaccination, and improved soil preparation and water-utilization practices. It seeks to increase productivity on existing land, and reduce agricultural and livestock pressure on lands designated for conservation. It seeks to conserve biodiversity, inter alia, by means of reducing land degradation in agricultural and conservation areas.

(b) Mali Household Energy Project - (World Bank)

The project's objective is to reduce unsustainable use of indigenous wood as fuel and net CO2 build-up. In Mali and the Sahel, charcoal produced by clear cutting and burning of trees is becoming a major source of energy, notably in urban areas. The project addresses the problem by a two-pronged approach: a) Control deforestation by enhancing community management and sustainable use of fuelwood; and b) reduction in per capita fuelwood consumption by promoting more energy-efficient stoves and kilns.

(c) Jordan: Conservation of the Azraq Protected Areas - (UNDP)

Jordan's Azraq Protected Area contains springfed marshes comprising its most extensive freshwater ecosystem. The Ramsar Convention designates Azraq Oasis as a wetland of international importance, notable for migratory waterfowl habitat. Massive extraction from Azraq aquifer for drinking water and irrigation has lowered ground water levels, threatening saline water intrusion. The project seeks to halt degradation of the wetland and its biodiversity by designing a comprehensive water management plan for the basin, and supporting targeted research on infiltration techniques to accelerate ground water recharge.

(d) Zimbabwe Wildlife Management and Environmental Conservation - (World Bank)

The project provides incentives to the communities living around a national park to protect and manage its natural and wildlife resources. It expands the range of activities and benefits they derive from the natural and wildlife resources, e.g. eco-tourism, marketing of products based on local wildlife and natural resources. Such income-generating and resource management schemes may substantially reduce poaching (particularly of endangered mammals e.g. elephants and rhinos) and also limit agricultural expansion in areas not suited for intensive cultivation.

(e) Ethiopia: A Dynamic Farmer-based Approach to Conservation of African Plant Genetic Resources -(UNDP)

The project helps farmers to maintain indigenous varieties of dryland crops such as teff, wheat and barley in the agro-ecosystem in which they evolved. In-situ conservation ensures that the complex interaction of genetically diverse cultivars with their environment, including its pests, pathogens and droughts, continues and that these adaptations continue to evolve. The project provides training and assistance to communities to establish their own Gene Banks, and facilitates the recording and documentation, by the Ethiopian Plant Genetic Research Centre, of the landraces and their adaptations. Through community-level capacity building, it seeks to maintain and develop the use of dryland biodiversity and improve farm productivity.

(f) Sudan: Carbon Sequestration Project - (UNDP)

The project seeks to enhance carbon sequestration by increasing woody cover and density, and controlling dryland degradation. It will help develop land use and rangeland management plans and guidelines for resource management. Through village councils it will plant grasses and trees to double the rate of biomass production in the targeted rangeland. It also seeks to stabilize sand dunes by planting trees, shrubs and grasses, apart from establishing wind breaks around farms to increase woody cover and to mitigate sand encroachment. Assuming its carbon storage benefit grows linearly over the next twenty years, the project estimates that its cost of direct carbon sequestration will be about $12 per ton.

2. NON-GEF PROJECTS

(a) Mali and Burkina Faso: Village-Based Natural Resource Management Project - (IDA/World Bank)

The projects seeks to improve land use patterns at the village level to halt and reverse land degradation, to promote sustainable agriculture, restore biodiversity, and better manage wildlife and natural resources. It applies an integrated, village-based approach to land degradation control and resource conservation, and emphasizes

building local capacities, focusing attention on areas designated as UNESCO Biosphere Reserves.

(b) Mauritania: Sand Encroachment (Control) and Rural Development Project - (UNSO/UNDP)

The project aims at protecting villages from sand encroachment and desertification by means of a variety of interrelated interventions, such as: afforestation, windbreaks and an integrated agro-silvo-pastoral program involving pasture rotation, improved grazing, harvesting and conservation of fodder, establishing woodlots, constructing small dams, and promoting soil and water conservation.

(c) Transnational Green Belt Project In North Africa - (UNEP)

The project involves a regionally co-ordinated (involving Algeria, Libya, Mauritania, Morocco and Tunisia) and integrated approach to protecting rangeland and farmland from desert encroachment through afforestation, upgrading rangeland, sand dune fixation and wildlife management.