Global Environment Facility (GEF)

Sustainable land use planning for integrated land and water management for disaster preparedness and vulnerability reduction in the lower Limpopo Basin

GEF Medium Size Project

PROJECT BRIEF

March 2004

Sustainable land use planning for integrated land and water management for disaster preparedness and vulnerability reduction in the lower Limpopo Basin

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ACRONYMS

ALWI	Africa Land and Water Initiative
ARA-Sul	Regional Water Board for Southern Mozambique
CAMPFIRE	Communal Areas Management Programme for Indigenous Resources
CBNRM	Community-based Natural Resources Management
CENACARTA	National Centre for Geography and Remote Sensing
DINAGECA	National Directorate of Geography and Cadastra
DNHA	National Directorate of Agricultural Water Resources
DNA	National Water Board
DWAF	Directorate of Water Affairs and Forestry
ELMS	Environment and Land Management Sector
FEWS	Famine Early Warning System
GEF	Global Environment Facility
GIS	Geographical Information Systems
HYCOSS	(SADC) Hydrological Cycle Observing Systems
INAM	National Institute of Meteorology
INGC	National Disaster Management Institute
ISCN	Institute for Soil, Climate and Water of South Africa
IUCN	International Union for the Conservation of Nature
MICOA	Ministry for Coordination of Environmental Affairs
MOU	Memorandum of Understanding
MSP	Medium-Sized Project
NAP	National Action Plan
NBSAP	National Biodiversity Strategy Action Plans
NEAP	National Environment Action Plan
NEWU	National Early Warning Unit
NGO	Non-Governmental Organisation
NOAA	National Oceanic and Atmospheric Administration
PDF	Project Development Format
RETOSA	Regional Tourism Organisation of Southern Africa
REWU	Regional Early Warning Unit
RSAP	Regional Strategic Action Plan
SADC	Southern African Development Community
SARCCUS	Southern African Regional Commission for the Conservation and Utilisation of the Soil

SARDC	Southern African Research and Documentation Centre
SRAP	Sub-Regional Action Plan
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNHSP	United Nations Human Settlements Programme (UN-HABITAT)
ZINWA	Zimbabwe National Water Authority
ZRA	Zambezi River Authority

MEDIUM SIZED PROJECT BRIEF

Sustainable land use planning for integrated land and water management for disaster preparedness and vulnerability reduction in the lower Limpopo Basin

PROJECT SUMMARY

PROJECT IDENTIFIERS	
1. Project name Sustainable land use planning for integrated land and water management for disaster preparedness and vulnerability reduction in the lower Limpopo Basin	**2. GEF Implementing Agency** UNEP
3. Countries of project implementation Mozambique; South Africa; and Zimbabwe	**4. Country eligibility** All the countries have ratified UNCBD, UNCCD, UNFCCC Mozambique: UNCBD (25/08/95), UNCCD (13/03/97), UNFCCC (25/08/95) South Africa: UNCBD (2/11/95), UNCCD (30/09/97), UNFCCC (29/08/97) Zimbabwe: UNCBD (11/11/94), UNCCD (23/09/97), UNFCCC (3/11/92)
5. GEF focal area(s): Land Degradation	
6. Operational programme / Short-term measure: The GEF Operational Programme N° 15 – Sustainable Land Management	
7. Project linkage to national priorities, action plans, and programmes: **Regional Policy Framework** ▪ The project is linked to the SADC Sub-Regional Action Programme (SRAP) of the Convention to Combat Desertification (CCD). The SRAP focuses on joint programmes for the sustainable management of transboundary natural resources, coordination of programmes to develop alternative energy sources, early warning systems, and joint planning for mitigating the effects of drought. The SRAP emphasises scientific and technical cooperation, capacity building, education and public awareness creation at sub-regional level. The project under proposal will build on efforts of the SRAP, especially in areas of sustainable land use planning and early warning. ▪ The project will also complement work on sustainable land use planning carried out under the Southern African Regional Commission for the Conservation and Utilisation of the Soil (SARCCUS). ▪ The project recognises that the primary goal and key priority for the majority of the people of the SADC region and the Limpopo River Basin is the alleviation of poverty. This is reflected in many SADC initiatives, covering health, nutrition, education and agriculture, among others, which are implemented through a policy of sustainable development with equity-led growth that recognises the need for industrial development, social services, and protection of the	

environment as highlighted in the SADC Policy and Strategy for Environment and Sustainable Development. The project will thus use this SADC Policy and Strategy as one of its main anchors for guiding implementation.

- The project is aware that, by recognising the importance of water to achieve its objectives (the attainment of an integrated regional economy on the basis of balance, equity and mutual benefit of all member States), SADC established the Water Sector Co-ordination Unit in 1996 to attain the sustainable and integrated planning, development, utilisation and management of water resources in the region. The SADC Water Sector came out of the Environment and Land Management Sector (ELMS).
- In pursuit of its vision, the SADC Water Sector developed in 1997 the Regional Strategic Action Plan (RSAP) on Integrated Water Resources Development and Management (IWRM). However, the most significant development towards achieving integration of the regional use and management of water resources was the ratification in 1998 of the SADC Protocol on Shared Watercourse Systems, which was further reviewed in 1999/2000. Both the RSAP and the Protocol are key to the implementation of the project given their importance in IWRM and management of floods.
- The project is also aware that under the restructuring programme approved by SADC Heads of State and Government in March 2001, which is aimed at improving operational efficiency, the 21 SADC sectors based in 12 countries will be streamlined into four directorates located at the SADC headquarters in Gaborone, Botswana. Issues relating to sustainable land use planning will fall under the Food, Agriculture and Natural Resources Directorate, while water will fall under the Directorate of Infrastructure and Services, which also includes Transport and Communications, Meteorology, Energy, and Tourism. The project will thus link up with relevant SADC Directorates to enhance its effectiveness.
- Besides the Protocol on Shared Watercourses, there are many other SADC protocols with relevance to the Limpopo river basin that the project will recognise and try to incorporate their provisions in its activities. These include:
    - Declaration and Treaty of SADC (1992)
    - SADC Protocol on Energy, (24 August 1996)
    - SADC Protocol on Transport, Communications and Meteorology, (24 August 1996)
    - SADC Protocol on Trade, (24 August 1996)
    - SADC Charter of the Regional Tourism Organisation of Southern Africa (RETOSA)
    - SADC Protocol on Education and Training, (8 September 1997)
    - SADC Protocol on Mining, (8 September 1997)
    - SADC Protocol on the Development and Tourism, (14 September 1998)
    - SADC Protocol on Health, (18 August 1999)
    - SADC Protocol on Wildlife Conservation and Law Enforcement, (18 August 1999).

River Basin Policy Framework

- The project recognises that the Limpopo River Basin is an important resource, covering almost 14 percent of the total area of its four riparian states. However, due to its shared nature, a joint management institutional structure for the basin has been established and this is currently co-ordinated by the Limpopo Basin Permanent Technical Committee (LBPTC) on which all the three lower basin states (Mozambique, South Africa and Zimbabwe) are represented (including Botswana upstream). The committee is responsible for running the technical and administrative issues concerning the basin. The LBPTC and the joint management of the Limpopo River operate within the framework of the Revised Protocol on Shared Watercourses. This project will be implemented as part of the terms of the LBPTC, and will therefore be introduced to the committee before implementation starts.

- The Limpopo River Basin is highly vulnerable to climate variability, which in most cases results in droughts or floods. The most recent and damaging floods occurred in 2000. The El Nino induced 2000 floods caused US$273.1 million worth of physical damages, much of it in Mozambique. The terms of this project include the need to reduce such losses on life, property and important ecosystems through sustainable land use planning.
- The project is aware that, in order to address flood issues, a SADC Water Sector Strategic Approach ("Strategy for Floods and Droughts Management in the SADC Region") was proposed, containing specific technical measures aiming at preventing or mitigating water-related disasters in five substantive areas - Preparedness and Contingency Planning for Response; Early Warning and Vulnerability Information Systems; Mitigation Measures; Response; and Recovery. The project will, therefore, not duplicate such efforts, but complement them, particularly from a sustainable land use planning perspective.
- The Limpopo River Basin is endowed with a wide range of both flora and fauna. As a result of the transboundary nature of such resources, the Governments of Mozambique, South Africa and Zimbabwe agreed, on 9 December 2002 in Xai-Xai, to develop the World's largest trans-frontier conservation area, the Great Limpopo Park. Such efforts will be supplemented by the project that will ensure conservation of ecosystems in the productive landscapes and settled areas.

National Policy Framework

- The project will complement efforts towards sustainable land use planning, as well as drought and flood management, as covered by National Action Programmes (NAPs) of the CCD, which are complementary to the SRAP.
- The project is also responding to priorities in the respective National Biodiversity Strategy Action Plans (NBSAPs), especially where matters of Community-Based Natural Resources Management (CBNRM) are concerned.
- The project will assist the three countries to strengthen regional cooperation in the Lower Limpopo River Basin, providing technical support and capacity building actions. In order to reach this goal the project will integrate the respective national policies, namely NAPS, NBASAPs, national environmental action plans, and national emergency plans in all the three countries in matters related to disaster preparedness and vulnerability reduction to floods.

Specifically

IN MOZAMBIQUE: The project will be developed under country coordination of the Ministry of Environmental Affairs (MICOA) within the framework of the **National Programme for Environmental Management** (Programa Nacional de Gestão Ambiental). The project is also in line with the existing national framework (policies and programmes) for biodiversity conservation, environment protection and vulnerability reduction in areas under increasing human pressure. Furthermore, the project fully responds to the **Mozambican Government Country Strategy** of 1995 that defines major development priorities including the strengthening of national capacities for environmental management purposes; the **National Post-Emergency Reconstruction Programme** (2000) that aims at reducing the vulnerability of local communities especially in areas susceptible to flooding; the country's **National Disaster Management Policy** which seeks to reduce loss of life and damage to national resources and property and protect vulnerable communities from disasters; the **Poverty Eradication Strategy** covering the period 2000-2005 which defines the reduction of vulnerability to natural disasters, capacity building on environmental management at local level, environmental protection, research, agricultural land management and institutional development as key priority areas; the **National Food Security and Nutrition Strategy** which advocates to increase the efficiency of the agricultural marketing system, including the improvement of the commercial

networks, rural financial and marketing systems, and promoting access to capital and nutrition education; the **National Land Policy** meant to ensure the rights of the Mozambican population over land and other natural resources; and the **1995 National Water Policy** which seeks to decentralise the management of water resources to lower levels of society.

IN SOUTH AFRICA: The project will be developed in co-operation with the **Department of Water Affairs and Forestry** (DWAF), the **Department of Provincial and Local Government,** the **Disaster Management Centre** and the **Witwatersrand University**.

The Department of Water Affairs and Forestry is responsible for water resource management in South Africa, including the operation of flow measuring stations that will form an integral part of the disaster management plan. The Department of Water Affairs and Forestry also houses the operational centre of the SADC Hydrological Cycle Observing Systems (HYCOS).

The Department of Provincial and Local Government is responsible for the national co-ordination of emergency planning in South Africa and has played a significant role in the co-ordination of emergency rescue and relief operations from South Africa to Mozambique during the 2000 floods.

The Disaster Management Centre co-ordinates national programmes and policies dealing with disaster matters. Witwatersrand University has the technical capacity and know-how for early warning systems and flood monitoring.

IN ZIMBABWE: The project will be developed in co-operation with the **Department of Natural Resources** within the Ministry of Environment and Tourism. The project will recognise that the water management sector in Zimbabwe is characterised by a plethora of players who all contribute in one way or another to manage water and water-related activities. At Government level, the **Ministry of Rural Resources and Water Development** provides overall planning and management of water at national level. The Ministry of Local Government and National Housing is in charge of water use through municipalities. The Ministry of Lands, Agriculture and Rural Resettlement supervises agricultural water uses; and the Ministry of Health monitors the quality of water.

The project will also work in line with Zimbabwe's environmental legislation as enshrined in the new **Environmental Management Act**. Furthermore, the project will note that wildlife is administered by the Ministry of Environment and Tourism through the Department of National Parks and Wildlife Management. The **Parks and Wildlife Act** of 1975 constitutes the legal framework for the conservation and utilisation of wildlife resources in the country

The project is also aware of the institutional restructuring within the Ministry of Rural Resources and Water Development which has resulted in the transformation of the Department of Water Development into a statutory body, the **Zimbabwe National Water Authority (ZINWA)** whose responsibility is to undertake the commercial functions associated mainly with raw water provision. A smaller Department of Water Development was retained for policy, statutory and regulatory functions. In line with the requirement to manage water at the lowest appropriate level, stakeholder institutions in the form of **Catchment and Sub-catchment Councils** were also established in terms of the Water Act of 1998. The Limpopo sector falls under the **Umzingwane Catchment Area**.

As for community based natural resources management projects, the project is aware that **Communal Areas Management Programme for Indigenous Resources (CAMPFIRE)** has been instituted to work through Rural District Councils, and as such is an important avenue to get through to communities.

8. National operational focal point review (dates):

- Mozambique: 9 November 2001. Signed by Dr. Evaristo Baquete, Ministry for Coordination of Environmental Affairs (MICOA)

- South Africa: 29 October 2001. Signed by Oliver, Crispian, Director General, Department of Environmental Affairs and Tourism
- Zimbabwe: 27 August 2001. Signed by Chinamora, Margaret Thandi, Permanent Secretary, Ministry of Environment and Tourism

PROJECT OBJECTIVES AND ACTIVITIES

9. Project rationale:

The Lower Limpopo basin presents a highly significant vegetal and animal diversity, which enhance the global importance of its ecosystems. The savannah is the dominant eco-region in the area and includes a rich panorama of large mammals, birds and endemic plant species. Its high natural value stimulates important eco-tourism and tends to be conserved thanks to initiatives such as the Great Limpopo Park. Other types of ecosystems found in the area are grasslands, of vast economic importance and severely threatened, and relatively large patches of forests, predominantly Mopane and Acacia-Combretum-Terminalia woodlands. Finally the river floodplain holds significant wetlands that have critical hydrological functions (flood mitigation, groundwater recharge and water filtration) and host endemic species of flora and fauna.

As natural phenomena, flooding and floods are an integral part of the hydrological cycle and cannot be managed in isolation. High flows propagate along the drainage network of a basin, thus affecting both upstream and downstream parts. Given the recent repeated frequent flooding affecting the lower Limpopo River Basin, concerned SADC countries have shown interest to address this issue. Recently, the Government of Mozambique, the country most affected due to its downstream location, formulated a specific request of assistance (i.e. Donors Appeal in 2000 in which UNHSP [HABITAT] and UNEP participated through a proposal addressing environmental issues).

There is a need for understanding the ecological and economic role of the recurrent annual flooding as well as the destructive impacts of floods on the environment and human society. The complex nature of this natural phenomenon could be effectively addressed by adopting an integrated flood management programme in the three countries that stresses disaster preparedness and mitigation techniques through sustainable land use planning. The main features of the programme would be to reduce the risk of losing life and to preserve ecosystems. Indeed, experience has shown that:

a) despite the up-dated technology and environmental management knowledge of South Africa concerning risk analysis, early warning systems, impact assessment techniques, etc, SADC countries in general, and Mozambique and Zimbabwe in particular, are not taking advantage of this technological development neither do flood affected communities;

b) although some information is provided concerning potential flooding due to weather conditions as well as dam management, the national/local response is not effective due to the lack of social engineering to complement technical flow measures;

c) early warning systems by themselves do not guarantee effective response if they are not complemented by a sound national disaster management programme including disaster preparedness and vulnerability reduction principles at human settlements and community levels, and;

d) the lack of adequate land use planning and the uncoordinated relocation of affected communities in response to flooding had a negative impact on fragile ecosystems, thus threatening the area's biodiversity; affected families (Internally Displaced Persons) tend to resort to deforestation activities to provide themselves with shelter and firewood. It is this project's conviction that if the

settlements dimension is properly addressed, it could minimise effectively the negative impact on susceptible bio-diverse environments.

In order to deal effectively with flooding and related impacts on ecosystems functions and services it is important to establish a regional comprehensive framework that considers: a) an integrated approach to land and water management; b) a reliable flood forecasting and warning system linking the three countries (Mozambique, South Africa and Zimbabwe); c) effective mechanisms to receive, analyse and react to early warning information as well as to implement disaster mitigation measures and contingency plans; d) capacity building for local and national authorities focusing on cross-sectoral planning, implementation of actions and monitoring, and e) at community level, eco-sustainable land use planning based on participatory approaches including vulnerability reduction strategies.

The establishment of the above framework will promote participatory land use planning for sustainable land management in the Lower Limpopo River Basin in order to reduce the impact of floods on land, ecosystems and human settlements. The project will therefore respond to the objectives of the GEF Operational Programme n. 15 on Sustainable Land Management aimed at promoting integration of land use planning systems through strengthening of participatory institutional mechanism at national and local levels and across sectors as a contribution to improving livelihoods and protecting ecosystem stability, functions and services; incorporation of sustainable land management practices into systems for flood preparedness and strengthening of information management systems to support decision-making at the national and local levels. The project will therefore contribute to GEF Strategic Priority I under Sustainable Land Management (SLM-1): (1) Targeted Capacity Building with a special focus on the integration of land use planning systems through the incorporation of sustainable land management practices into systems developed for extreme climatic events.

OBJECTIVE	**INDICATORS**
The overall objective of the project is to develop and implement participatory land use tools and plans for sustainable land management in the Lower Limpopo River Basin in order to reduce the impact of floods on land, ecosystems and human settlements.	Improved land use management through community-led initiatives in at least 50% of the area of three relevant flood prone ecosystems as well as in at least six rural settlements of the Lower Limpopo basin; Strengthened co-operation among riparian countries concerning basin management;; Enhanced capacity for flood preparedness and mitigation at national level and in at least six flood prone towns in affected areas.

OUTCOMES	INDICATORS
Outcome 1: A regional integrated land use management plan to lessen land degradation and minimise the risk of losing life and damage to ecosystems in future floods **Outcome 2**: Enhanced capacity and effective tools in participatory land use planning and disaster preparedness techniques for sustainable land management to reduce the vulnerability of communities living in flood prone areas	By the end of the project: • A regional action plan is prepared, agreed and implemented among the three countries; • Enhanced land use planning in at least 50% of the area of one relevant flood prone ecosystem and two rural settlements for each country of the Lower Limpopo basin; • Participatory land use plans for sustainable land management to reduce the vulnerability of communities in at least two flood prone cities/towns of each basin country designed and adopted; • Participatory tools and methodologies in addressing critical issues concerning flood disaster management and ecosystems preservation developed; and • Training in disaster preparedness techniques delivered and informative material disseminated to targeted communities.
10. Planned activities to achieve outcomes	
PLANNED ACTIVITIES	**INDICATORS**
<u>Outcome 1:</u> Regional integrated land use management plan. **Total: US$ 687,500** **GEF: US$ 300,000** **Co-financing: US$ 387,500**	
Activity 1.1. <u>Establish an inter-country co-operation framework for integrated land use management in the lower Limpopo river basin</u> **(Total: US$ 272,500, GEF: US$ 230,000, Co-financing: US$ 42,500)**	By the end of the project: • At the regional level, agreements are produced, committee and working groups established and annual workshop held; • Regional action plan for sustainable land use prepared.
Specific activities: 1.1.1. Carry out baseline study on the current cooperation status in flood mitigation and preparedness among the three countries, especially as per the provisions	By the end of the project: • Baseline study, indicating levels of cooperation, and recommendations to improve such cooperation;

of the LBPTC. 1.1.2. Carry out a review of the SADC RSAP, SRAP and of the LBPTC decisions and activities concerning the development of IWRM and sustainable land use planning in the Lower Limpopo River Basin. 1.1.3. Carry out a review of, and where not in existence, facilitate production of Memoranda of Understanding and of other types of regional agreements leading to the preparation of a regional plan of action. 1.1.4. Assess level of information and technological exchange to enhance regional cooperation and an interactive communication system among the three countries. 1.1.5. Organisation of annual regional workshops rotated among the three countries to review and adopt new resolutions at institutional level concerning flood disaster related issues in the Lower Limpopo Basin. 1.1.6. Prepare a regional action plan for sustainable land use planning and management of floods.	• Review of the RSAP and the LBPTC, especially with regard to their application in the integrated management and sustainable land use in the Lower Limpopo; • Inventory of Memoranda of Understanding or any other agreements; new agreements are formulated; • Documentation of joint programmes of exchange of information and technology on disasters; • By the end of each year a regional workshop is held in one of the three countries and progress reports, recommendations and new resolutions are produced and documented; • Regional action plan for participatory land use planning for sustainable land management and response to floods prepared and agreed.
Activity 1.2. Stimulate supportive legal, regulatory and policy changes at all levels relevant to flood mitigation, vulnerability reduction and land use planning. **(Total: US$ 415,000, GEF: US$ 70,000, Co-financing: US$ 345,000)**	By the end of the project: Inventory of available national legal, policy and institutional framework prepared, gaps identified and new policies and plans are submitted to the respective governments for approval.
Specific activities: 1.2.1. Carry out studies and formulate recommendations on the effective application of the Protocol on Shared Watercourses and other regional regulatory instruments in the Lower Limpopo Basin. 1.2.2. Review available legal, policy and institutional framework concerning flood disaster management and sustainable land use planning at the national and community levels.	By the end of the project: • In-depth analysis of the mechanisms linking the Protocol and other regional instruments with the existing institutional structures dealing with flood management and sustainable land use planning made; • Country reports on the current national legislation and institutional framework concerning flood management and participatory land use planning for sustainable land management, including recommendations for improvements produced;

1.2.3. Recommend land use planning policy changes and related frameworks.	• New policies and plans to reinforce institutional roles in flood mitigation and land use planning strategies are proposed and submitted to the respective governments for approval.
<u>Outcome 2:</u> Enhanced capacity and effective tools in participatory land use planning and disaster preparedness techniques for sustainable land management. **Total: US$ 2,110,000** **GEF: US$ 670,000** **Co-financing: US$ 1,440,000**	
Activity 2.1. <u>Development of effective flood forecasting and early warning systems linked to national sustainable land management and disaster management programmes and improving response at community level.</u> **(Total: US$ 540,000, GEF: US$ 90,000, Co-financing: US$ 450,000)**	By end of the project: • Number of trained local technical staff for flood forecasting, monitoring and early warning is increased in each country; • Relevant maps generated; • Information and technological exchange mechanisms are improved and agreed.
Specific activities: 2.1.1. Studies on the current flow of early warning and other flood management information among the three countries and assessment of the existing organisation and structures ensuring the flow of such information from the national/institutional level to the local/community level. 2.1.2. Use remote sensing and GIS technology to generate flood risk maps, sustainable land use maps, run dynamic simulations and create appropriate databases. 2.1.3. Train technical staff to enhance local capacity in operating flood forecasting, monitoring and early warning systems in most vulnerable areas, coupled with adequate transfer of related technology. 2.1.4. Develop project proposals for upgrading information and hardware for regional flood forecasting and early warning systems.	By end of the project: • Reports on current flow of early warning, and on assessment of the existing organisation and structures prepared; • Use of remote sensing and GIS technology and knowledge in governmental institutions participating in the project increased; maps on sustainable land use and flood risk coupled with dynamic modelling, generated; • Training material concerning flood forecasting, monitoring and early warning produced, and at least 20 technical staff per country trained; • Technical capacity in flood forecasting, monitoring and early warning systems in Mozambique and Zimbabwe improved; • Fundable project proposals formulated and approved.

Activity 2.2. Building institutional and community capacity for implementing participatory land use planning for sustainable land management to reduce direct or indirect[1] in occasion of a flood event impact of floods on natural ecosystems. [1] Refers to human impact due to uncontrolled resettlement activities **(Total: US$ 790,000, GEF: US$ 440,000, Co-financing: US$ 350,000)**	By end of the project: • Strategic actions to protect from flood at least one relevant ecosystem in each country are implemented; • Training programme for reinforcing institutional capacity and community participation for sustainable land management and disaster preparedness is delivered;
Specific activities: 2.2.1. Review existing land use and land cover mapping and inventories of significant ecosystems affected by floods. 2.2.2. Perform assessments of institutional and community capacity for sustainable land use management. 2.2.3. Develop sustainable land use planning tools. 2.2.4. Select project sites for the implementation of land use planning tools at community level. 2.2.5. Define ecosystem conservation approaches to be implemented by flood-affected populations, including recommendations for rural settlements policies. 2.2.6. Disseminate relevant land management guidelines in appropriate languages. 2.2.7. Facilitate adoption of land use planning strategies and tools at both national and local levels aimed at mitigating the impact of floods on significant ecosystems.	By end of the project: • Reports on ecosystems threatened by floods and flood-induced resettlements prepared; digital risk maps linked with exhaustive databases for the lower Limpopo River Basin produced. • Review of institutional capacities prepared and used to improve capacity of communities and institutions. • Two project sites selected in each country for the implementation of land use planning tools; • Well packaged ecosystem management guidelines disseminated in appropriate languages and formats; • Strategic actions to mitigate flood impacts in at least two rural settlements in each country that are under serious threat of floods proposed and implemented; • Meetings convened both at national and local levels to discuss strategies and programmes; dynamic land use models or scenarios feeding an adequate decision support system that shows future impact on identified ecosystems produced; monitoring operations implemented.
Activity 2.3. Elaboration and adoption of disaster preparedness techniques, contingency plans and awareness campaigns that will strengthen capacities of riparian communities to cope with flood events. **(Total: US$ 780,000, GEF: US$ 140,000, Co-**	By end of the project: • Guidelines for environmental conservation, sustainable land management and disaster preparedness prepared and disseminated;

financing: US$ 640,000) **Specific activities**: 2.3.1. Propose and adopt consensus-based contingency action plans and facilitate their implementation through existing community organisations. 2.3.2. Selection and training local administration staff and elected community leaders to promote awareness and ensure efficient public participation in adopting flood preparedness techniques and land use planning. 2.3.3. Organisation of annual workshops and training sessions, both nationally and locally, aimed at reinforcing decision-making capabilities to produce appropriate emergency flood responses. 2.3.4. Disseminate informative materials for flood awareness in local languages and in easily understandable formats. 2.3.5. Identify flood-safe areas through participatory land use planning in both urban and rural environments.	• At community level, sustainable land use and contingency plans are designed and special committees are formed to reduce vulnerability in at least two flood prone cities/towns of each riparian country; • Flood-safe areas identified through sustainable land use planning in both urban and rural environments. By the end of the project: • Special committees at the community level to implement the contingency action plans formed; • Number of trained local administration staff and trained elected community leaders is consistently increased in each country; • One annual workshop at national level and 20 technical staff for each country basin trained in disaster preparedness techniques; • Posters, fact-sheets and newsletters produced in local languages and disseminated; school-teachers to disseminate information through pupils to families trained; instructive coloured magazines for pupils produced; community radio programmes given in local language; theatre events and photo expositions held. • Flood-safe areas identified and vulnerability reduction solutions implemented in at least two rural/urban settlements per country basin.

11. Estimated budget (in US$):

PDFA	US$ 25,000
GEF Medium- sized project funding	US$ 970,000
Co-financing Government of Mozambique	US$ 230,000
Co-financing Government of South Africa	US$ 627,500
Co-financing Government of Zimbabwe	US$ 210,000
Co-financing UN-HABITAT	US$ 760,000
TOTAL (including Block A)	**US$ 2,822,500**

INFORMATION ON INSTITUTION SUBMITTING PROJECT BRIEF

12. Information on project proposal:

The mission of UNHSP (United Nations Human Settlements Programme or UN-HABITAT) is to promote socially and environmentally sustainable human settlements development and the achievement of shelter for all. UNHSP is the lead Agency within the UN system for the implementation of the Habitat Agenda – the Global Plan of Action adopted by the international community at the Habitat II Conference in Istanbul (1996). Its activities contribute to the overall objective of the UN system to reduce poverty and promote sustainable development within the context and challenges of a rapidly urbanising world. UN-HABITAT is also responsible of implementing Chapter 8 (Integrating Environment and Development in Decision-Making) and 14 (Promoting Sustainable Agriculture and Rural Development) of the "Agenda 21".

Similarly to what is proposed here, UN-HABITAT is currently assisting Asian Governments to develop a Flood Vulnerability Reduction Programme that includes human settlements and environmental management.

Furthermore UNHSP Global Programmes include:

- Localising Agenda 21 with programmes in Kenya, Morocco and Vietnam for the development of strategic planning and environmental management;
- Urban Management Programme: currently involved in analysis and synthesis of lessons learnt about city consultations and guidelines for cities most of them with an environmental component;
- Sustainable Cities Programme: Promoting environmentally sustainable development in various countries.

UN-HABITAT is also providing technical assistance to countries in topics relevant to this project such as:

- National Programme on Environmental Policies and Guidelines for Cities in Egypt;
- Capacity building to local authorities on sustainable development and Environmentally Sustainable Urban Development in Tanzania.

Finally, UN-HABITAT is currently developing the following activities in the Project Region:

- in Mozambique, assisting the Government in implementing Vulnerability Reduction and Slum Upgrading project in four flood prone cities, by stressing disaster preparedness and sustainable land use planning, and in carrying out studies and legal propositions on security of land tenure that constitutes a primary issue after the resettlement activities generated by the 2000 floods;
- in South Africa, Assisting the government in a capacity building programme for local governance.

13. Executing agency:

UNITED NATIONS HUMAN SETTLEMENTS PROGRAM (UN-HABITAT)

(see 12 above).

14. Dates of initial submission of project concept:

Block A approval: GEF Approval 14 December 2001

INFORMATION TO BE COMPLETED BY THE IMPLEMENTING AGENCY

15. Project Number:

Not yet assigned.

16. Implementing agency contact persons:

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17. Project linkage to implementing agency programmes:

The project links with the *Land Use Management and Soil Management and Soil Conservation Policy of UNEP* (UNEP/GC.22/INF/25) that emphasises UNEP's role in addressing the environmental dimensions of land use management, i.e. linkages with land and soil degradation, poverty, land tenure and public participation, environmental impact of agriculture, water management, environmental emergencies, urbanisation, global climate change, and trade and environmental externalities. UNEP's primary goal in the medium term is to develop and implement sustainable land use management and soil conservation through capacity building, information management and public participation, response to environmental emergencies, development of legal instruments, regional co-operation and the development, implementation and execution of GEF projects.

The project fills a strategic niche in UNEP/GEF's land degradation portfolio, which is currently covering a number of transboundary drylands and river valleys in Africa prone to extreme weather events. The proposed initiative will develop a framework for participatory land use planning, vulnerability reduction and environmental conservation strategies that have potential for replication in other flood prone areas in Africa. The MSP will provide a fast track for specifically addressing the threats posed by floods and extreme weather events to ecosystems and human settlements in the lower Limpopo basin. In addition, the activities of the project will include the development of sustainable land use planning tools to be implemented at policy and community levels. This will constitute a unique framework for the further development of GEF eligible projects under the new Land Degradation focal area.

The project will complement the proposal prepared by SADC-ELMS on the Limpopo River Basin, which has been designated as a pilot site in Southern Africa in the framework of the Africa Land and Water Management Initiative (ALWMI) of the World Bank. The Heads of the GEF and its Implementing Agencies including UNEP launched the Africa Land and Water Initiative in March 1999. The overall objective of the Initiative is to develop a co-ordinated Action Program to address land and water management issues in Africa in an integrated and programmatic manner. The proposal by SADC-ELMS aims to develop a transboundary project consistent with UNCCD objectives, governments' policy priorities and planning by describing the ways to address constraints preventing rural populations to manage their resources in a sustainable manner.

The MSP will be implemented in the framework of Action Plan for the Environment Initiative of the New Partnership for Africa's Development (NEPAD), which was developed using a UNEP/GEF MSP. The draft Action Plan was considered at a special session of the African Ministerial Conference on the Environment (AMCEN) held on 9 and 10 June 2003, at which time the ministers endorsed it subject to a number of proposed amendments. The revised draft Action Plan was then submitted to the Summit of the African Union, which adopted it in July 2003. The MSP will also contribute to on going UNEP/GEF projects including the full-sized project on "Rehabilitation of Degraded Lands and Biological Diversity Conservation in Arid and Semi-Arid Regions of Mozambique, Zambia and Zimbabwe" jointly implemented with UNDP, that focuses on community-based conservation practices and approaches in transboundary drylands.

18. PROJECT DESCRIPTION

Project Rationale and Objectives

Background

The Limpopo basin, as is much of the SADC region, is characterised by:

- extensive temporal and spatial rainfall variability, resulting in endemic drought and occasional floods;
- rapidly growing and urbanising populations (especially in Botswana [upstream] and South Africa), leading to growing water demand and water pollution;
- low coverage of urban and rural poor by water and sanitation services, and consequently, high incidence of water-borne diseases and water pollution;
- heavy dependence on agriculture, with generally very low water-use efficiency;
- widespread absolute poverty, and food insecurity;
- vulnerability to disease and to HIV infection, and low life expectancy; and
- degraded watersheds and deteriorating water quality.

Frequent floods in the lower Limpopo basin, caused by extreme weather events, exacerbate the social, economic and environmental problems affecting the area. The following are some of the effects of floods on the biophysical and socio-economic environment:

- *Environmental Health*. Floods can release a cocktail of pollutants into the environment, washing away dead animals and agro-chemicals and other sources of pollution such as flooded petrol stations, cattle pens, industries and hospitals. This may lead to the outbreak of cholera.

- *Human settlements and camps.* Poor communities are dependent on traditional small-scale economic activities, and they depend on natural resources, resulting in over-exploitation of these resources, including intensive logging of firewood and charcoal collection. In addition, during floods affected families are displaced from their homes and given shelter in some safe accommodation centres. These are unplanned –provisional- centres, where very often the population is above the carrying capacity of the ecosystem, causing an increase in run off, erosion, new floods, siltation, etc.

- *Land degradation.* Floods worsen erosion, causing gullies, destruction of infrastructure, severe damages to housing, etc. On the other hand, informal settlements and poor land use practices exacerbate the damage on the environment and increase vulnerability on the human settlements.

- *Biodiversity*. Besides the loss of critical habitats and biodiversity, natural disasters cause pollution of water and destruction of homes and the living environment. Floods occurring at frequent intervals with constant magnitude are essential for the survival of species living in and biologically adapted to the flood plains conditions. However, severe floods that are greatly above normal patterns such as those that occurred in 2000 are highly destructive to the biodiversity and critical habitats, especially sensitive dryland ecosystems.

- *Forestry*: Forests surrounding camps that house flood-displaced people tend to be over harvested. During floods, the topsoil is washed away making it less fertile hence reducing vegetation growth. The result is environment degradation leading to a general natural resources reduction, which includes the impact on downstream lower forests.

- *Institutional Capacity*: Most government institutions have inadequate staff to cope with the normal duties and the existing staff is over-stretched. The additional work resulting from the floods exacerbates the situation.

Realising that floods produce a major negative impact on the region's macro-economic performance, the environment and people's welfare, commendable efforts have been made by individual governments to mitigate and manage this threat. However, a major shortcoming of these interventions is that planning for floods has not been adequate. Resources have often been shifted from long-term development objectives to meet short-term flood mitigation requirements. In addition, the *ad hoc* approach of short-emergency response measures has not led to the creation of permanent mechanisms either at national or regional levels, capable of responding expeditiously to future floods and developing long-term policies for drought management.

Coping strategies at both the household and national levels are already over stretched due to the incessant drought and flood episodes, on one hand, and the debilitating effects of HIV/AIDS, on the other. These have combined to leave a highly vulnerable population to risks associated with floods.

Linkages to National and Regional Policy Framework and GEF Operational Framework

The project will address climate change related risks through sustainable land use planning and early warning systems that will strengthen adaptation of the Lower Limpopo region to climate change and ensure the long term sustainability of the endeavour. It moreover addresses land use management issues in a holistic manner and integrates socio-economic factors in flood mitigation and hence responds the objectives of the GEF Operational Program 15 on Sustainable Land Management. The project focuses on creating a favourable enabling environment for flood mitigation and vulnerability reduction by strengthening of legal, regulatory and policy frameworks and institutional and human capacity building. The project is in line with the GEF Strategic Priorities where special focus has been put on capacity building especially in Least Developing Countries including policy and regulatory reform and institutional strengthening as well as on the implementation and dissemination of sustainable land management tools.

The project will achieve these objectives by enhancing the capacities of the benefiting communities in accordance with the provisions of the SADC Policy and Strategy for Environment and Sustainable Development; creating a favourable environment for the application of activities planned in the SADC Protocol on Shared Watercourses; supporting efforts of the participating countries governments to become more prepared to disasters; complementing the work of the Limpopo Basin Permanent Technical Committee; as well as reinforcing national environment strategies and policies through existing institutional structures.

The project will lead to concrete actions that will be undertaken in an innovative manner encompassing the regional level, national level down to the local/community level, in strategic sectors such as participatory land use planning for sustainable land management, flood forecasting and early warning systems, supportive legal/policy changes and disaster preparedness. Punctual interventions in these different sectors already exist at the country level, but they are often insufficiently funded and not adequately coordinated with the neighbouring countries. The different planned interventions are interrelated and all focused on reducing the floods impact on land, ecosystems and human settlements in the basin.

Activities implemented by the project will complement and support the Groundwater Management Programme of the World Bank/GEF project on Protection and Strategic Use of Groundwater Resources in the Transboundary Limpopo basin and Drought Prone Areas of the SADC region, aimed at developing a regional framework for technical support to national

groundwater assessments and management programmes. The project will also complement a number of UNDP initiatives in the SADC region.

Furthermore the project seeks to create a forum to share knowledge and capacities, by emphasising cooperation with national institutions and other stakeholders from the academic sector, the private sector and the civil society.

Occurrence and significance of floods in the Limpopo river basin

The severe droughts during the early 1990s and the recent extensive flooding in the Limpopo valley illustrate the extreme variability of rainfall and runoff in the basin. How aquifer recharge is affected by such variability has to be investigated in detail, so that optimal abstraction value during dry periods can be determined.

According to Ashton et al (2001), the Limpopo basin presents a high risk of agricultural drought, depending on the type of dryland cropping system in place. Here there is high variation in terms of both commencement time and cessation time of effective rains. The lower Limpopo is a very high-risk dryland agricultural zone with likely crop failure in 75-90 percent of years.

The last severe droughts prior to the 2001/02 one occurred in 1991/92 and 1994/95. The low flows, which have been, and still continue to be experienced in the Limpopo River and its tributaries, have resulted from not only droughts but also water abstractions upstream. This has had the effect of changing a perennial river to one with a seasonal flow (Ashton et al, 2001).

There were significant floods in the region in the late twentieth and twenty-first centuries, and these have been attributed to global warming. It has been observed that phenomena, such as El Nino Southern Oscillation (ENSO) increases the size of the cyclone formation zone in the Indian Ocean; the high temperatures associated with global warming mean that storms can hold more water. In the Limpopo basin major floods occurred in 1893 and 1894 followed by the record flood of 1915. For more than 50 years there were no major floods, except at the Hale cycle peaks in the late 1930s and 1950s. In the latter part of the twentieth century there were more floods and these were more intense. In 2000 the worst flood in living memory struck the basin, causing extensive infrastructure and environmental damage in all riparian countries.

Box 1: Rainfall trends in southern Africa 1967-2000

1967-73	This six-year period was dry across the entire region. Some records show a severe drought in 1967.
1974-80	This period was relatively moist over much of southern Africa. In 1974 the mean annual rainfall was 100 percent above normal throughout the region.
1981-82	Drought in most parts of southern Africa.
1982	Most of sub-tropical Africa experienced drought.
1983	A particularly bad drought year for all parts of the continent.
1984-85	Near normal seasons, but drought strains from the previous three years was still felt in most parts of the region.
1986-87	Drought conditions returned to the region.
1988-90	Near normal seasons.
1991-92	Southern Africa, excluding Namibia experience severe drought.
1993-94	Conditions improved.
1994-95	Many SADC countries were hit by the worst drought in memory, surpassing effects of the 1991-92 drought in some parts of the region.
1995-96	Widespread rains in most parts of the SADC region prompted forecasts of a bumper agricultural yield.

1996-97	Normal rainfall for most of the region.
1997-98	Normal rainfall throughout the region including the Northeast, although impacts of El Nino were significant.
1999-2000	Cyclone Eline hit the region and widespread floods devastated large parts of the Limpopo basin (southern and central Mozambique, south-eastern Zimbabwe, parts of South Africa and Botswana).

Source: State of the Environment Zambezi Basin 2000, SADC/IUCN/ZRA/SARDC, 2000

Current Situation

Ecosystems in the Lower Limpopo Basin

The project area is composed of several types of ecosystems that range from semi-arid continental conditions to a more humid climate close to the sea. As already mentioned the savannah cover is predominant; the vegetation patterns vary in function of the type of soil and land morphology: different species of woodlands are found, bushes and grass vegetation (see description per country for more information). The savannah conditions -warm temperature, diverse habitat, sparse population and availability of water- provide an ideal environment for a wide variety of animal species.

Large mammals are generally confined to protected areas, and include giraffe, eland, kudu, waterbuck, wildebeest, zebra, impala, buffalo, monkey, leopard, lion, elephant, hyena and cheetah. Over the years the populations of various species of wild fauna have been declining or are endangered, among others Hippopotamus (Hippopotamus amphibious), crocodiles, black and white rhino and elephant. Among the several bird species the Griffon is one of the most vulnerable.

The basin also supports a range of plant species, four of which are endemic (*Anisotes rogersii, Acacia exuvialis, Blepharis drummondii* and *Kedrostis limpopoensis*), and three are on the IUN-Red Data List (*Euphorbia lividiflora, E. rowlandii* and *Milicia excelsa*.

The Great Limpopo Transfrontier Park, Africa's largest transboundary conservation area was launched in January 2003. It covers 35,000 square kilometres (13,500 square miles) and extends into the three countries involved in the project. The park combines South Africa's Kruger National Park, Mozambique's Limpopo Park and Zimbabwe's Gonarezhou National Park into a huge ecosystem that is home to wildlife including lions, rhinos and elephants. The concept would ultimately broaden the protected area to include community lands outside the park, a goal that will benefit both wildlife and local peoples. As part of the project, South Africa's Environmental Affairs and Tourism Department has already trans-located nearly 1,000 animals – including dozens of elephants, giraffes, impalas, warthogs, waterbucks and zebras into Mozambique's Limpopo National Park where a long civil war had nearly depleted the region's animal population.

Mozambique

The portion of the Limpopo basin lying in Mozambique can be classified in four different main eco-climatic zones, from upstream to downstream:

- From the border with Zimbabwe and South Africa downstream of the confluence with the Elephants River, the sand plateau is dominated by a vegetation of very dense arid sand thicket communities or by woodlands dominated by multi-stemmed short trees. On the slopes of the plateaux an open woodland community is dominated by *Colophospermum mopane* and *Acacia exuvialis*, with, at lower elevations, woodlands of *Acaia, Commiphora, Terminalia*. *Acacia xanthophloea*, a flat-topped tree with yellow bark, grows where its roots can easily find water. It is, as well as the shrub *Slavadora persica*, an indicator of saline-alkaline

soils on flat seasonally waterlogged soils close to the riverbanks. *Acacia tortilis* is a salt-tolerant tree found on the more permeable soils.

- In the more sub-humid zone downstream to about 100 km inland from the sea, there are very open woodlands with short dense thorn thickets in the bottomlands, a result of the continued removal of woody elements for firewood in this region. The flood plain supports woodlands of *Acacia*. It is within this region that the transition from a xeric to moist sand thicket and woodland takes place. On the levee deposits along the Limpopo River are dense thickets of *Ficus, Diospyros* and *Zanthocercis*. The near flood plain supports Acacia or open woodlands. Around the Chokwé irrigation scheme there are considerable reductions in the woody biomass, except in the western part where very dense thickets and woodlands of *Acacia* still remain. Poorly drained soils support open grassland vegetation with few shrubs or trees, while the grass species present on the plains appear to depend on length of inundation by water. Sandy loam soils support Acacia woodland, often associated with reasonably high soil calcium levels. Deep sandy soils (Arenosols) support woodlands of broad-leaved deciduous tree species
- In the coastal area characterised by a humid tropical climate, the composition of vegetation patterns reflect anthropogenic changes originally composed of a mixed forest-woodland-grassland.
- The Chicualacuala District is dominated by deciduous tree savannah of mainly *Androstachys johnsonii*, *Colophospermum mopane*, *Sclerocarya caffra*, *Kirkia acuminata* and *Combretum* species. *Terminalia sericea* and *Rhigozum* species are the dominant species on the very deep yellowish brown sands along with *Androstachys johnsonii*, *Commiphora*, *Grewia* and *Combretum*. In soils with high clay content, *Colophospermum mopane* is dominant.

South Africa

On the South Africa side, the Limpopo River Basin largely falls within the Savannah Biome. The vegetation is characterised by a grassy ground layer and a distinct upper layer of woody plants. A major factor delimiting the biome is the lack of sufficient rainfall, which prevents the upper layer from dominating, coupled with fires and grazing, which keep the grass layer dominant.

The Mopane woodland dominates the undulating landscape from the Kruger National Park to the Soutpansberg in the Limpopo Province. The vegetation is characterised by dense growth of *C. mopane* and a mixture of other tree species.

Sweet bushveld occurs in the dry and hot Limpopo valley, and the associated valleys of tributary rivers in the north-western part of the Limpopo province on deep greyish sand. The vegetation structure is short and shrubby. Dominant tree species include *Terminalia sericea, Rhigozum onovatum* and *Acacia tortilis*. On shallow soils *Combretum apiculatum* dominates the vegetation.

The mixed lowveld bushveld is found on the sandy soils of the undulating landscapes of the Limpopo and Mpumalanga provinces on the eastern boundary of the country. Vegetation is usually dense bush on the uplands, open tree savannah in the bottomlands, and dense riverine woodland on riverbanks.

Zimbabwe

Two woodland types predominate the Limpopo River Basin portion of Zimbabwe, these are Mopane woodlands and *Acacia-Combretum-Terminalia* woodlands. Mopane woodlands are associated with low altitude, hot areas with sodic or alluvial soils, with *C. mopane* being the most dominant species.

Acacia-Combretum-Terminalia woodland type is found in vleis in the drier parts of the country.

The Southeast Middleveld is an area of transition with low mopane woodland in the drier areas and *Terminalia Sericea* open woodland in the slightly wetter areas. *Julbernardia globiflora* is found

locally on high ground, and *Brachystegia glaucescens* on outcrops of granite and gneiss. An association of *Colophospermum-Combretum-Acacia* is common in lower slope positions.

C. mopane is the dominant species in the Southeast Lowveld, where it forms an open tree savannah. *Commiphora* tree is the typical vegetation type on shallow soils over basalt, and other species include *Combretum apiculatum*, *Boscia albitrunca*, *Adansonia digittata* and *C. mopane*. The Karoo sandstone areas near the border with Mozambique are characterised by *Guibourtia conjugata* tree savannah or *G. conjugata/Baphia massaiensis* woodland thicket, with *Androstachys johnsonii* thicket occurring locally.

Flood-caused land degradation and its impact on ecosystems

The Limpopo River Basin experienced its worst flooding in recent years in 2000. The high intensity rainstorms combined with shallow and/or unstable soils and steep slopes to create serious erosion hazards in the basin.

The 2000 flooding had a number of inter-linked results, including a reduction of soil fertility, erosion of the soil, depletion of the vegetation biomass and the introduction of less palatable species (to wildlife), as well as bush encroachment. The end result will be desertification, a situation in which widespread disappearance of vegetation cover occurs, with commensurate difficulty in vegetation rehabilitation.

Land degradation manifested through reduced crop yields is the most obvious result of land degradation caused by floods. In addition, large amounts of eroded soils enter river systems causing siltation. Siltation of dams, especially on the Zimbabwe side of the basin is a serious issue. In 1985, 132 dams were reportedly silted in the Masvingo area. (See Appendix 3 for a land cover map of the basin)

Opportunities for Interventions

In order to manage floods effectively, there is a need for understanding the ecological and economic role of the recurrent annual flooding as well as the destructive features of floods on the environment and human society. This, therefore, calls for an integrated flood management programme in the three lower Limpopo Basin countries that stresses disaster preparedness and mitigation techniques and includes sustainable land use planning. The main objectives of the programme would be to reduce the risk of losing life, to reduce land degradation problems caused by floods, and to preserve ecosystems functions and services in the Lower Limpopo catchment area.

Timing

There have been wide and advanced technologies in recent times to facilitate positive flood interventions mainly before the onset of the disaster through early warning systems. However, similar technologies can be useful in managing floods during and after the disaster. Much of these advancements have been concentrated in South Africa. Nevertheless, the following shortcomings tend to be common:

- despite the up-dated technology and environmental management knowledge of South Africa concerning risk analysis, early warning systems, impact assessment techniques, etc., SADC countries in general, and Mozambique and Zimbabwe in particular, are not taking advantage of this technological development. As a result flood-affected communities do not effectively benefit from such technologies;
- although some information is provided concerning potential flooding due to weather conditions as well as dam management, the national/local response before, during and after the disaster is not effective due to the lack of social engineering to be implemented along

with technical flow measures. A key component from the social point of view is making sure that information gets to the intended targets in a language they understand; and

- early warning systems by themselves do not guarantee effective response if they are not complimented by a sound national disaster management programme including disaster preparedness and vulnerability reduction principles at human settlements and community levels. This is especially true for a region such as southern Africa where disaster issues tend to be taken in reactive rather than proactive manner.

Nature of flood interventions

Intervention strategies for floods in the three Limpopo river basin countries are to a large extent similar. They include early warning systems during which valuable timely advice is given so that attempts can be made to reduce impact. Thereafter, relief and rescue operations are implemented for those affected, and in the post-disaster phase damaged infrastructure is rehabilitated.

One of SADC's main achievements in flood preparedness lies in the establishment of fairly well functioning early warning machinery at the country and regional levels. National Early Warning Unit (NEWU) and Regional Early Warning Unit (REWU) generate information that is intensively used by farmers, governments and donors in planning for floods. After the warning message, recommendations given to communities consist of moving people, stock and properties to less risky areas, away from floodplains.

Early warning information has historically been generated and disseminated to serve the needs of governments, who have been guarantors of food security as well as the principal player in flood and disaster-related rescue and relief operations. With the changing role of food security, the generation, packaging and dissemination of early warning information constantly needs adaptation in order to maintain focus and relevance to the needs of the broad range of new users. For example, there is now greater need for long range inter-annual forecasting within not only the Limpopo river basin but also the whole of the SADC region. Apart from assisting farmers, who constitute the bulk of those seriously affected by floods, in deciding on risk management measures like crop insurance, reasonably good long range forecasts would also assist governments in assessing cultivation plans, formulating crop marketing and appropriate export/import strategies.

Remote sensing and Geographical Information Systems (GIS) are essential tools for monitoring rainfall conditions. Monitoring flooding in the Limpopo river basin is an important intervention strategy for the promotion of preparedness. Remote sensing information is key to the identification of basin areas where food deficits are likely to occur, and this is important in advance planning for food exports/imports. However, utilisation of remote sensing imagery, aerial photography and GIS techniques for vulnerability tracking in the Limpopo river basin, while displaying immense potential, is still on a limited scale except for South Africa. The countries of the Lower Limpopo basin are in the process of building the technical capacity required to translate and package, for example, NOAA satellite imagery, into easily digestible information. The scientific capacity to process satellite information, produce maps and develop appropriate drought and flood models is still developing in the basin

The basin countries need to develop strong links with already existing databases. For example, strengthening linkages with the Institute for Soil, Climate and Water of South Africa (ISCW) can be of great benefit. The ISCW boasts of a strong 16-year database on such aspects as rainfall, soil types and vegetation quality.

There is growing appreciation throughout the lower Limpopo countries of the benefits of shifting from short-term relief programmes for flood mitigation to longer-term means. However, severe floods will continue to hinder the most vulnerable populations and areas, therefore:

(i) there will still be communities whose physical and financial means of accessing a nutritionally adequate diet and good medication will be weakened in the event of floods;
(ii) particular geographical areas harbour sensitive ecosystems which will still be affected by flood, thus generating food insecurity for their populations, and
(iii) short-term measures are essential to promote recovery.

Priority in short-term emergency responses should be given to proper targeting, adequate resource and community mobilisation, as well as administration of assistance. In Zimbabwe and Mozambique, joint vulnerability assessments are carried out by the meteorology offices, agriculture ministries, civil protection units, nutritionists and NEWU, with the technical assistance from the Famine and Early Warning System (FEWS). Vulnerability Assessment and Mapping is becoming a popular approach adopted by donors because it provides high-level information for geographic targeting, and is more focused and tighter in the screening of vulnerable groups.

Countries of the basin have had varied experiences in the implementation of short-term interventions to ameliorate the effects of floods. Interventions used generally include food handouts (including child supplementary feeding and school feeding schemes), public works, crop packs, livestock schemes, tillage support, medical support and emergency assistance. Intervention strategies have also included rescue operations for both people and livestock.

Overall Project Objective

Based on the above, it is clear that floods pose extraordinary threats to the environment, economies and welfare of the Limpopo river basin's communities. In fact, rapid on-set floods threaten thousands of lives, displace populations, damage property and disrupt the provision of basic necessities that households normally acquire through social and economic systems. The situation is compounded by the lack of adequate land use planning and the uncoordinated relocation of affected communities in the event of floods.

It is therefore needed to adopt proper long-term solutions to reach sustainable land and human management in flood prone areas. In this perspective the project proposes to reinforce land use planning strategies at the community level, to increase awareness concerning floods and to improve the river management between the three countries involved.

The **overall objective of the project** is to *develop and implement participatory land use tools and plans for sustainable land management in the Lower Limpopo River Basin in order to reduce the impact of floods on land, ecosystems and human settlements*.

In order to deal effectively with flooding and related impacts on ecosystems it is important to establish a regional comprehensive framework that considers: a) an integrated approach to land use planning management; b) a reliable flood forecasting and warning systems linking the three countries (Mozambique, South Africa and Zimbabwe); c) effective mechanisms to receive, analyse and react to early warning information as well as to implement disaster mitigation measures and contingency plans; d) capacity building for local and national authorities focusing on cross-sectoral planning, implementation of actions and monitoring, and e) at community level, eco-sustainable land use planning based on participatory approaches including vulnerability reduction strategies.

Strategically the project is framed on **two concepts:**

- *complementarity and synergies:* assuming that few projects and actions address land degradation and biodiversity loss caused by floods through a broad intervention that links strategically the regional scale (based on effective Integrated Management of the Lower Limpopo River Basin) with the local scale (based on sustainable environmental land use planning and vulnerability reduction actions). The synergy concept promotes a regional commitment aimed at increasing cooperation by exchanging technology and information, developing joint actions and operational collaboration between the three countries within the SADC sub-region;
- *coordination:* the project is based on a strategic partnership between United Nations organizations (UN-HABITAT, that will provide technical expertise in regional planning and land use planning, including the preparation of maps, contingency plans and disaster preparedness schemes, UNEP and UNDP), governmental institutions from the three concerned countries, and other partners from the private sector, the academic sector, and national and international NGOs.

Criteria for Country Selection

- all the three countries are located in the lower sections of the Limpopo river basin (See attached Map in Appendix 1);
- the countries are at risk of floods, having suffered huge losses in infrastructure, biodiversity and people's lives in recent years;
- two of the countries, Mozambique and Zimbabwe, have a lot to learn from and share with their South African counter parts in modern ways of risk assessment, early warning and modelling.

19. PROJECT OUTCOMES

To accomplish its overall objective, the project will have the following outcomes:

Outcome 1: A regional integrated land use management plan to lessen land degradation and minimise the risk of losing life and damage to ecosystems in future floods;

Outcome 2: Enhanced capacity and effective tools in participatory land use planning and disaster preparedness techniques for sustainable land management to reduce the vulnerability of communities living in flood prone areas.

The project seeks to effectively improve flood management in the lower Limpopo in order to reduce land degradation and minimise impacts on human lives and ecosystems. For this purpose it proposes to develop, agree and implement a regional comprehensive plan among the three participating countries through which inter-country cooperation is reinforced, the flow of flood forecasting and early warning from upstream to downstream areas is improved, as well as conditions for implementing appropriate policy changes are created.

As complementary outcome to the regional plan, the project intends to promote participatory land use planning for sustainable land management through institutional and community capacity building, and to apply disaster preparedness techniques so as to enable vulnerable population to cope with floods.

20. PLANNED ACTIVITIES

In order to achieve its **overall objective and related outcomes**, the project will carry out a number of baseline assessments, will develop guidelines, produce planning tools, develop awareness materials and implement training activities. The project will organise workshops as part of its efforts to build consensus among the different stakeholders regarding the regional action plan, to agree on contingency action plans nationally and locally, to reinforce institutional roles for the Limpopo river management and to improve decision-making capabilities. It is also planned to produce and disseminate awareness materials in appropriate format and language regarding environmental conservation, knowledge sharing on ecosystems related issues and land use planning as well as flood management at local and community levels. Key training activities will be implemented to enhance local capacity of technical, administrative staff and local leaders in various sectors, such as operating flood forecasting, monitoring and early warning systems, awareness promotion and public participation.

In view of achieving the **first project outcome** for an integrated and sustainable land management in the Lower Limpopo region, several baseline assessments will be conducted with reference to different issues, such as inter-country co-operation concerning flood mitigation and preparedness, regional and national policies, institutional and community capacity for environmental management, flow of early warning and other flood management information, sustainable land use planning at national and community levels. Annual regional workshops rotated among the three countries will be organised to review and adopt new policy and institutional recommendations that will feed the preparation of the regional action plan to promote and implement participatory sustainable land use planning.

Under this outcome, the project will aim at establishing supportive legal, regulatory and policy frameworks on sustainable land use planning through the review and evaluation of the existing relevant regional frameworks such as the Protocol on shared Watercourses and other flood disaster management related frameworks at national and local levels. New mechanisms to improve the policy and planning frameworks on flood mitigation and land use planning strategies at all levels will be proposed and submitted to the respective governments for approval and enforcement.

Under the **second project outcome**, the project will seek the improvement of efficiency of flood forecasting and early warning systems related to national disaster management through in-depth studies that will develop guidelines on ecosystem conservation approaches, recommend rural settlements policies, identify flood-safe areas, develop project proposals and suggest land use planning policy changes. Furthermore the project intends to facilitate decision-making by developing sustainable land use planning strategies and tools at both national and local levels, proposing contingency action plans, using remote sensing and GIS technology to generate relevant maps and databases and finalising the regional plan.

Under this outcome the project will ensure capacity building at institutional and community levels on sustainable land use planning in order to reduce impacts of floods on populations and ecosystems. Land use planning tools will be developed and criteria will be established for the selection of demonstration sites in the Lower Limpopo where the tools will be implemented at community level and disseminated in appropriate languages.

The project will build on the activities undertaken in the framework of the Cities Alliance project in Chokwe, Gaza Province, Mozambique., funded by the world Bank and implemented by UN-HABITAT through MICOA (Ministry of Coordination of Environmental Affairs) the same local

partner for the GEF project. The planning tools produced by the MSP will be applied locally in a participatory context with the concerned Municipalities and communities, involving also training and capacity building activities.

Under the second outcome, the project will also improve the ability of the riparian populations to cope with floods through the elaboration and implementation of participatory contingency action plans. Activities such as training of local staff and elected leaders in raising awareness on the use of disaster preparedness techniques and the identification of flood-safe areas in both urban and rural environments will be also undertaken.

21. SUSTAINABILITY AND RISK ASSESSMENT

Institutional Sustainability

Building on existing structures for managing floods and other disasters will ensure the institutional sustainability of the project. The structures include SADC Water Sector which is soon to become part of the Directorate for Infrastructure and Services, as well as other SADC Directorates, particularly the Food, Agriculture and Natural Resources Directorate. As such the project will to work closely with and be supportive of such structures and their programmes, including the SADC Disaster Task Force and the SADC Drought and Floods Strategy. Similarly, the project will work closely with structures and programmes at the national and river basin level, as described in 7 above. In particular, the project's sustainability will hinge on its endorsement and support from governments of the Lower Limpopo River Basin.

Financial Sustainability

The sustainability of the project also stems from the fact that floods have become a regular and more violent feature in the region's calendar. As a result regular mechanisms to manage and mitigate floods, of which this project is one, have to be enforced over as long a time as the people of the Lower Limpopo can comfortably live with such disasters. Also for the reason that all countries of the Lower Limpopo River Basin are working towards developing long-term strategies for managing and mitigating floods, there is scope for this project to leverage additional resources both in-kind and financial support from governments of the basin, thereby ensuring its sustainability.

Sustainability at Community Level

The project puts a major emphasis on the communities since they are the most vulnerable to floods. Furthermore they represent the ultimate step in the implementation process of the planned activities. In this perspective, participatory land use planning for sustainable land management is the main long-term strategy to be applied in order to reduce population vulnerability to floods as well as to minimize the environmental impact of extreme weather events. The project seeks to develop and disseminate proper tool kits to enhance the implementing capacity of the population. National and local administration will actively participate in this capacity building process by providing useful feedback to the communities concerning the use of these tools and guidelines, also in the perspective of replicating it in other vulnerable areas after the completion of the project.

Replicability

The testing and demonstration of the land use planning tools t o be developed during the project implementation and aimed to provide visible and measurable benefits in terms of reduction of impacts of land degradation in the identified pilot sites can be replicated in other sites of the sub-

region. Further exchange of experiences in traditional sustainable land management will be also encouraged between the communities involved through local workshops and visits. The proceedings of such meetings will be shared and capacity building and training related activities extended to other community groups living in flood prone areas. SADC institutions will play an important role in assisting UN Habitat in replicating such initiative in other affected countries.

Risk Factors

The issue of floods in the Lower Limpopo River Basin is, to some extent, blamed on lack of cooperation among riparian countries, especially the upstream countries where a lot of water is being harnessed in dams. As such the impact of Botswana's dam management need to be considered. The lack of coordination and cooperation may worsen flooding in the downstream countries. In considering these facts it is clear that the project identified a key activity by focusing on the improvement of inter-country cooperation, communication and development of agreements concerning river management in the region. It is the conviction of this initiative that the reinforcement of regional decisions represents an important factor in reducing the population exposure to flood risk. Botswana will be invited to participate in the project's planned forums, and will also benefit from awareness materials generated thereof.

In addition to the use of early warning systems, dissemination of awareness material in easily understandable format, etc, the initiative promotes local stakeholder participation. Traditional norms and standards are still followed by the population, especially in rural areas. Such indigenous knowledge is still effective in the management and mitigation of floods, since local people are the ones who better know their land. The project will consider strategies to complement and increase this local knowledge using the information derived from modern technology.

22. STAKEHOLDER INVOLVEMENT AND SOCIAL ASSESSMENT

The PDF A phase of the project encompassed consultations with national as well as regional stakeholders. Each country was requested to prepare a national report outlining the baseline for the project. These reports required to be approved by key government officers as reflective of the situation prevailing in their countries. Thereafter, their findings were carefully analysed in order to identify common objectives, outcomes and activities under the MSP. A regional workshop that brought together close to 35 people working in various fields of relevance to the issue of flood management, provided a useful forum for consultations.
Organisations that will be involved in the implementation of the project include:

Regional

- LBPTC
- SADC Water Sector Coordination Unit
- SADC Food, Agriculture and Natural Resources
- World Bank
- UNDP

Mozambique:

- Public sector:
- Ministry for Co-ordination of Environmental Affairs (MICOA)
- Direcção Nacional de Aguas, ARA-Sul
- National Institute for Disaster management
- National Institute of Meteorology

- DINAGECA and CENACARTA, Ministry of Rural Development and other line Ministries
- Inter-Ministerial Commissions
- Local/District authorities from selected areas in Limpopo River

▪ Private and social sector:
- Centro de Desenvolvimento Sustentável
- Grupo de Trabalho Ambiental

▪ Universities and Research centres:
- University Eduardo Mondlane

South Africa:

▪ Public sector:
- Department of Water Affairs and Forestry
- Department of Provincial and Local Government
- National Disaster Management Centre

▪ Universities and Research centres:
- School of Civil and Environmental Engineering at the University of the Witwatersrand
- Water Research Commission

Zimbabwe:

▪ Public sector:
- Ministry of Rural Resources and Water Development through the Zimbabwe National Water Authority
- CAMPFIRE Association

▪ Private and social sector:
- National Social Services Authority
- Zimbabwe Red Cross Society

▪ Universities and Research centres:
- Institute of Environmental Studies and Centre for Applied Social Sciences at the University of Zimbabwe
- Scientific, Industrial, Research and Development Centre: Environment and Remote Sensing Institute

23. INCREMENTAL COSTS

The three countries of the Lower Limpopo River Basin have committed themselves to sustainable development as reflected in their being party to key global conventions such as the United Nations Framework Convention on Climate Change (UNFCCC), UN Convention on Biodiversity (CBD) and UN Convention Combat Desertification (UNCCD). All these conventions are meant to facilitate the provision of global benefits, including reduction in greenhouse gas emissions, protection of biodiversity and protection of important ecosystems. Important sub-regional programmes which are working towards facilitating provision of these goals include the Sub-Regional Action Programme (SRAP) and its affiliate National Environmental Action Programmes (NEAPs), which governments in the Lower Limpopo River Basin are at various stages of implementing. The Lower Limpopo River Basin has also made great strides in assessing its greenhouse gas emissions, regardless of the fact that these are comparatively insignificant when compared with emissions from the industrialised countries. The countries are also at various stages of developing their biodiversity strategies.

In Mozambique, there are a number of projects that contribute to the baseline costs for this MSP. They include the sustainable cities project, which is being funded and implemented by UN-

HABITAT; an environmental evaluation programme of the Great Limpopo Park at the border of Zimbabwe and South Africa. This programme, which covers the Belane district down to the mouth of the Limpopo, contributes in cash to the incremental cost of activity 2.2 (see Section 10 and Table 1). As part of the baseline for activity 1.2, Mozambique is putting together its Disaster Management Planning legislation, as well as a Policy on Territory Planning.

In South Africa, over 300 projects by the Water Research fund also contribute towards the baseline of the MSP. Among these projects is one providing radar links for rainfall measurement covering the whole country. There is also an on-going Limpopo study, as well as an initiative to set up development nodes for both rural and urban areas. A national training of trainers programme in disaster management issues is also currently on going, and this will have direct input towards the MSP's activity 2.2. South Africa's Disaster Management legislation, which is administered by the country's Disaster Management Unit, could be used as a baseline for activity 1.2.

In Zimbabwe, a number of on-going community-based programmes are running, and these have direct relevance to the project. They include projects by CAMPFIRE Association to protect endangered ferns, a national rehabilitation programme following devastation caused by cyclone Eline-induced floods, and a programme to protect natural resources by World Vision. The country's Civil Protection Act and the recently enacted Environmental Management Act are all baselines for activity 1.2.

The above-mentioned baseline actions will achieve dotted successes, that are helpful in enabling people of the Lower Limpopo River Basin to work towards sustainable land use, as well as learn to live with floods. The proposed project will fill gaps in the baseline by developing mechanisms and approaches for cooperation and coordination between the riparian countries and local communities that will lead to economic and environmental sustainability. The MSP is one initial input into that process of sustainability, but a critical one in that it proposes essential start-up capacity building, resource mobilisation and inter-country coordination. See Table 2 for more details.

The total incremental cost of the GEF alternative is about US$ 2,797,500 for which GEF assistance is requested of $970,000.00. (See Table 1)

Table 1. Incremental cost matrix

Activity	Baseline			Total Baseline	Alternative	Incremental Cost
	Mozambique	S. Africa	Zimbabwe			
First Outcome	**365,000**	**1,600,000**	**305,000**	**2,270,000**	**2,957,500**	**687,500**
Activity 1.1. Inter-country cooperation	35,000	150,000	55,000	240,000	512,500	272,500
Activity 1.2. Legal and policy reforms	330,000	1,450,000	250,000	2,030,000	2,445,000	415,000
Second Outcome	**565,530**	**17,120,000**	**832,000**	**17,517,530**	**20,627,530**	**2,110,000**
Activity 2.1. Forecasting and early warning	60,000	7,000,000	450,000	7,510,000	8,050,000	540,000
Activity 2.2. Capacity for land use planning	240,000	10,000,000	182,000	10,422,000	11,212,000	790,000

Activity 2.3. Vulnerability reduction	265,530	120,000	200,000	585,530	1,365,530	780,000
TOTAL	**930,530**	**18,720,000**	**1,137,000**	**20,787,530**	**23,585,030**	**2,797,500**

Table 2. Incremental Matrix

	Baseline	**GEF Alternative**
Global environmental benefits	Lack of a regional action plan for sustainable land use planning in the Lower Limpopo region. Existing pilot studies such as the sustainable cities programme; and data coordination such as South Africa's radar measurement system.	Protection of globally significant ecosystem from threats associated with the risk of floods through sustainable land use planning. The project will reduce land degradation and will enhance adapation of the Lower Limpopo region to climate change. This will be achieved through facilitating inter-country and other institutional, legal and data cooperation; and awareness creation at the sub-regional, river basin levels. A regional action plan for sustainable land use planning for flood management is developed.
Domestic benefits	Lack of supportive national and local legal, regulatory and policy frameworks on flood mitigation, vulnerability reduction and sustainable land use planning.	Institutional and community capacity built at national and local levels for implementing participatory land use planning to reduce impacts of floods on ecosystems and associated biodiversity.

25. BUDGET

The total budget for the project is US$ 2,822,500.00, of which US$ 995,000.00 is being sought from GEF (See Table 2 below). This budget includes the US$ 25,000 used during the project's PDFA phase. A breakdown of the project by activities is shown in Appendix 4.

Table 3: Budget Summary

Activities	**GEF** Cash	**UN-HABITAT**		**MSP Countries**						**Total**
		In cash	In kind	Mozambique		South Africa		Zimbabwe		
				In cash	In kind	In cash	In kind	In cash	In kind	
PDF A	25,000	-	-	-	-	-	-	-	-	**25,000**
Outcome 1	*300,000*	*100,000*	-	*60,000*	*10,000*	*112,500*	*55,000*	-	*50,000*	***687,500***

Activity 1.1. Inter-country cooperation	230,000	-	-	-	10,000	12,500	10,000	-	10,000	**272,500**
Activity 1.2. Legal, regulatory and policy changes	70,000	100,000	-	60,000	-	100,000	45,000	-	40,000	**415,000**
Outcome 2	*670,000*	*500,000*	*160,000*	*90,000*	*70,000*	*322,000*	*138,000*	*30,000*	*130,000*	***2,110,000***
Activity.2.1. Flood forecasting and early warning systems	90,000	-	90,000	-	30,000	240,000	60,000	-	30,000	**540,000**
Activity 2.2. Institutional and community capacity for implementing sustainable land use practices	440,000	-	30,000	90,000	10,000	70,000	50,000	30,000	70,000	**790,000**
Activity 2.3. Vulnerability of riparian populations	140,000	500,000	40,000	-	30,000	12,000	28,000	-	30,000	**780,000**
Total	**995,000**	**600,000**	**160,000**	**150,000**	**80,000**	**434,500**	**193,000**	**30,000**	**180,000**	**2,822,500**

26. MANAGEMENT PLAN

Management of a process of knowledge sharing of the scope and range as proposed under this MSP, requires an experienced and compatible project management implementation team. This reference encompasses not only the technical expertise by the team in flood issues in the context of the lower Limpopo River Basin, generating and sharing knowledge products, or plugging into global knowledge mechanisms; but it also requires experience at partnerships and partnership-building. Building successful partnerships is a process that presupposes the structural and interpersonal skills in recognising the strengths and weaknesses of various organizations and individuals, and constructing an implementation process that is a sum of the strongest parts, while strengthening some of the weaker parts. It requires recognition and respect by the various partners of the professional expertise of the others, whether this is technical knowledge of floods and related issues, knowledge products or awareness building. The project implementation team must have a keen understanding of the operations and constituency of the other partners, and their add-on value.

Within this context, it is recommended that the project be constructed on a foundation of partnerships at the following implementation levels (See Appendix 5 for a schematic diagram):

1. Overall Responsibility

UNEP, as the GEF implementing agency, will supervise the overall implementation of the project with a special emphasis on the regional component. UN-HABITAT, as executing agency, assumes overall responsibility for project execution, including liaison with international cooperating partners, project coordination and technical backstopping.

2. Regional Steering Committee

A steering committee comprising of the project's regional coordinator, national coordinators (Governmental representative and country technical coordinator) from Mozambique, South Africa and Zimbabwe, SADC Water Sector, LBPTC, UNEP and UN-HABITAT, makes up the second project implementation level. The steering committee will guide management of the project, ensuring that deadlines are met and findings and/or recommendations are technically sound. It will also ensure policy conformity at regional level and that linkages are built to relevant SADC programmes. The steering committee meets every six months.

3. ***Regional Coordinator***

This is a full time position over the project's two-year duration, and the candidate for the position will be drawn from any of the three member project countries. The coordinator will work closely with UN-HABITAT, the Steering Committee, River Basin Organisations (particularly the LBPTC) and SADC Water Sector Coordination Unit. The terms of reference for the Regional Coordinator will be developed jointly by the three project area countries in collaboration with UN-HABITAT.

4. ***Policy Coordination at National Level***

A policy-level representative will be appointed to sit on the project's steering committee. The policy-level person will also ensure that the project's inputs feed into the regional, river basin and national policy-making structures of the project area.

5. ***Technical Coordination at National Level***

At the country level, an institution will be appointed to host the project. A technical coordinator will be appointed in such institutions to act as the project's focal point, as well as to provide technical inputs. The technical coordinator will provide the project's link between the project area countries. Appropriate terms of reference for the National Technical Coordinator have to be prepared.

6. ***Implementing Partner Agencies***

Forming the sixth project implementation level will be project implementation agencies, to whom the bulk of the project's activities will be sub-contracted. The implementing agencies will provide expertise on specific activities, sharing the skills of partnership while engaging in project implementation. The project steering committee approves the work of the implementing agencies, and each of these agencies shall have their own network(s) of interest groups, beneficiaries and stakeholders. The implementing agencies are to be drawn from river basin organisations, academic institutions, the private sector, community-based organisations and other expert bodies

The World Bank is implementing the GEF-financed project on "Protection and Strategic Uses of Groundwater Resources in the Transboundary Limpopo Basin and Drought Prone Areas of the SADC Region". The main objectives are to 1. Promote the sustainable development of groundwater at regional scale, in terms of research, assessment, exploitation and protection; 2. Develop a regional framework for technical support to national groundwater assessment and management programs (including capacity building, institutional and legal framework, policies, socio-economics and financing); 3. Ensure that groundwater is adequately taken into consideration in the regional integrated water resources development and management, with a particular emphasis on major transboundary aquifers and on the role of groundwater in drought management issues.

In view to strengthen the complementary aspects between both projects, the World Bank project co-ordinator as well as a representative of the World Bank country office will be invited to attend the regional steering committee meetings of the UNEP project. Reciprocally, the co-ordinator of the UNEP project will be invited to participate in the steering committee meetings of the World Bank project.

The proposed activities will be implemented over a 24-month period, with much of the baseline studies initiating the project. A schematic presentation of the implementation plan is as shown in Appendix 6.

27. MONITORING AND EVALUATION

The execution of the project activities will be monitored through quarterly progress and financial reports to be prepared by UN-Habitat and submitted to UNEP. Annual audits will take place as well as yearly inventory reports on non-expandable equipment. A financial statement and terminal report will be produced towards the end of the project. The overall progress of the project implementation will be assessed by the Steering Committee through the analysis of the achievement of project results based on the quantitative and qualitative indicators mentioned in the logical framework. The Regional Co-ordinator will manage the Monitoring and Evaluation system of the project, the national co-ordinators will be responsible for the monitoring of activities' completion at national and local levels and will ensure harmonization of data collection between the three countries. The project implementation plan includes the indicators of the logframe to be used for continuous monitoring and evaluation of project execution and impact. The specific outputs indicated in the logframe will be used as indicators of project performance and impact, which will be determined by progress in meeting the project outcomes and activities.

The tools that will be used to assess success of the project may include reports from the national co-ordinators to the regional co-ordinator as well as teleconferences between the key partners. A regular schedule of project-wide meetings and workshops at regional, national and local levels will be maintained. In order to meet the project indicators, the three countries will develop a common methodology for baseline assessments and the definition of related guidelines for sustainable land use planning. The countries will also develop integrated ecological and socio-economic databases that will feed into the elaboration of maps on land uses and flood risks as well as in the development of sustainable land use planning tools to be implemented at community level. The regional action plan will be prepared following a participatory approach based on exchange of information and dissemination of techniques at all levels. The project will benefit from the participation and feedback of communities, NGOs, governmental agencies and other partners involved that will evaluate the relevancy and impacts of the implementation of sustainable land use planning tools on the ground. The effective strengthening of capacities of involved stakeholders in flood forecasting, early warning systems, sustainable land management and disaster preparedness will help to monitor the overall project implementation.

UN Habitat will be in charge of and fund the internal project monitoring and evaluation using the impact indicators mentioned in the logical framework. UN Habitat will also undertake and fund one independent monitoring and evaluation mission per year. An independent external evaluation of the project overseen by UNEP will occur at completion of the project.