

INTEGRATED SAFEGUARDS DATA SHEET APPRAISAL STAGE

Report No.: ISDSA502

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I. BASIC INFORMATION

1. Basic Project Data

Country:	Malawi	Project ID:	P117617
Project Name:	Malawi: Shire River Basin Management Program (P117617)		
Task Team Leader:	Nagaraja Rao Harshadeep		
Estimated Appraisal Date:	06-Feb-2012	Estimated Board Date:	15-May-2012
Managing Unit:	AFTEN	Lending Instrument:	Adaptable Program Loan
Sector:	General water, sanitation and flood protection sector (40%), General agriculture, fishing and forestry sector (30%), Flood protection (10%), Public administration- Water, sanitation and flood protection (10%), Irrigation and drainage (10%)		
Theme:	Water resource management (30%), Other environment and natural resources management (30%), Rural services and infrastructure (20%), Biodiversity (10%), Natural disaster management (10%)		
Financing (In USD Million)			
Financing Source			Amount
BORROWER/RECIPIENT			11.30
International Development Association (IDA)			125.00
Global Environment Facility (GEF)			6.58
Total			142.88
Environmental Category:	A - Full Assessment		
Is this a Repeater project?	No		

2. Project Objectives

The overall Program Development Objective of the Shire River Basin Management Program is to generate sustainable social, economic and environmental benefits by effectively and collaboratively planning, developing and managing the Shire River Basin's natural resources. The program would support the Government's Shire basin Policy Letter, and would have a duration of 12-15 years. The first phase project – the Shire River Basin Management Project (SRBMP) – would establish coordinated inter-sectoral development planning and coordination mechanisms, undertake the most urgent water related infrastructure investments, prepare additional infrastructure investments, and develop up-scalable systems and methods to rehabilitate sub-catchments and protect existing natural forests, wetlands and biodiversity. Future phases would consolidate Basin planning and development mechanisms and institutions, undertake further infrastructure investments, and up-scale catchment rehabilitation for sustainable natural resource management and livelihoods.

The Project Development Objective (PDO) and the Global Environmental Objective (GEO) of the SRBMP would be to develop a Shire River Basin planning framework and improve land and water management for ecosystem and livelihood benefits in target areas. The project would: (a) strengthen the institutional capacities and mechanisms for Shire Basin monitoring, planning, management and decision support systems; (b) invest in water related infrastructure that sustainably improves water resources management and development; (c) reduce erosion in priority catchments and sedimentation and flooding downstream, while enhancing environmental services, agricultural productivity and improving livelihoods; (d) improve flood management in the Lower Shire and provide community level adaptation and mitigation support; and (e) protect and enhance ecological services in the Basin.

3. Project Description

The project will address the interlinked challenges of poverty and a deteriorating natural resource base in the Shire River Basin to halt the process of environmental degradation and improve the productive potential of natural resources. The project will promote integrated climate resilient investment planning in the basin, including institutional capacity building to plan and monitor changes in land use patterns at a basin level. Project activities will support strategic planning and implementation of large-scale infrastructure investments; adoption of sustainable land, forest and water management practices to reduce land degradation in production and natural landscapes, to build resilience to climate risk and to improve the productivity and incomes of smallholder farmers in priority catchments. The project will also improve flood management in the Lower Shire. Project investments will be designed to support the GoM's economic growth and development plans for the basin.

The first phase of the program will have a duration of five and a half years and is organized in three components: (a) Shire Basin Planning, (b) Catchment Management, and (c) Water-Related Infrastructure.

Component A: Shire Basin Planning (US\$M 37.4) has the objective to lay the foundation for more integrated investment planning and system operations for the Shire Basin. It would finance development of a modern integrated Shire Basin knowledge base and analytical tools, as well as well-planned structured stakeholder consultation processes, in order to facilitate investment and systems operation planning. This component is critically required to move from the current fragmented approach to investments and systems operation, to a more coordinated and holistic

approach based on a shared and sustainable vision for the development and management of the Shire Basin. A modern knowledge base with associated knowledge products will be created along with modeling tools to support this planning. The component will support institutional coordination mechanisms for basin planning and management for the basin's socio-economic development and environmental sustainability. It is organized in four sub-components.

(a) Sub-component A.1: Development of Basin Planning Framework, with two activity sets:

(i) Preparing an inter-sectoral Shire River Basin Plan, including a basin-wide consultative development planning process supported by planning and operational decision support systems, acquiring datasets (satellite imagery etc.), and training for water resources planning and management. This will include (a) development of a DSS based on a further developed Malawi Water System Simulation Model, complemented with a rainfall-runoff module, a flood routing module, improved DEM and mapping data; and a water allocation and use administration system); (b) continuous refining of the Integrated Flood Risk Management Plan (IFRMP) for the Shire Basin that is being prepared by DODMA and MAIWD with Bank support under the Global Facility for Disaster Reduction and Recovery (GFDRR); (c) survey and mapping of natural habitats with incremental GEF support to allow for the contribution of ecological infrastructure to river basin functions to be assessed and reflected in Basin planning; and (d) production of technical and interpretive biodiversity and ecosystem knowledge products; and

(ii) Strengthening inter-sectoral Shire Basin coordination and management institution(s), initially in the form of a Shire River Catchment Management Authority under the Water Resources Board and perhaps later in the form of a Shire Basin Authority or similar, under an expanded legal mandate and functions for integrated water resources management in the basin, with provisions for civil works (building), staffing, equipment, operational costs, communications, workshops, research and innovation. Support to the agency shall gradually decrease in follow-up phases as the agency is established and generates revenue. Critical for coordination within the institutional reform will be the establishment of the Shire Basin Stakeholder Forum, with representatives from multiple stakeholders in basin management, which will form a critical platform for debate and basin vision development. The Forum will be linked to the basin management institution; and its specific mandate will be developed in unison with the institution.

(b) Sub-component A.2: Build institutional capacity for coordinated basin management, will strengthen the different line agencies involved in Shire basin management to more effectively carry out their respective roles, in particular: (i) Department of Water Resources (DWR), MAIWD; (ii) Department of Irrigation (DI), MAIWD; (iii) Department of Land Resources Conservation (DLRC), MAIWD; (iv) Department of Forestry (DF) of the Ministry of Natural Resources, Environment and Energy (MNREE); (v) Department of Climate Change and Meteorological Services (DCCMS), MNREE; (vi) Surveys and National Spatial Data Centre (SNSDC) of the Ministry of Lands, Housing and Urban Development (MLHUD); (vii) Department of Disaster Management Affairs (DODMA) of the Office of the President and Cabinet (OPC); (viii) Department of National Parks and Wildlife (BNPW) of the Ministry of Tourism, Wildlife and Culture (MTWC); (ix) Malawi Forest Research Institute; (x) National Botanical Gardens and Herbarium; and (xi) external knowledge partners in areas such as forest planning, biodiversity assessment and fisheries.

(c) Sub-component A.3: Improve water resources information systems, with two sets of activities:

(i) Rolling out the framework water resources information system, as proposed under the National Water Development Program, to monitor water flows and discharges, water quality and sediment loads, as well as groundwater, using real time low-cost modern communications such as GSM or WMO supported satellite telemetry in combination with traditional gauging stations, complete with installation of operational control systems within the Basin and on critical points along the Lake and its upstream catchments. Activities will include the design of a sustainable and scalable solution for data collection, communication and dissemination.

(ii) Flood Forecasting and Early Warning Systems, including hosting, improving and utilizing hydrological and hydraulic flood zone modeling, as well as community level early warning systems. The community level early warning system will be developed from the real-time monitoring system described in (i) above as well as the consideration of the integration of other water resource related observation tools such as radar. The eventual system will include the harmonization of technology with regional centric capacity to achieve protection from impending floods. These information systems would also be used to refine and update the operational regime of the Kamuzu Barrage and the Integrated Flood Risk Management Plan.

(d) Sub-component A.4: Program management, monitoring and evaluation, to ensure efficient and timely delivery of project resources in accordance with the project's objectives. A multi-sector and multi-agency Technical Team has been formed and located in MAIWD, led by a Project Coordinator who reports directly to the Permanent Secretary. The project will provide funding for professional and support staff to strengthen the Technical Team and facilitate its operations, including an environmental and social safeguards specialist, an institutions specialist, GIS and modeling experts, economist and water resources planner, as well as a diverse range of short term expertise and annual external audits. There are also provisions for workshops, short training courses and formal training (in hydrology and land resources). Specific provisions for M&E includes baseline, mid-term and end-of-project surveys. A Mid-Term Review will review project implementation arrangements and assess project performance in addressing outcomes and objectives.

Component B: Catchment Management (US\$M 48.2) has as objective that targeted sub-catchments and protected areas are rehabilitated and managed for reduced erosion and improved livelihoods. Development of community-based natural resource management systems is a long-term process that requires sufficient time to build the necessary capacity and ownership. Since the activities promoted ideally require a longer time horizon than the project duration, this project will institutionalize a successful approach and show early results that will be expanded upon and consolidated through the next phase in the program. There would be three stages at the micro-catchment level: (i) building conditions for micro-catchment rehabilitation and alternative livelihood development, including community sensitization, social mobilization and capacity building to ensure ownership and a strong foundation for subsequent interventions; (ii) implementation of micro-catchment development plans and alternative rural livelihoods; (iii) continuing financial and technical support for catchment rehabilitation and livelihood activities while phasing out project activities.

(a) Sub-component B.1: Sub-catchment planning and monitoring institutional capacity, with five sets of activities: (i) strategic planning and facilitation will support the development of broad sub-catchment plans covering approximately 30,000 hectares each and including 10-12 Group Villages (in pre-identified catchments), and will include some strengthening of management coordination for the southern Shire protected areas cluster; (ii) participatory micro-catchment planning at the Group Village level to develop integrated plans covering approximately 3,000 hectares each; (iii) development of (project & national) guidelines and detailed field manuals and training on their use; and (iv) monitoring and evaluation. The monitoring model that is proposed for catchment management planning and implementation would apply remote sensing and GIS along with field based data collection and surveys to track program inputs and outputs, institutional performance, impacts and outcomes. Support will be provided for NGOs to be recruited to help interface between government and community activities in catchment management.

(b) Sub-component B.2: Sub-catchment rehabilitation, will finance interventions identified in micro-catchment plans prepared under sub-

component B.1, including: (i) soil and water conservation for more sustainable and productive agriculture; (ii) forestry and rural energy interventions to restore forest cover and reduce firewood consumption within the sub-catchments; (iii) stream and water control, including checkdams and small earth dams to support improved water management through smaller-scale structures built by community members. Larger infrastructure investments at sub-catchment level will be based on a strategic feasibility assessment.

(c) Sub-component B.3: Alternative rural livelihoods would support demand and market driven income-generating activities, with special targeting of women, youth and landless groups, to gradually decrease dependency on low performance agriculture and unsustainable harvesting of forest and wetland products as sources of income. This includes: (i) area-specific market demand and value chain transaction support studies; agricultural fairs aimed at identification of and linkages with markets; (ii) development and start-up of alternative livelihoods through support to common interest groups (CIG) for commercially oriented income-generating activities, including capacity building and mentoring to build organizational, technical, financial and business capacities; (iii) mini and small scale irrigation, fish and farm ponds on both hills and flatter arable lands to assist farmers in drawing water from small storage structures to support agricultural intensification, particularly related to agri-business development; (iv) district level infrastructure in each sub-catchment based on initial strategic assessments, for instance rural roads, market infrastructure and community-level facilities for post-harvest storage; and (v) access to rural finance through creation of a community fund where CIGs can apply for loans to support scaling up of their small-scale enterprises after demonstrating successful business performance and solid business plans for growth.

(d) Sub-component B.4: Ecological Management. Incremental GEF support will provide for strengthened management of large natural habitat blocks with the Shire Basin, including selected infrastructure and capacity investments in Lengwe and Liwonde National Parks to increase their long-term revenue flows, and introduction of community forest management and monitoring / patrolling systems to Eastern Escarpment, Tsamba, and Mangochi Forest Reserves. Where possible, these activities will complement the IDA-funded SLWM investments in predominantly agricultural lands under B2 to form part of an integrated landscape management approach.

Component C: Water Related Infrastructure (US\$M 58.3) has as objective that new investments enable improved regulation of Shire flows and strengthen climate resilience. Development of critical infrastructure is essential to overcome annual and long-term variability in water resources availability for communities, environment and economic sectors. The Shire Basin has a unique resource base as it is the outflow of one of the largest Lakes in the World; with very complex climate response dynamics; and at the same time virtually the entire economy of the country is based on this resource making improvements to water resources management a must. The component will build on the basin planning carried out under Component A, and the priorities as set out in the national Water Resources Investment Strategy prepared in 2011. The component is organized in three sub-components.

(a) Sub-component C.1: Kamuzu Barrage will support:

(i) The construction and construction supervision of the Kamuzu Barrage upgrade at Liwonde. The major intended functions of the upgraded Barrage are to: (1) regulate water flow in the Shire River to meet demands from downstream water users, most importantly water supply, energy and irrigation; (2) improve weed management and reduce handling cost; (3) regulate water levels upstream to meet environmental and socio-economic conditions; (4) influence, to a certain degree, the water level in Lake Malawi for additional storage; and (5) improve safety and traffic circulation by physically separating road traffic from areas needed for gate operation (operation and weed handling currently takes place on the road, which is a major North-South corridor). Influence on Lake levels is limited as the Barrage can only regulate the Lake Levels within a certain range of Lake Levels, which does not cover the historic variations. The component will therefore improve the effects of the regulation as far as possible by slightly increasing the highest regulated water level at the Barrage (up to 40 cm, still within the natural range of variation of 7 meters); and by operational measures based on improved hydrological observations, hydraulic modeling, decision support on water demand and ability to operate the Barrage in real time. This central piece of water resources infrastructure can start when the detailed design and independent Environmental and Social Impacts Assessment (ESIA) are finalized, which is expected by April 2012 (currently in draft) under the Second National Water Development Project implemented by MAIWD.

(ii) The activities of the National Dam Safety Review Panel, a separate and independent group of experts, to review the quality of the engineering and construction, in order to guarantee that they reflect international best practice and standards with respect to dam safety.

(iii) The implementation of the Environmental and Social Management Plan (ESMP), and Resettlement Action Plan (RAP); on basis of the independent Environmental and Social Impacts Assessment (ESIA), conducted at design stage.

(b) Sub-component C.2: Flood Management in the Lower Shire in collaboration with other initiatives, to support the implementation of the Integrated Flood Risk Management Plan (IFRMP) for the Lower Shire (see also Component A for description of interlinked flood forecasting and early warning systems): (i) priority flood mitigation interventions, such as river bank stabilization, dykes, culverts, flood diversion structures etc; (ii) community awareness raising and planning based on flood mapping and zoning; (iii) community level support to the design and construction of adaptation measures, such as flood demarcation, elevated platforms, shelters and safe havens, connectivity to and training on the Flood Forecasting and Early Warning Systems; (iv) communication and transport equipment for Civil Protection Committees and rescue teams; and (v) planning and pilot investments in ecological flood mitigation and climate resilient livelihoods in the Elephant Marshes. Incremental GEF/LDCF support will provide for studies of the ecology, hydrology and natural resource exploitation in the Elephant marshes, and participatory planning to establish management aimed at enhancing the value of the area for environmental services (particularly flood attenuation), livelihoods and biodiversity. Some community natural resources management pilot activities will also be included.

(c) Sub-component C.3: New Water Investments within the Shire Basin will support feasibility and design studies for additional water related infrastructure works. There is ample demand, scope and need to further develop the Basin's resources for different economic sectors, such as: agriculture in general and irrigation agriculture in particular, aquaculture, urban and rural water supply, hydropower, transport and disaster resilience. Special attention could be given to the design of a set of measures for flood mitigation in the Ruo River, the notoriously forceful flooding tributary to the Lower Shire, for possible financing in a second phase or a different initiative, based on the recommendations of an ongoing integrated flood management plan.

4. Project location and salient physical characteristics relevant to the safeguard analysis (if known)

From a planning perspective, the project area includes the entire Shire River Basin (including all catchments and tributaries), which encompasses most of the southern quarter or so of the land area of Malawi, along with Lake Malawi itself (bordered by Malawi, Mozambique, and Tanzania). In terms of on-the-ground Project interventions, the upgraded Kamuzu Barrage at Liwonde would (at times) influence (i) upstream water levels along the Shire River, Lake Malombe, and Lake Malawi and (ii) downstream flows in the entire Shire River (until its confluence with the Zambezi River). Catchment management activities would cover selected sub-catchment areas in the upper to middle reaches of the Shire Basin. Forest

conservation and management activities would take place in the vicinity of the Liwonde and Lengwe National Parks and selected forest reserves (Eastern Escarpment, Tsamba, and Mangochi). Flood management works would be located along selected shorelines and tributaries of the lower Shire River, while pilot wetland conservation and management investments would focus on the Elephant Marshes (alongside a portion of the lower Shire).

5. Environmental and Social Safeguards Specialists

George Campos Ledec (AFTEN)

Cheikh A. T. Sagna (AFTCS)

6. Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	The project involves a series of interventions and investments that range in scope and scale from micro-irrigation projects and community-based soil and water conservation pilot activities to rehabilitation of Kamuzu Barrage and identification of priority multi-purpose investments for initial preparation. In addition, the project will support strategic planning of large-scale infrastructure investments. The complexity of this multi-sector operation will require a number of safeguard tools to properly minimize and mitigate any and all potentially adverse environmental and social impacts generated by specific project investments. For some investments, the precise location and nature of the works is known (e.g., rehabilitation of Kamuzu Barrage), however in other instances, the exact location, scope and scale of specific project investments is unknown at this stage. As such, the Borrower will prepare a set of safeguard tools, including: For the rehabilitation of Kamuzu Barrage, the Environmental and Social Impact Assessment (ESIA) and a Resettlement Action Plan (RAP) has been prepared by the Borrower for this investment with financing from the ongoing Malawi National Water Development Program. For the overall project, an Environmental and Social Management Framework (ESMF) with an Environmental and Social Management Plan (ESMP) provides the criteria and procedures for screening sub-project investments and follow-up environmental and social management measures, as needed. Similarly, a Resettlement Policy Framework (RPF) with a Process Framework (PF) outlines the measures to be carried out to address any potential resettlement or loss of restriction to access to livelihoods, although the scope of any such impacts is expected to be minor, and often site specific. To support developing a long-term basin wide perspective and institutional assessment, a Strategic Environmental and Social Assessment (SESA) has also been prepared.
Natural Habitats OP/BP 4.04	Yes	Although numerous positive environmental and social impacts will be generated by the project, the upgrading of the Kamuzu Barrage will affect dry-season water levels in the upstream Liwonde National Park, with a reduction in some wildlife habitats such as sandbars and floodplain grasslands. Impacts of the Barrage on other protected areas are expected to be insignificant (such as water levels within Lake Malawi National Park). Conversely, the project's catchment and floodplain management activities are expected to be environmentally and socially highly beneficial by improving the management of the Liwonde and Lengwe National Parks; the Eastern Escarpment, Tsamba, and Mangochi Forest Reserves; and the Elephant Marshes in the lower Shire Basin. The ESMF has made provision to mitigate any potential negative impacts induced by project activities.
Forests OP/BP 4.36	Yes	Project investments under Component B are specifically targeted at forest sector interventions to improve the quality of forests in priority catchments in the basin. The forest sector investments are aimed at improving the health and quality of natural forests in degraded production landscapes throughout the basin; many of which are adjacent to critical natural habitats. The aim of these investments is to enhance the quality of natural forests and to reduce environmental degradation, soil erosion and sedimentation into the Shire River and its tributaries. Project-supported investments would be carefully screened with guidance from the ESMF, so as not to cause any significant harm to forests.
Pest Management OP 4.09	Yes	The project involves specific investments in the agriculture and fisheries sectors aimed at enhancing production. The project would not procure any pesticides in its investments, in particular the rural livelihoods activities supported under component B. In cases where pesticides are used within existing production systems, the project would promote (as appropriate) the use of integrated pest management and the safe use, storage, and disposal of agro-chemicals as described in the project's ESMF.
Physical Cultural Resources OP/BP 4.11	Yes	Project investments may occur in areas that contain archaeological relics, fossils, or other physical cultural resources. In the event that any such items are uncovered during construction of the Kamuzu Barrage or in other project-supported civil works, contractors and construction workers would be required to follow chance finds procedures, as specified in the ESIA for the Kamuzu Barrage and the ESMF for the overall project.
Indigenous Peoples OP/BP 4.10	No	No indigenous Peoples are associated with project area or activities.

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Involuntary Resettlement OP/BP 4.12	Yes	Small-scale resettlement is expected at the Kamuzu Barrage construction site, for which a Resettlement Action Plan (RAP) has been prepared. Otherwise, the project could affect other socioeconomic assets both at Liwonde and along the Shire River due to the Barrage operations. Additionally, a limited area of existing agricultural lands, along with some rural livelihoods that are based on unsustainable natural resource uses could be also be affected. The project would provide support for maintaining and enhancing production systems and accessibility to livelihoods and other natural resources in an environmentally and socially sustainable manner, in accordance with the Resettlement Policy Framework and Process Framework (RPF+PF). A RAP for the Kamuzu Barrage, as well as a RPF and PF for the overall project have been prepared and disclosed in January 2012, both in-country and at the World Bank's InfoShop.
Safety of Dams OP/BP 4.37	Yes	Although the Kamuzu Barrage is only about 4 m in height (less than the 10 m threshold for large dams), it has great strategic importance for Malawi and partially influences water levels in Lake Malawi, one of the world's largest freshwater lakes. Accordingly, the World Bank's Safety of Dams Policy (OP 4.37) was triggered and the Bank's Lead Dam Specialist has provided strategic advice on measures to be taken to improve dam safety. Rehabilitation of the barrage will also involve application of generic dam safety measures and will be based on the advice of an international panel of experts and the recommendation of the Bank's quality assurance group, including the Africa Safeguards Enhancement Team (ASPEN). The project will not finance the construction of other large dams. Under Component B, the project may finance construction of small earthen dams, farm and fish ponds as source of income generating activities for local beneficiaries, for which the application of generic dam safety measures will apply.
Projects on International Waterways OP/BP 7.50	Yes	Malawi, Tanzania and Mozambique are co-riparian countries of the Shire River. Namibia, Angola, Zimbabwe, Botswana and Zambia are co-riparian countries above the confluence of the Shire and Zambezi Rivers in the greater Zambezi Basin. Riparian notifications have been communicated by the World Bank (per Government request) to all co-riparian countries of the Shire and Zambezi Rivers as specified by this OP.
Projects in Disputed Areas OP/BP 7.60	No	No project activities in disputed areas.

II. Key Safeguard Policy Issues and Their Management

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

Kamuzu Barrage Upgrading (Sub-component C.1): The upgrading of the Kamuzu Barrage at Liwonde is the most environmentally sensitive project component, and the reason for why the overall project is classified as Category A. The most significant environmental and social impacts relate to anticipated changes in the upstream levels of the Shire River and Lake Malawi, as well as downstream Shire River flows.

The Barrage upgrading will not have any impact on the extreme high or low levels of the upstream Shire River or Lake Malawi and will have some impact, depending on operation, in between the levels of 473.5 m and 475.7 m (meters above sea level). In particular, the Kamuzu Barrage upgrading will, at particular times (mainly during dry seasons in this range), enable the levels of the upstream Shire River and Lake Malawi to be raised by up to 40 cm higher than is possible under the existing barrage. This could affect the surface area and distribution of certain ecosystems within the upstream Liwonde National Park (particularly river sandbars, sandy river banks, and floodplain grasslands), with corresponding impacts on certain wildlife species. Although the level of Lake Malawi would still be subject to large natural fluctuations, the levels could managed differently, implying changes in the proportion of the time at each Lake level range. The flooding of additional land along Lake Malawi and Lake Malombe could also marginally affect seasonally cultivated lands. Downstream of Liwonde, the upgraded barrage will provide greater opportunities that presently exist to regulate Shire River flows, with potentially greater environmental and social impacts than under the more limited river regulation that is possible with the existing barrage. Barrage construction activities at Liwonde will also produce localized environmental and social impacts during construction, including (i) land acquisition on both banks of the Shire River, including the likely demolition of at least a few houses, disruption of a few businesses, and the removal of trees and crops on both river banks; (ii) disruptions to aquatic life and the fishing patterns of local communities due to the construction of temporary coffer dams; (iii) traffic disruptions and other temporary disturbances related to construction activities; and (iv) extraction and disposal of rocks, earth, and other construction materials. Following construction, bridge traffic over the Shire River at Liwonde is expected to flow more smoothly and safely than is presently the case, due to reduced congestion.

Flood Management (Sub-component C.2): The proposed flood mitigation civil works in the lower Shire Basin are expected to have fairly minor adverse environmental or social impacts, because they are relatively small-scale and localized. Nonetheless, attention will be needed to address a range of environmental and associated social issues, such as ensuring sufficient river access and crossing points for animals (domestic and wild) and people since the embankments tend to be rather steep-sided. The wetland conservation and management activities planned around the Elephant Marshes are expected to be highly positive from an environmental and social standpoint.

Catchment Management (Component B): The investments and activities planned under this component are expected to be environmentally and socially positive overall, without significant adverse environmental or social impacts. These include (i) check dams, gabions, and other small civil works intended to reduce erosion and slow down stream runoff; (ii) alternative livelihood promotion and income-generating activities, which will be screened to rule out any environmentally or socially problematic investments; (iii) community management of natural forests and woodlands on village lands and within the Mangochi, Eastern Escarpment, and Tsamba Forest Reserves; and (iv) protected areas management investments in and around the Lengwe and Liwonde National Parks.

New Water Investments (Sub-component C.3): New water investments planned or designed under the project might be sensitive from an environmental and/or social standpoint. In general, the project is intended to promote increased focus on the environmental and social implications of any proposed new investments, based on the capacity-building activities within Component A. Moreover, the project would support preparation of the environmental and social impact assessments that might be needed for any such new investments.

Shire Basin Planning (Component A): The planning, information management, and capacity-building activities to be supported under Component A are all intended to facilitate increased awareness raising, understanding, and mainstreaming of environmental and social considerations within water resources planning for the Shire River Basin. The long-term water resources planning enabled in this Component will also help better manage the cumulative impacts of development trends in this basin.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

In general, this project and the associated longer-term program are intended to improve the management of water and other natural resources within the Shire River Basin. To the extent that this project could indirectly lead to the preparation of future large-scale investments (perhaps a new irrigation scheme to take advantage of increased water availability from the Shire River), such new investments would be subject to their own environmental and social assessments.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

There were many alternatives considered during project preparation, including:

(a) The project will lead to the development of new Operating Rules for the upgraded Kamuzu Barrage. Alternative water release schedules would have different upstream and downstream environmental and social implications. The project, as well as the longer-term Shire River Basin Program (of which this project is the first phase of 5.5 years), will seek to optimize between different environmental, social, and economic considerations in adjusting the system of water releases from the Barrage.

(b) An option always to be considered is the “no-project” approach. This would imply continued deterioration of the catchment lands, not being able to provide a foundation for the long-term sustainable development and management of the Shire River Basin, continued vulnerability of populations to floods and droughts, continuing poor land productivity, continued loss of biodiversity and inability to benefit from it effectively, major conflicts across water allocations for new investments without an information or analytical basis for such choices, continued degradation of the existing Kamuzu Barrage, and inadequate preparation of important new water resource investments. The project is thus expected to be highly beneficial overall, even though certain environmental and social impacts will need close monitoring and appropriate mitigation measures.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

As part of project preparation, the following safeguards-related instruments have been or are being developed:

a. A Strategic Environmental and Social Assessment (SESA) of the Shire River Basin has been completed. The SESA is intended to assess the environmental, social, economic, and institutional implications of development policies, plans, and programs for the Shire River Basin.

b. An Independent Environmental and Social Impact Assessment (ESIA) (including an Environmental and Social Management Plan, ESMP), and a Resettlement Action Plan, (RAP) of the Kamuzu Barrage Upgrading have been publicly disclosed.

c. An Environmental and Social Management Framework (ESMF) of the Shire River Basin Management Project is close to completion (with a publicly disclosed draft) to address the expected environmental and social impacts of the overall Project (aside from the Kamuzu Barrage). The ESMF indicates the corresponding mitigation and enhancement measures for each type of environmental and social impact identified (whether negative or positive). This includes (mostly highly positive) impacts upon natural habitats, issues relating to integrated pest management and careful pesticide use, and chance finds procedures for any physical cultural resources that might be discovered during construction activities. This ESMF serves as a companion volume to the Independent ESIA of the Kamuzu Barrage Upgrading.

d. The Resettlement Policy Framework (RPF), including a Process Framework, (PF) for the overall project will (i) complement the Resettlement Action Plan for the upgrading of the Kamuzu Barrage; (ii) specify the basic principles and procedures to be followed if other components of the project (besides the Kamuzu Barrage work) would lead to involuntary relocation of some project affected people, loss of assets or access to assets, and/or (in the case of people living near National Parks and Forest Reserves) new restrictions regarding access to natural resources used to maintain their livelihoods. The RPF and PF have been publicly disclosed.

e. At the request of the Government of Malawi, the World Bank has sent Riparian Notification Letters to the governments of all the other Zambezi River Basin riparians (i.e., Mozambique, Tanzania, Angola, Botswana, Namibia, Zambia, and Zimbabwe), since the Shire river flows into the Zambezi. This notification and request for any official comments is to ensure compliance with OP 7.50 on Projects in International Waterways.

f. Dam Safety: The SRBMP will finance rehabilitation of Kamuzu Barrage. Although this barrage is a relatively small dam structure by itself (only 4 m high), it has great strategic importance for Malawi and partially influences water levels in Lake Malawi, one of the world's largest freshwater lakes. Accordingly, it has been decided to apply the World Bank's Safety of Dams Policy (OP 4.37) and the Bank's Lead Dam Specialist has provided advice on measures to improve dam safety. The project will not finance the construction of other large dams. Under Component B, the project may finance construction of small earthen dams, farm and fish ponds, for which the application of generic dam safety measures will apply. The construction or rehabilitation under the project of such water retention structures requires the project to be in accordance with small dam guidelines, which include the existing regulations and the generic guidelines in the FAO Technical Guide for Small Earth Dams (FAO, 2010). These technical guidelines will be adopted early in the project before such structures are built, in order to complement the national requirements and guidelines for construction, maintenance, and safety of small dams.

As a result of project preparation, along with experience with other World Bank-supported projects (including the National Water Development Program), the Government agencies responsible for this project are becoming increasingly familiar with the World Bank's environmental and

social safeguard policies. Additional safeguards training for project staff and other relevant stakeholders is planned to take place during the first year of project implementation, with refresher training in subsequent years.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

Stakeholders for the program include those from Government, civil society, private sector, local communities, academia, and other development partners. The above-mentioned environmental and social safeguards studies have been, or are being, carried out with extensive consultation of a wide range of Malawian stakeholders, along with documentation of the consultation events held and the organizations and interest groups represented. These safeguards documents have been (or shortly will be) publicly disclosed, both within Malawi and at the World Bank's InfoShop in Washington prior to appraisal.

B. Disclosure Requirements Date

Environmental Assessment/Audit/Management Plan/Other	
Was the document disclosed prior to appraisal?	Yes
Date of receipt by the Bank	09-Dec-2011
Date of "in-country" disclosure	16-Jan-2012
Date of submission to InfoShop	29-Dec-2011
For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors	03-Feb-2012
Resettlement Action Plan/Framework/Policy Process	
Was the document disclosed prior to appraisal?	Yes
Date of receipt by the Bank	23-Jan-2012
Date of "in-country" disclosure	23-Jan-2012
Date of submission to InfoShop	03-Feb-2012
Pest Management Plan	
Was the document disclosed prior to appraisal?	NA
Date of receipt by the Bank	NA
Date of "in-country" disclosure	NA
Date of submission to InfoShop	NA
If the project triggers the Pest Management and/or Physical Cultural Resources policies, the respective issues are to be addressed and disclosed as part of the Environmental Assessment/Audit/or EMP.	
If in-country disclosure of any of the above documents is not expected, please explain why:	
Integrated with ESA and ESMF that has been disclosed.	

C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)

OP/BP/GP 4.01 - Environment Assessment			
Are the cost and the accountabilities for the EMP incorporated in the credit/loan?	Yes [<input checked="" type="checkbox"/>]	No [<input type="checkbox"/>]	NA [<input type="checkbox"/>]
OP/BP 4.04 - Natural Habitats			
If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?	Yes [<input type="checkbox"/>]	No [<input type="checkbox"/>]	NA [<input checked="" type="checkbox"/>]
OP 4.09 - Pest Management			
If yes, has the PMP been reviewed and approved by a safeguards specialist or SM? Are PMP requirements included in project design? If yes, does the project team include a Pest Management Specialist?	Yes [<input type="checkbox"/>]	No [<input type="checkbox"/>]	NA [<input checked="" type="checkbox"/>]
OP/BP 4.11 - Physical Cultural Resources			
Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?	Yes [<input checked="" type="checkbox"/>]	No [<input type="checkbox"/>]	NA [<input type="checkbox"/>]
OP/BP 4.12 - Involuntary Resettlement			
If yes, then did the Regional unit responsible for safeguards or Sector Manager review the plan?	Yes [<input checked="" type="checkbox"/>]	No [<input type="checkbox"/>]	NA [<input type="checkbox"/>]
OP/BP 4.36 - Forests			
Does the project finance commercial harvesting, and if so, does it include provisions for certification system?	Yes [<input type="checkbox"/>]	No [<input type="checkbox"/>]	NA [<input checked="" type="checkbox"/>]
OP/BP 4.37 - Safety of Dams			
Has an Emergency Preparedness Plan (EPP) been prepared and arrangements been made for public awareness and training?	Yes [<input type="checkbox"/>]	No [<input type="checkbox"/>]	NA [<input checked="" type="checkbox"/>]
OP 7.50 - Projects on International Waterways			
Has the RVP approved such an exception?	Yes [<input type="checkbox"/>]	No [<input type="checkbox"/>]	NA [<input checked="" type="checkbox"/>]

The World Bank Policy on Disclosure of Information			
Have relevant safeguard policies documents been sent to the World Bank's Infoshop?	Yes [<input checked="" type="checkbox"/>]	No [<input type="checkbox"/>]	NA [<input type="checkbox"/>]
Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?	Yes [<input checked="" type="checkbox"/>]	No [<input type="checkbox"/>]	NA [<input type="checkbox"/>]
All Safeguard Policies			
Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?	Yes [<input checked="" type="checkbox"/>]	No [<input type="checkbox"/>]	NA [<input type="checkbox"/>]
Have costs related to safeguard policy measures been included in the project cost?	Yes [<input checked="" type="checkbox"/>]	No [<input type="checkbox"/>]	NA [<input type="checkbox"/>]
Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?	Yes [<input checked="" type="checkbox"/>]	No [<input type="checkbox"/>]	NA [<input type="checkbox"/>]
Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?	Yes [<input checked="" type="checkbox"/>]	No [<input type="checkbox"/>]	NA [<input type="checkbox"/>]

III. APPROVALS

Task Team Leader:	Nagaraja Rao Harshadeep		
Approved By:			
Regional Safeguards Coordinator:	Name:	Date:	
Sector Manager:	Name	Date:	