

# **Bank Netherlands Water Partnership Program Environmental Flow Allocation Window**

## **CONCEPT NOTE**

### **Introduction**

The effective integration of environmental quality objectives in water resources planning and management decision making has been a difficult task to implement in the context of project safeguard policies and water resources management policies. Yet, it remains a fundamental pre-requisite for ensuring environmental sustainability of water resources developments and a central issue in the water-environment debate.<sup>1</sup> The determination of environmental flow requirements (EFRs) is a complex process,<sup>2</sup> and in data sparse environment, the complexity is compounded. Past neglect of EFR in water development projects have led to biased allocation decisions that have not only inflated project economic rates of return but also resulted in sub-optimal and inequitable allocation decisions, exacerbated conflicts in water uses, threatened the sustainability of downstream resources and undermined the productivity of the resource base.<sup>3</sup>

The goal of the Bank Netherlands Water Partnership Program (BNWPP) is to provide specific support through a set of issues oriented “windows” for improving water resources in the Bank’s client countries. The main objective of the BNWPP Environmental Flow Allocation window is to support effective integration of EFRs in water allocation decision making in World Bank projects and client countries. This concept note highlights the broad context of EFRs, lists specific window based opportunities for improving Bank operations, describes the approach and program of work and briefly states the management and administration arrangements.

### **Environmental flow requirements**

Defining and implementing EFR policies with new and existing water resource projects is a complex and demanding process that requires integration of scientific, social, economic, and political factors. The task usually involve an assessment of the overall water allocation process. Unlike other consumptive and non-consumptive demands for

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<sup>1</sup> The World Commission on Dams Report, Dams and Development, has underscored the need to carry out timely and appropriate environmental flow assessments as an integral part of the EIAs to improve project decision making and not just to legitimize predetermined water allocation decisions.

<sup>2</sup> In past water resources projects, minimum flows have been defined and allocated implicitly for the purpose of maintaining ecological functions but such allocations were often made without adequate analysis of downstream ecosystem needs.

<sup>3</sup> Without determining an adequate amount of water needed to prevent downstream degradation of water resources (from, for example, increased saltwater intrusion, reduced dilution capacity, loss of estuarine productivity, loss of groundwater recharge, ecosystem degradation, etc.) or productivity losses for downstream communities, allocation decisions to supply water for municipal use, hydropower, and irrigation projects are made often without accounting for the tradeoffs between a project’s development goals and conservation goals.

water, which can be estimated from measurable parameters—such as water consumption, industrial processes, amount of power generated, or the consumptive use of applied irrigation water—the EFRs for river systems or for particular river reaches are unique and a function of the particular ecosystem. Defining EFRs is not purely a static scientific determination of hydrology and ecosystem function, however, it should be viewed as an ongoing process of resource allocation based on data with participation from those particularly at risk from the negative impacts of altered flow regimes.

*Practical Methodologies.* Typical management approaches to protecting river ecosystems have emphasized only “minimum flows,” whose determination may not be scientifically based, may be based only on generic parameters developed for a disparate type(s) of ecosystem(s), or may not reflect full ecosystem(s) water requirements. The determination of EFRs is complicated further in data sparse conditions, yet recent methodologies such as the building block methodology (BBM) and downstream response to flow transformation (DRIFT), which include primary data collection (both biophysical and socioeconomic data) combined with expert knowledge, have been used successfully to determine EFRs. Good practice cases in a few Bank supported projects exist for systematically determining EFRs, yet more experience is needed to further its application.

*EFR Objectives.* Environmental objectives of EFR vary, and they can be specific such as targeting flows to benefit particular natural events like fish migrations or bird breeding or restoring individual elements of a flow regime to reach particular wetlands. Objectives can more general such mimicking natural flows on a seasonal basis. Restoration of natural floods to enhance biodiversity, flood recession agriculture, and fisheries *inter alia* is one area of EFR where experimentation and progress has recently taken place. Some existing Bank supported water projects and their designs (e.g., the operating rules of dams or outlet structures) have been altered even after construction to accommodate managed floods to enhance downstream productivity and mitigate ecosystem losses. Although the science of understanding riverine hydrology and hydraulics as well as riverine ecosystems have received greater emphasis in recent years, less attention has been devoted to identifying the approaches and institutions required for successful integration of EFR policies into overall water resource allocation.

## **Window Opportunities for Improving Bank Operations**

The window will focus on four primary opportunities to integrate EFA applications into Bank operations.

- First, the window will support better integration of EFR concepts into project environmental impact assessment (EIA) in project preparation and appraisal and environmental policy and practice of client countries. Phase 1B of the Lesotho Highlands Water Project provides a useful example of how EFR was used in the EIA process to improve flow allocations as well as structural project design to support needed downstream releases and mitigation measures for offsetting resource degradation and economic losses associated with higher releases of water.

- Second, existing projects addressed by new Bank activities also provide an opportunity to improve water allocation through EFR concepts. The Regional Hydropower Program provides support for a managed flood component on the Senegal River downstream from Manantali Dam even though the Bank did not support the original dam project.
- Third, Bank operations that support overall institutional reform in the water and environment sectors create a leverage point to integrate EFR concepts into water policy development of client countries.
- Fourth, the window could also support EFR initiatives related to allocation of international waters, which for many countries is the majority of their main waterways.

BNWPP support to operations will be used to enhance, but not to substitute for Bank commitments and resources for operational support.

### **Approach and Program of Work**

The program of work to operationalize this window is based on a three-year time frame that builds upon ongoing initiatives at the Bank and develops new activities. An experienced team of specialists will provide advice and technical support for Bank operations. Window managers are currently recruiting and drafting broad and a specific terms of reference for the team. Team composition will be flexible incorporating expertise in particular areas (e.g. freshwater ecology, hydrology, environmental economics, sociology, etc.) with an emphasis on regional knowledge.<sup>4</sup> The first team activity will be a presentation on EFA and the upcoming program of work at water week in April, 2001.

Team members will work with Bank Staff and client countries on specific Bank projects to develop and implement water policies (including building institutional capacity) for integrating EFRs as part of the water allocation procedure and decisions. More generally, team members will prepare best practice cases for dissemination. This activity will build from the ongoing preparation of three documents being prepared under the World Bank Water Resources and Environmental Management Best Practice Briefs<sup>5</sup> that address EFR concepts methodologies, general EFR case studies, and EFR activities related to managed floods from reservoirs. An additional in-depth case is planned on the Lesotho Highlands case, which resulted not only in advancement of EFA assessment methodology, but in successful policy development and EFR implementation. A paper that draws from the aforementioned work as well as from window activities over the next year will be prepared for the Environmental Flow Assessments for Rivers international working conference in Cape Town, March 2002. Over the three program, the documents produced will provide a body literature and lessons that will be disseminated to Bank staff and client country representatives through publications, workshops, and other fora.

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<sup>4</sup> EFA Window Team members are still being identified.

<sup>5</sup> Also funded by the Government of the Netherlands under a separate arrangement with the Environment Department.

Development of the program of work for this window also comes concomitantly as the Bank prepares its program of work in response to the World Commission on Dams. As mentioned, EFR is a central element of the WCD environmental agenda, and it is anticipated that the window activities will interface strongly with the Bank's program of work in response to the WCD.

Candidate operations are being identified for support under the window. Work has already started in Tanzania to review water allocation methodologies and processes in conjunction with the River Basin Management and Smallholders Irrigation Project. Other possible operations tentatively identified to be supported by the window could include projects in Bangladesh, Cambodia, India, Kenya, Thailand, and the SADC Region.

### **Management and Administration**

The WRMG focal points for the Environmental Flow Allocation Window will be Rafik Hirji and John Briscoe. The EFA Window will be coordinated by the BNWPP Coordinator, Luitzen Bijlmsa, supported by a part-time input from a Water Resources Management Specialist, Thomas Panella.

A simple and flexible procedure will be defined for task managers to apply for support for specific operations.