

## ADB Water Financing Program 2006-2010

# Helping to Introduce IWRM in 25 River Basins in the Asia-Pacific Region

**What is IWRM?** Integrated water resources management (IWRM) is now recognized across the world as the process to promote the coordinated development and management of water, land and related resources in river basins, to maximize the economic benefits and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

ADB has announced in March 2006 that its Water Financing Program 2006-2010 will help its member countries introduce IWRM in 25 river basins in the Asia-Pacific region.

**Helping to Introduce IWRM in River Basins.** The application of IWRM varies according to each river basin's specific conditions and requirements, yet in all cases IWRM is focused on delivering a triple bottom line of a balance of economic, social, and environmental benefits resulting from an integrated approach that carefully considers each trade-off. In the *natural system*, IWRM focuses on integrating management of (i) upstream and downstream interests, (ii) water quantity and quality, (iii) surface and groundwater, and (iv) land and water resources. However, the water crisis in countries across the region is largely a challenge of improving water governance, and IWRM focuses equally on improving the *human system*, focusing on how people and their institutions work together, make the right decisions, and implement them effectively. Stakeholder participation, local actions and ownership are therefore necessary building blocks for achieving IWRM in the river basin. The active and informed participation of river basin stakeholders in planning and decision-making, including in water resources allocation, conflict resolution, and trade-off choices, is central to the success of IWRM.

**Enabling Environment.** IWRM is a long-term process that needs sustained commitment by all stakeholders in the river basin. Its implementation will take decades of incremental improvements to achieve full results. The introduction of IWRM in a river basin needs a positive enabling environment, clear institutional roles, and practical management instruments. The process can be anchored, and its achievements monitored, through a capable river basin organization, institutionalized stakeholder participation, and comprehensive river basin planning and monitoring. At the national level, the enabling environment includes an effective water policy, updated legislation, and conducive financing and incentive structures. Issues to be addressed through the enabling environment include cost sharing and recovery, water use rights, responsibilities of the national water apex body, river basin organizations, local governments, service providers and water user organizations, and the private sector, amongst others.

**25 River Basins.** Attached is a tentative list of river basins where ADB intends to help introduce IWRM, showing 20 firm candidate basins, with 5 other basins yet to be determined after further consultation with clients and partners. Also attached for reference is a list of important IWRM elements, and a generic roadmap for the introduction of IWRM in a river basin. These are meant to guide practitioners, and will be improved over time.

## Helping to Introduce IWRM in 25 River Basins in the Asia-Pacific Region: Tentative List of River Basins

Country	River Basins	Candidate River Basins	Status
Afghanistan	2	Hari Rud, Balkh	Project preparations ongoing
Bangladesh	1	Southwest Area	Project ongoing
Cambodia	1	Tonle Sap with Northwest Area	Projects ongoing
Fiji Islands	1	To be determined	Government advice requested
India	1	To be determined	Government advice requested
Indonesia	5	Citarum, Ciliwung-Cisadane, Ciujung, Progo-Opak Oyo, tbd	Project preparations ongoing for Citarum and adjacent basins, and Progo-Opak Oyo, Government advice requested for 5 th basin
Lao PDR	1	Nam Ngum	Project ongoing
Pakistan	1	Ravi	Government advice requested for Ravi in connection with Punjab irrigation projects
People's Republic of China	3	Songhua, Baiyangdian Lake, Guiyang Municipality	Projects ongoing Government confirmation requested
Philippines	1	To be determined	Government advice requested
Thailand	1	Yom	Government confirmation requested
Viet Nam	2	Red, tbd	Project ongoing for Red, Government advice requested for 2nd basin
<b>Regional</b>			
Cambodia , Lao PDR, Viet Nam	3	Sekong-Sesan-Srepok	Regional technical assistance under preparation
Kazakstan, Kyrgyz Republic, Tajikistan, Uzbekistan	1	Syr Darya	Regional technical assistance ongoing
Kazakstan, Kyrgyz Republic	1	Chui Talas	Regional technical assistance ongoing
<b>Total</b>	<b>25</b>	<b>20</b>	

## Introducing IWRM in River Basins: Important Elements

The following 25 elements are widely accepted to be important in introducing integrated water resources management (IWRM) in river basins. Incorporating these elements into institutional reforms, development strategies, and investment projects will make a significant difference for IWRM in the basin. Improvements may also be needed in the enabling environment at the national level.

IWRM Element	Typical interventions/Criteria
1. <b>River basin organization</b>	Build capacity in new or existing RBO, focusing on the four dimensions of performance (stakeholders, internal business processes, learning and growth, and finance) under the Network of Asian River Basin Organization's (NARBO) benchmarking service
2. <b>Stakeholder participation</b>	Institutionalize stakeholder participation in the river basin planning and management process including active participation of local governments, civil society organizations (academe, NGOs, parliamentarians, media), and the private sector, and an enabling framework for meaningful stakeholder participation in project specific planning decisions
3. <b>River basin planning</b>	Prepare or update a comprehensive river basin plan or strategy, with participation and ownership of basin stakeholders, and application of IWRM principles in land use planning processes
4. <b>Public awareness</b>	Introduce or expand public awareness programs for IWRM in collaboration with civil society organizations and the media
5. <b>Water allocation</b>	Reduce water allocation conflicts among uses and geographical areas in the basin with participatory and negotiated approaches, incorporating indigenous knowledge and practices
6. <b>Water rights</b>	Introduce effective water rights or entitlements administration that respects traditional or customary water use rights of local communities and farmers and farmer organizations
7. <b>Wastewater permits</b>	Introduce or improve wastewater discharge permits and effluent charges to implement the polluter pays principle
8. <b>IWRM financing</b>	Institutionalize models whereby all levels of government contribute budget to IWRM in the basin
9. <b>Economic instruments</b>	Introduce raw water pricing and/or other economic instruments to share in IWRM costs, stimulate water demand management and conservation, protect the environment and pay for environmental services

<b>IWRM Element</b>	<b>Typical interventions/Criteria</b>
10. <b>Regulations</b>	Support the development and implementation of a legal and regulatory framework to implement the principles of IWRM and its financing in the basin, including tariffs, charges, quality standards and delivery mechanisms for water services
11. <b>Infrastructure for multiple benefits</b>	Develop and/or manage water resources infrastructure to provide multiple benefits (such as hydropower, water supply, irrigation, flood management, salinity intrusion, and ecosystems maintenance)
12. <b>Private sector contribution</b>	Introduce or increase private sector participation in IWRM through corporate social responsibility (CSR)-type contributions
13. <b>Water education</b>	Introduce IWRM into school programs to increase water knowledge and develop leadership among the youth, including responsibility for water monitoring in local water bodies
14. <b>Watershed management</b>	Invest to protect and rehabilitate upper watersheds in collaboration with local communities and civil society organizations
15. <b>Environmental flows</b>	Introduce a policy and implementation framework for introducing environmental flows and demonstrate its application
16. <b>Disaster management</b>	Investments in combined structural and nonstructural interventions to reduce vulnerability against floods, droughts, chemical spills and other disasters in the basin
17. <b>Flood forecasting</b>	Introduce or strengthen effective flood forecasting and warning systems
18. <b>Flood damage rehabilitation</b>	Investments in the rehabilitation of infrastructure after floods
19. <b>Water quality monitoring</b>	Initiate or strengthen basin-wide water quality monitoring and application of standards
20. <b>Water quality improvement</b>	Invest in structural and nonstructural interventions that reduce point and non-point water pollution
21. <b>Wetland conservation</b>	Invest to conserve and improve wetlands as integral part of the river basin ecosystems
22. <b>Fisheries</b>	Introduce measures to protect and improve fisheries in the river
23. <b>Groundwater management</b>	Institutionalize and strengthen sustainable groundwater management as part of IWRM
24. <b>Water conservation</b>	Institutionalize a policy and implementation framework to promote efficiency of water use, conservation, and recycling
25. <b>Decision support information</b>	Improve on-line publicly available river basin information systems to support IWRM policy, planning, and decision-making, including dissemination of "tool boxes" and good practices

## Roadmap for Introducing IWRM in River Basins

Achieving IWRM in a river basin is a long-term process, and each basin is different. This generic roadmap illustrates the incremental results of introducing IWRM elements in stages. A score of 30 out of 100 is taken as an indication of good achievement in introducing IWRM in the river basin.

IWRM Element	Time to Start IWRM <i>0 points</i>	IWRM on its Way <i>2 points</i>	IWRM Getting Results <i>4 points</i>	Status <i>Score</i>
1. <b>River basin organization</b>	No RBO exists yet	RBO has been formed but mandate is not well-defined; and organizational set-up and operational responsibilities need improvement	RBO operates under a clear mandate and organizational-set-up; and improves its performance through capacity building programs	
2. <b>Stakeholder participation</b>	No stakeholder participation in river basin planning and management process	Limited stakeholder participation in river basin planning and management process	Regular and meaningful stakeholder participation occurs in project specific or river basin planning decisions under an enabling framework	
3. <b>River basin planning</b>	No river basin plan or strategy	No river basin plan or strategy exists yet; but there is river basin profile for basic basin information	A river basin plan or strategy exists as basis for basin investments. The plan gets updated regularly with participation and ownership of basin stakeholders	
4. <b>Public awareness</b>	No public awareness programs for IWRM	Public awareness programs for IWRM has just been introduced; and are minimal in scope	Public awareness programs for IWRM are regularly implemented in collaboration with civil society organizations and the media	

IWRM Element	Time to Start IWRM <i>0 points</i>	IWRM on its Way <i>2 points</i>	IWRM Getting Results <i>4 points</i>	Status Score
5. <b>Water allocation</b>	No system of water allocation resulting to conflicts in water use	Limited implementation of a system of water allocation	Water allocation among uses and geographical areas is implemented in the basin but there is scope for improvement, including for participatory and negotiated approaches, and for incorporating indigenous knowledge and practices	
6. <b>Water rights</b>	No water rights or entitlement administration and customary rights not respected.	Existing water rights or entitlements administration are partly or inefficiently implemented	Water rights or entitlements administration are implemented well, respecting traditional or customary water use rights of local communities and farmers and farmer organizations	
7. <b>Wastewater permits</b>	No system of wastewater discharge permits and effluent charges	System of wastewater discharge permits and effluent charges need improvement	System of wastewater discharge permits and effluent charges are acceptable to stakeholders	
8. <b>IWRM financing</b>	No government budget for IWRM	Limited government budget allocated for IWRM	Government budget for IWRM is institutionalized at some levels of governance	
9. <b>Economic instruments</b>	No raw water pricing and/or other economic instruments exist	A system of raw water pricing and/or other economic instruments is partly or inefficiently enforced	A system of raw water pricing and/or other economic instruments is satisfactorily enforced that provide share in IWRM costs, stimulate water demand management and conservation, protect the environment and pay for environmental services	

IWRM Element	Time to Start IWRM <i>0 points</i>	IWRM on its Way <i>2 points</i>	IWRM Getting Results <i>4 points</i>	Status <i>Score</i>
10. <b>Regulations</b>	No legal and regulatory framework to implement the principles of IWRM and its financing	Legal and regulatory framework to implement the principles of IWRM and its financing is not satisfactorily enforced	Legal and regulatory framework to implement the principles of IWRM and its financing is satisfactorily enforced and complied through sound implementing rules and regulations	
11. <b>Infrastructure for multiple benefits</b>	No water resources infrastructure providing multiple benefits (such as hydropower, water supply, irrigation, flood management, salinity intrusion, and ecosystems maintenance)	A few water resources infrastructures providing benefits; but not efficiently managed	Several water resources infrastructures exist; and with scope to improve management	
12. <b>Private sector contribution</b>	No private sector participation in IWRM	Private sector participation in IWRM is partly introduced	Several cases of private sector participation in IWRM	
13. <b>Water education</b>	IWRM not yet introduced in school programs	IWRM is occasionally introduced in school programs	IWRM is regularly introduced in school programs; and with potential to be an integral part of school curricula	
14. <b>Watershed management</b>	No investment to protect and rehabilitate upper watersheds	Minimal investment to protect and rehabilitate upper watersheds; with little collaboration with local communities and civil society organizations	Enough investments to protect and rehabilitate upper watersheds in close collaboration with local communities and civil society organizations	
15. <b>Environmental flows</b>	No policy and implementation framework for introducing environmental flows	A policy and implementation framework for introducing environmental flows exists but is weakly enforced	A policy and implementation framework for introducing environmental flows and to demonstrate its application is adequately enforced but with scope for improvement	

IWRM Element	Time to Start IWRM <i>0 points</i>	IWRM on its Way <i>2 points</i>	IWRM Getting Results <i>4 points</i>	Status <i>Score</i>
16. <b>Disaster management</b>	No investments in combined structural and nonstructural interventions	Separate and minimal investments for either structural or nonstructural interventions	Substantial investments in combined structural and nonstructural interventions to reduce vulnerability against floods, droughts, chemical spills and other disasters	
17. <b>Flood forecasting</b>	No flood forecasting and warning systems	Flood forecasting and warning systems exist but need improvement	Flood forecasting and warning systems are adequate and efficient	
18. <b>Flood damage rehabilitation</b>	No investments in the rehabilitation of infrastructure after floods	Government provides limited budget allocation for the rehabilitation of infrastructure after floods	Government provides enough investments for the rehabilitation of infrastructure after floods	
19. <b>Water quality monitoring</b>	No basin-wide water quality monitoring and application of standards	Partial water quality monitoring and weak application of standards	Basin-wide water quality monitoring; and adequate application of standards	
20. <b>Water quality improvement</b>	No structural and nonstructural interventions that reduce point and non-point water pollution	A few structural or nonstructural interventions that reduce point and non-point water pollution	Several structural and nonstructural interventions that reduce point and non-point water pollution	
21. <b>Wetland conservation</b>	No investment to conserve and improve wetlands	Minimal investment to conserve and improve wetlands as integral part of the river basin ecosystems	Substantial investments to conserve and improve wetlands as integral part of the river basin ecosystems	
22. <b>Fisheries</b>	No measures to protect and improve fisheries	Limited measures to protect and improve fisheries	Adequate measures to protect and improve fisheries	
23. <b>Groundwater management</b>	No groundwater management	Groundwater management is either just starting or is weakly enforced	Sustainable groundwater management is institutionalized as part of IWRM	

IWRM Element	Time to Start IWRM <i>0 points</i>	IWRM on its Way <i>2 points</i>	IWRM Getting Results <i>4 points</i>	Status Score
24. <b>Water conservation</b>	No policy and implementation framework for water use, conservation, and recycling	A policy and implementation framework to promote efficiency of water use, conservation, and recycling is weakly enforced	A policy and implementation framework to promote efficiency of water use, conservation, and recycling is adequately enforced but with scope for improvement	
25. <b>Decision support information</b>	No river basin information systems to support IWRM	River basin information systems to support IWRM are not upgraded, not working efficiently, and not publicly available	River basin information systems are up to standards but there is wide scope for improvement	
<b>Total Score</b>				