*Achieving implementation of Integrated Water Resource Management*

## Key Message

Integrated Water Resource Management (IWRM) is practical and achievable. The key is a two-track strategy where IWRM planning is complemented by pilot actions demonstrating results that address local to national priorities.

IWRM demonstrations use learning-by-doing to innovate and adapt water resources management actions, tools and technologies. Concrete results and lessons learned are fed back, to build confidence and anchor basin and national policies and planning in knowledge of what works. Coalitions of beneficiaries, water advocates and leaders join forces within political realities to catalyze change in institutions that enable practical implementation of IWRM plans.



## Recommendations

- Planning should not be done in isolation from practical action and learning. Develop and fund a set of river basin/watershed demonstration projects that put IWRM principles into action. Work adaptively to deliver results on the ground and use the lessons to improve policies and plans.

- There is no IWRM prescription. Work with stakeholders to adapt IWRM principles to on-the-ground and institutional realities through demonstration projects that are flexible and adapt and innovate as they proceed. Embed learning strategies in demonstrations to capture evidence of what works. Communicate and share lessons in ways that catalyze action at local, national and basin levels.

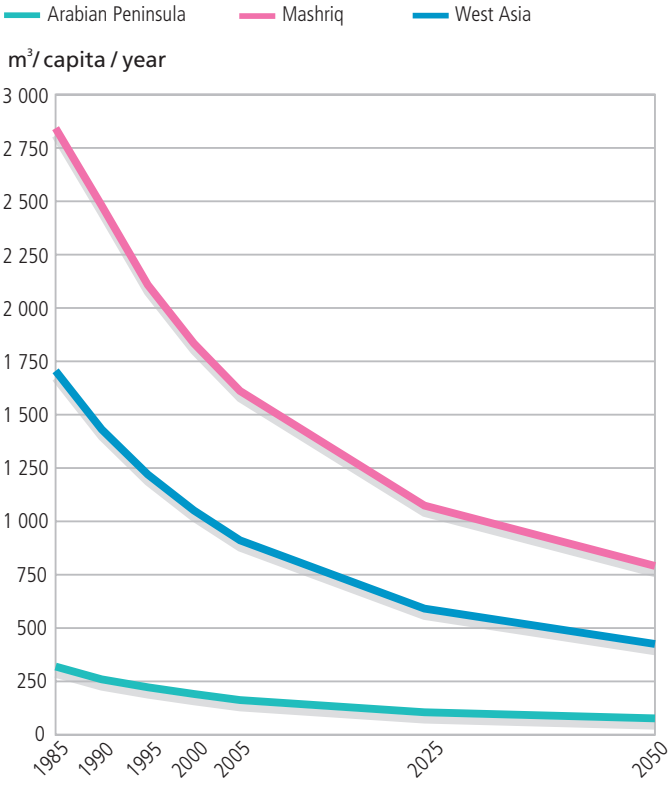
- Implementing IWRM requires water governance that is coordinated across levels and promotes and facilitates consensus building. Create platforms for stakeholders to come together to transparently agree and define rights and responsibilities. Ensure that institutions are accountable to their commitments, while decision-making incorporates the realities of political processes.

- Financing IWRM implementation must be sustainable. Use evidence of costs and benefits, including for livelihoods, economic development and the direct and indirect benefits from ecosystem services, to justify and mobilise investments in IWRM. Develop incentives that reward those managing watersheds sustainability.

# Justification

Freshwater resources are under increased pressure to satisfy the needs of water users throughout the world. Since 1800 the world's population has increased from 1 to 6 billion, but freshwater is finite. The amount of freshwater on Earth does not change, yet water use went up nine-fold in the 20th century.[1] For many river basins and aquifers, however, because of pollution and overexploitation, availability and access to clean, safe water is declining.

*Trends and projections in per capita freshwater availability*




Source: UNESCWA 2003b, UNDP 2005, In Global Environment Outlook 4: Environment for Development 2007

With industrialisation and expanding irrigated agriculture, combined with climate change, water security is under threat. By 2025, 1 800 million people will be living in countries or regions with absolute water scarcity, and two-thirds of the world population could be under stress conditions.[2] Competition fuels conflict and poor water quality causes serious disease. Over-allocation and degradation of water resources cause loss of biodiversity and ecosystem services. Ensuring management of water resources is sustainable, benefits both nature and people.

Integrated Water Resources Management (IWRM) is designed to provide solutions. Practical strategies for implementing IWRM have been shown to work. These work best when they address the needs of nature in combination with social and economic development. They require changes from traditional 'top-down' water management. Practical strategies overcome lack of coordination among sectors and disjointed planning that can otherwise easily result in unnecessary expenditure and large infrastructure that fails to provide expected results, at the expense of natural ecosystems.

IWRM is designed to replace fragmented management of water and encourage sustainable use. Planning for IWRM takes place using inclusive, participatory processes. The big challenge is to implement IWRM. The IUCN Water and Nature Initiative showed that implementing IWRM is made practical by explicit strategies to demonstrate what works, how to deliver results on the ground and learning-by-doing. Real progress is built by combining demonstration and learning with empowerment of communities, and actions that support and catalyse national and basin-level water reforms with financing and investment that can be sustained.

# Evidence for action

## *Complement Planning With River Basin Demonstration Projects*

Planning is an important part of IWRM, but creating tangible impacts comes from putting IWRM principles into action to demonstrate solutions to real problems. IUCN's two-track approach applies the results from river basin demonstration projects to decision-making processes, ensuring that lessons learned improve plans and policies. Programmes that deliver results and solve basin management problems can then form the basis for meeting national priorities.

In Tanzania's Pangani River Basin, IWRM principles were put into action when growing water scarcity, caused by over-allocation of water, led to fuelling conflict and putting in peril local and national development plans. In 2002 the government adopted a new National Water Policy, focusing on coordination of local and basin water management and establishing stakeholder forums.

To test implementation of reforms, the Pangani River Basin Management Project started demonstration projects. Water User Associations were formed to negotiate allocations, virtually eliminating local conflict over water. Evidence for the economic, social and ecological effects of alternate options for allocating water was assessed by stakeholders to build consensus. Now, results are applied basin-wide and lessons learned are guiding national implementation.

IUCN's strategy has seen demonstration projects across Africa, Asia and Latin America incorporated into local and national plans. In the Tacana Watersheds in Guatemala, demonstra-

1 Environmental history of the 20th Century, John McNeill, 2003
2 FAO

tion projects helped the region recover from flood damage and adapt to the expected effects of climate change. Demonstration in the Mekong Basin of the effects of damaged fisheries on local livelihoods, led to changes in water resources development planning.

### *Communicate Evidence on What Works*

Demonstrations can be replicated, but there is no blueprint that works in every situation. IWRM works best when successful results are communicated across basins. Lacking a national water law, the residents of the Tacana Watersheds in Guatemala realized they would need a different strategy to restore their rapidly degrading water resources. With the help of IUCN's Tacana Project they set up microwatershed committees among groups of villages. Starting with tree nurseries to restore the watershed, terracing of degraded slopes, fish farms and greenhouses to provide income and slow emigration of the younger generation, the project expanded. Success motivated others to take action, first in neighbouring watersheds, and increasingly in other basins across Central America.

Water users in Jordan's Azraq Oasis have also seen the benefit of using the learning-by-doing approach. For thousands of years, the Oasis has been Jordan's major source of good-quality water but over-extraction and loose regulations have decimated this unique ecosystem (See ref table). Demonstration projects tested solutions for restoring the oasis. Lessons learned are now being debated at national level in Jordan.

### *Put in Place Good Water Governance*

Though the participatory approach provides the right start, for IWRM to be successful, governments must be aware of, and committed to its principles. Being receptive to negotiation and providing forums for dialogue, promotes coordinated development and ensures that decisions made on a watershed basis don't conflict with regional and national priorities. National water structures must be positioned to balance the requirements of all interest groups and the environment, though this often requires trade-offs. When laws are formed assigning rights and responsibilities, institutions and water users become accountable for their actions. Involving all stakeholders in building consensus for national policies increases the likelihood that policies will remain intact when governments change parties.

In the Okavango Delta, the lack of a comprehensive water management plan coupled with increasing competition between large-scale agricultural users, subsistence farmers and tour operators threatened the sustainability of the Delta. The Okavango Delta Management Plan (ODMP) Project worked with village level kgotlas (community meetings) to consider user needs while sustaining biodiversity. Water users described issues they faced on a daily basis, and learned to appreciate each other's stake in the overall management of the Delta. The results were integrated into district and national planning. The communities' sense of ownership in the Plan is helping to ensure the long-term conservation of the Delta.

### *Finance Water Resource Management Sustainably*

Transitioning to IWRM is a logical step, but change comes at a price. The costs and benefits of water need to be quantified so that water resource managers can find ways to ensure long-term sustainable financing. This can be achieved by analyzing direct and indirect benefits, exploring new funding sources and providing incentives.

IUCN's Komadugu Yobe Basin (KYB) Project in Nigeria provides an example of innovative financing. Demonstrations under the two-track approach convinced Nigeria's President to set up a $125 million Trust Fund for restoration of the Basin. To create an initial $13 million stake, authorities across six riparian states matched the Federal government's contribution. Successful demonstrations have likewise helped water users come up with new funding solutions in Ecuador and Guatemala with IUCN's support.

## Further reading

- *Lessons Learned from the KYB Project* Report (2008)
- *Salt Water Intrusion in the Upper Aquifer in Azraq Basin* Study (2011)
- *La Aplicación del Enfoque Ecosistémico en la Gestión de los Recursos Hídricos* Report (2006)
- *Okavango Delta* Management Plan (2008)
- *Pangani River system: Future of the Basin* Report (2011)

All publications available from: www.waterandnature.org

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## Examples from the field

In Nigeria's Komadugu-Yobe River Basin, upstream of Lake Chad, dam construction and irrigation caused falling river levels, impacting livelihoods and leading to conflict. Governments and civil society agreed a Water Charter for the Basin. Farmers, fishermen and herders joined in negotiation of plans to restore the river. Practical demonstrations helped restore the river's flow locally, allowing communities to improve livelihoods and reduce conflict. Trust gained from practical measures has led to authorities now investing in a Trust Fund for sustainable management and restoration of the Basin.

Communities vulnerable to floods and droughts in El Imposible Basin, El Salvador, suffered ill-health because of poor water quality. Working together, river basin committees used IWRM to improve water quality and access. Livelihoods projects provided tangible benefits in the short term, and results have been integrated into a national process for strengthening basin organizations in El Salvador.

## Learn more

***WANI Toolkits***

VALUE – Counting ecosystems as water infrastructure

SHARE – Managing water across boundaries

NEGOTIATE – Reaching agreements over water

***Websites***

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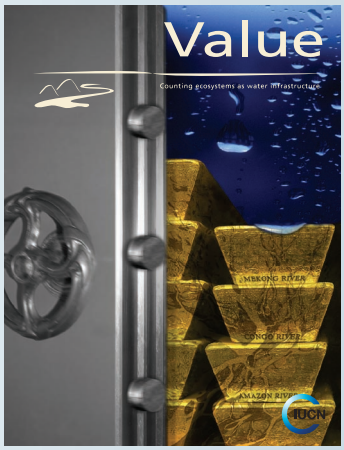




**About IUCN**

IUCN, International Union for Conservation of Nature, helps the world find pragmatic solutions to our most pressing environment and development challenges. IUCN works on biodiversity, climate change, energy, human livelihoods and greening the world economy by supporting scientific research, managing field projects all over the world, and bringing governments, NGOs, the UN and companies together to develop policy, laws and best practice.
IUCN is the world's oldest and largest global environmental organization, with more than 1,000 government and NGO members and almost 11,000 volunteer experts in some 160 countries. IUCN's work is supported by over 1,000 staff in 60 offices and hundreds of partners in public, NGO and private sectors around the world.

**About the IUCN Water and Nature Initiative**

The Water and Nature Initiative (WANI) is an IUCN initiative that has worked with more than 80 partners in more than 30 countries to mainstream environmental and social issues into water resources planning and management. The initiative uses ecosystem managem ent as a strategy for integrated management of land, water, nature and communities. WANI helps to solve the dilemma between fulfilling development options and conserving aquatic resources by resolving water conflicts, reviving rivers and spurring local economic development.

Water and Nature Initiative