

IWRM Principles and Topics for Training Plan and Capacity Building

NIWRMSP Building Capacity: Package 1
Training : IWRM Framework

Eric Tilman
International Consultant
www.riversnetwork.org

About water resources ... The Facts

- Global water: 97% seawater, 3% freshwater. Of the freshwater 87% not accessible, 13% accessible (0.4% of total)
- Today more than 2 billion people are affected by water shortages in over 40 countries
- 263 river basins are shared by two or more nations
- 2 million tonnes per day of human waste are deposited in water courses
- Half the population of the developing world are exposed to polluted sources of water that increase disease incidence
- 90% of natural disasters in the 1990s were water related.
- The increase in numbers of people from 6 billion to 9 billion will be the main driver of water resources management for the next 50 years

About water resources : The key issues



Water governance crisis

Sectoral approaches to water resources management have dominated in the past and are still prevailing. This leads to fragmented and uncoordinated

Increased competition

Increased competition for the finite resource is aggravated by inefficient governance.

Securing water for people

One fifth of the world's population is without access to safe drinking water and half of the population is without access to adequate sanitation.

Securing water for food production

Over the next 25 years food will be required for another 2-3 billion people. Water is increasingly seen as a key constraint on food production...

Protecting vital ecosystems

Aquatic ecosystems depend on water flows, seasonality and water-table fluctuations and are threatened by poor water quality. Land and water resources management must ensure that vital ecosystems are maintained.

The four Dublin Principles (1992) that have been the basis for much of the water sector reform.



Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment.



Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels.



Women play a central part in the provision, management and safeguarding of water.



Water has an economic value in all its competing uses and should be recognised as an economic good.



What is IWRM ...several definitions...

Global Water
Partnership



Integrated Water Resources Management (IWRM) is a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment. (*source : Global Water Partnership*)



AWRA

Community, Conversation, Connections

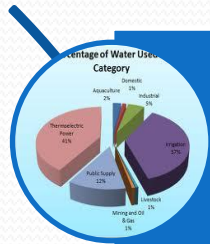
The coordinated planning, development, protection, and management of water, land, and related resources in a manner that fosters sustainable economic activity, improves or sustains environmental quality, ensures public health and safety, and provides for the sustainability of communities and ecosystems. (*source: American Water Resources Association*)



US Army Corps
of Engineers

IWRM aims to develop and manage water, land, and related resources, while considering multiple viewpoints of how water should be managed (i.e. planned, designed and constructed, managed, evaluated, and regulated). It is a goal-directed process for controlling the development and use of river, lake, ocean, wetland, and other water assets in ways that integrate and balance stakeholder interests, objectives, and desired outcomes across levels of governance and water sectors for the sustainable use of the earth's resources (*Source : US Corps of Engineers*)

IWRM : Key Concepts



The goal of IWRM is to manage water sustainably.

- Water management must balance the multiple objectives of different interests with consideration for economic development, social equity and the environment as well as current and future generations.



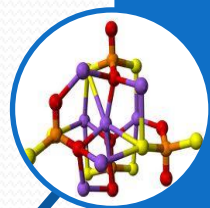
Coordination is required for integration.

- Integrate water management between and within levels of government and other organizations, with recognition of the respective roles of each.



Encourage participation.

- Involve the local public and stakeholders from all water use sectors



Resources are connected.

- Holistic management recognizes the interconnectedness of land and water, surface water and groundwater, water quantity and water quality, freshwater and coastal waters, and rivers and the broader watershed (Manage water in the context of a larger geographic region such as a watershed or basin)

The Water Users



IWRM is a process...or even...a philosophy ...

As the Global Water Partnership puts it: *“IWRM is a challenge to conventional practices, attitudes and professional certainties. It confronts entrenched sectoral interests and requires that the water resource is managed holistically for the benefits of all. No one pretends that meeting the IWRM challenge will be easy but it is vital that a start is made now to avert the burgeoning crisis”*

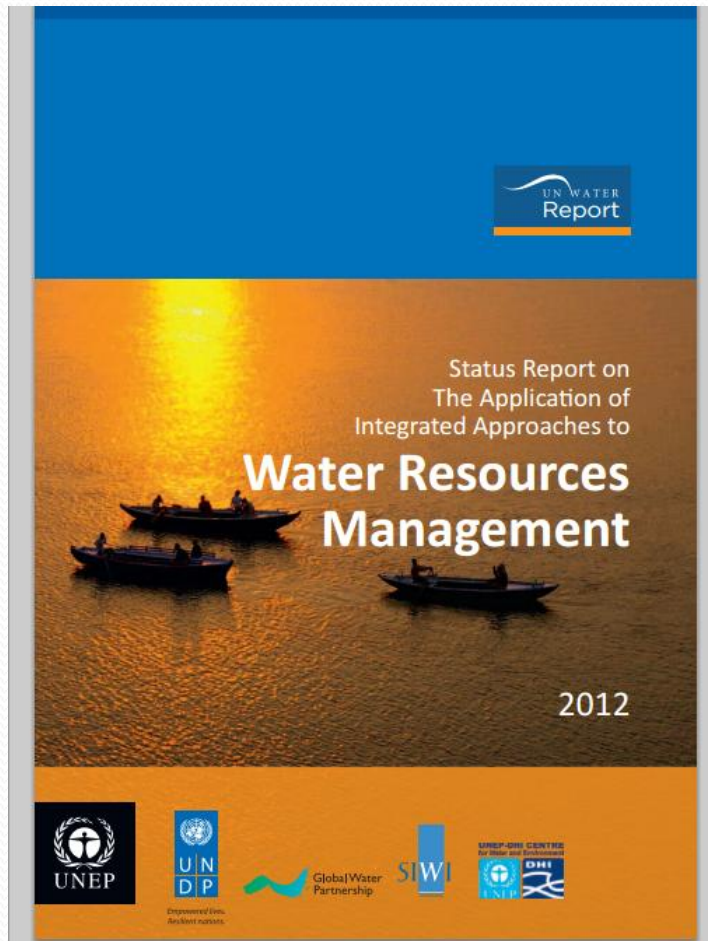


IWRM requires that platforms be developed to allow very different stakeholders, often with apparently irreconcilable differences to somehow nonetheless work together.

Because of the existing institutional and legislative frameworks, implementing IWRM is likely to require reform at all stages in the water planning and management cycle.

Implementation of IWRM is best done in a step-by-step process, with some changes taking place immediately and others requiring several years of planning and capacity building.

Benchmarking IWRM progress



IWRM process is worldwide recognised as a highly valuable tool. But the way it is implemented may be very different according to region and countries.

The most recent and exhaustive worldwide survey is likely the “*Status Report on The Application of Integrated Approaches to Water Resources Management – UN Water 2012*”.

134 countries have contributed to this survey (5 on 6 the countries in the Mekong river basin have contributed, the exception being Lao PDR !...)

It shows some key fact findings about evolution of IWRM in terms of implementation

Water Governance is improving and having impact on the ground

**sustainable
and
equitable
water use**

“One of the greatest challenges of the 21st century is governance of water, in a manner that ensures its sustainable and equitable use” (India)

**Better Governance,
public
participation and
dissemination of
planning process**

“Better governance, public participation and dissemination of the planning process and the implementation of the Policy instruments are recognized as major advances in the legal and institutional structure” (Brazil)

**valuing water or
water dependent
ecosystems &
implement water
use efficiency
measures**

“Implementation of the various management instruments for development, management and use of water resources in Uganda is fairly advanced. However, the challenges faced relate to valuing water or water dependent ecosystems as well as employing water demand and water use efficiency measures.” (Uganda)

**Strong Legal
framework and
Law
enforcement
on a regional
basis**

European countries have also been adopting integrated approaches to water resources management and adjusting water policy, water legislation and plans, driven by international agreements (EU Water Framework Directive)

Water management institutions becoming more effective

the coordination between the organizations (government, civil society and the private sector) needs to be strengthened

Involvement of public and NGOs in different stages of elaboration of the river basin management plans was improved and made the plans more realistic

...structures are most effective at the lower level and so should be built from the bottom up

...there is still room for improved dialogue between the water resources and agricultural sectors e.g clarity over watershed management roles...

“The institutional frameworks for water resources management are in place but the coordination between the organizations (government, civil society and the private sector) needs to be strengthened, supported by the availability of expertise and resources to pursue effective integration” (Samoa)

“The environmental board with 6 regional offices after the reorganization has solved a lot of problems connected to the implementation of the river basin management plans. Involvement of public and NGOs in different stages of elaboration of the river basin management plans was improved and made the plans more realistic” (Estonia).

Experience shows efficiency gains (Estonia, Samoa), the need for political will and support from community leaders for success (United Republic of Tanzania) but also shows that structures are most effective at the lower level and so should be built from the bottom up (Brazil). “

Increased awareness and a decline in adverse agricultural practices have resulted from improved collaboration with the agriculture sector. There is still room however for improved dialogue between the water resources and agricultural sectors e.g clarity over watershed management roles.” Samoa

Is there really an “integrated approach”?

...one of the most common practical issues arising from the ground is the challenge of integration whether it is reluctance to share information...

Integrated water resources management requires cooperation between various government agencies, and others, with a stake in water. One of the most common practical issues arising from the ground is the challenge of integration whether it is reluctance to share information between ministries or the tendency for resource management and planning to be sector driven (Jamaica, Bangladesh, Armenia, Tunisia, Samoa, China, Jordan).

...the most part of agencies still do not accept the idea of fully “open” data...

“There must be a system of generation and evaluation of data, where all institutions are required to share information.” (Costa Rica). “The most part of agencies still do not accept the idea of fully “open” data. Currently the “data availability” is not widely applied at the government and every department decides on its own whether to exchange data or not” (Armenia).

...integrated approaches arise from mutual trust, appropriate mechanisms and gradual acknowledgement of the benefits...

There are success stories (Uganda, Mozambique flood and drought management, Brazil, Australia) but it seems that integrated approaches do not arise by decree but from mutual trust, appropriate mechanisms and gradual acknowledgement of the benefits. Cooperation at the national level is often more difficult than at the lower levels of basin management and this was recognised by Australia which felt it “necessary to develop a national agenda to encourage a cooperative approach between all tiers of government and various stakeholders.

...it is very important to be specific about the objectives and the roles of all the Administrations involved...

“One consequence of this decentralization process is a lack of coordination between all Public Administrations involved in water management. It means less efficiency in water management and no response to critical issues in this subject. The Spanish experience on decentralization points out that it is very important to be specific about the objectives and the roles of all the Administrations involved.”

Stakeholders have more influence – but not yet enough?

...evidence emerged that stakeholder involvement leads to improved outcomes ...

Evidence emerged that stakeholder involvement leads to improved outcomes (Bangladesh, Brazil, Estonia, Ghana, United Republic of Tanzania) but getting it right is not easy (Australian indigenous communities; Brazil, Cambodia). Any stakeholder involvement may be a threat to existing power relations (Pakistan) and limiting participation to a consultative role (Mozambique) rather than a deliberative role (Tanzania) may not be enough.

...improved governance by ensuring people's participation also helped in reducing the yearly operation and maintenance...

"Numerous evaluations on the improved performance of water development projects have concluded that improved governance by ensuring people's participation not only improved the project performance in terms of efficiency and gaining equitable benefits from service area but also helped in reducing the yearly operation and maintenance burden from the implementing agency" (Bangladesh).

...number of conflicts are reported to have decreased...

"The process of empowering the users to participate effectively in the management has just started, in the two basins that are ahead of others there is already general awareness on many issues; people are demanding fair allocation, upstream and downstream are now communicating and policing themselves; number of conflicts are reported to have decreased and willingness to pay user fee is seen in the areas where it was difficult to agree on the concept" (United Republic of Tanzania).

...experience so far has shown that without an adequate strategy there is a tendency to the loss of focus and high transactional costs...

"Specifically, implementing a decentralized and participatory governance system requires consistent strategies to promote effective and knowledgeable participation of communities' representatives. Experience so far has shown that without an adequate strategy there is a tendency to the loss of focus and high transactional costs..." (Brazil).

Capacity challenges need long term commitment

...capacity constraints emerge repeatedly from the interview responses...

Sustainable management of water resources will not be achieved until the required capacity is available among the various actors responsible. Capacity constraints emerge repeatedly from the interview responses (Albania, Armenia, Costa Rica, Guatemala, Bangladesh, Ghana, Namibia, Rwanda)

...the enforcement of the EU (Water Framework Directive) legislation is the main challenge as it requires a number of well trained staff...

“The enforcement of the EU (Water Framework Directive) legislation is the main challenge as it requires a number of well trained staff, both administrative and technical, and appropriate equipment to implement, among others, the river basin management plans. Capacity needs to be significantly reinforced and existing gaps need to be covered.” (Albania).

...implementing a rather complex governance system requires continuous capacity building ...

“Implementing a rather complex governance system such as the one imposed by the National Water Resources Policy Law requires continuous capacity building and strong coordination” (Brazil).

...without sufficient capacity to ensure enforcement and compliance, it is difficult to ascertain the extent to which the management instruments are being effective...

“Without sufficient capacity to ensure enforcement and compliance, it is difficult to ascertain the extent to which the management instruments are being effective. However, the involvement of stakeholders in executing some of the management instruments (e.g. monitoring and revenue collection and WDM implementation) has shown success in some cases” (Namibia).

Recognizing the need for better information management

...the first action to improve the management of water resources was reorganization of monitoring network, data collection and data management...

“The first action to improve the management of water resources was reorganization of monitoring network, data collection and data management on surface and groundwater quality and quantity as well as water abstraction and wastewater discharges. Reorganization enabled to publish every year periodical reports on the status of water resources, water abstraction and wastewater discharges. Also the hot spots were indicated as well as proposals to improve the data collection and water resource management system” (Estonia).

...this database is continuously updated and is in digital on the website of the Directorate of Water. Thus, anyone can access it....

“This database is continuously updated and is in digital on the website of the Directorate of Water. Thus, anyone can access it. However, a majority of people are unaware of such information. Another challenge is the use of this information at the basin level, to take decisions related with water use rights by concession, permits for the location of treatment plants and waste water discharge, etc. This will reduce conflicts over competing uses of water” (Costa Rica).

...information or data sharing should be mandated in the core policies...

“Information or data sharing should be mandated in the core policies, e.g water for life sector policy and further reinforced through formal agreements drawn up between the relevant agencies. Capacity building in data analysis has not been high on the training agenda and should be highlighted for future development programmes” (Samoa)

...many countries have made progress with more coordinated information management

Recognizing the need for better information management Information is the foundation of good decision making and planning. Many countries have made progress with more coordinated information management (Uruguay) and established a national water resources information system with very positive outcomes (Brazil, Estonia, Mozambique (for flood and drought management)

Management instruments put water policy into practice

...in some countries the first step has been to address the lack of basic information ...

In some countries the first step has been to address the lack of basic information (resource base, water quality, users) in order to implement water management systems and apply various management instruments (Cameroon, Estonia) and it is not unusual that monitoring systems are better established than allocation or environmental controls (Jordan).

...several management instruments (e.g. issuing of permits, licensing and monitoring) have been introduced, however; human capacity remains a major challenge...

“Several management instruments (e.g. issuing of permits, licensing and monitoring) have been developed and introduced, however; human capacity remains a major challenge. This results in limited compliance to permit conditions and inadequate pollution control. ... Only 50-60% of permit holders report their abstraction figures” (Namibia).

...water Resources Plans also provide the monitoring and reporting requirements...

“Water Resources Plans also provide the monitoring and reporting requirements to measure progress towards stated outcomes” (Australia).

...if adequate resources are not made available – attitudes and habits will take a long time to change...

“If adequate resources are not made available – attitudes and habits will take a long time to change and enforcement and compliance with regulations can be a severe barrier to water resources management” (Ghana).

Infrastructure development: a lot of investment but more coordination needed

...decisions on infrastructure development continues much as previously with investment in priority development areas ...

Decisions on infrastructure development continues much as previously with investment in priority development areas Agriculture (Sri Lanka, Uzbekistan, Pakistan), Hydropower (Costa Rica), Water and Sanitation (Jamaica, Guatemala, Estonia) while reforms to water resources management processes

...funding is a constraint and integration of water into national investment plans has been one means to ensure support for critical investments...

Funding is a constraint (Uganda, Spain, Jordan) and integration of water into national investment plans has been one means to ensure support for critical investments (Tunisia, Jordan). "It can be easily observed that there have been improvements on the coordination of investment and financing of water-related projects through a creation of common fund for water investment." (Mozambique).are ongoing

...mainstreaming of water considerations into other sectors' plans will assist with increasing the available financing through cross-sectoral activities...

"Further mainstreaming of water considerations into other sectors' plans (like environment, agriculture) will assist with increasing the available financing through cross-sectoral activities" (Jordan).

...an integrated approach to the development of multipurpose projects in the design of infrastructure can increasingly be observed...

"Nowadays, an integrated approach to the development of multipurpose projects and the incorporation of climate change impacts in the design of infrastructure can increasingly be observed" (Mexico).

Payment for water resources management: some way to go

...varying degree of success, mainly due to legal, institutional and bureaucratic restrictions...

“At the basin level, there are only a few cases where water tariffs were implemented, with varying degree of success, mainly due to legal, institutional and bureaucratic restrictions that are still requiring efforts to ensure the full application of this instrument.” (Brazil).

...it is acknowledged that three out of five river basin organizations show positive increases on their revenues...

It is acknowledged that three out of five ARAs (river basin organizations) show positive increases on their revenues, and this is mainly due to: i) investments in water infrastructure which has attracted more development investments; ii) increasing registration of water users in the basin organizations' jurisdictions; iii) water users have been strongly sensitized on the economic value of water and the need to pay in line with the current water legislation; and iv) the revision of water tariffs” (Mozambique).

...the country has taken a step further and defines that this funding should be linked to resource protection...

Costa Rica, took the step of allocating 50% of revenues from water use charges to protecting the resource. “In Costa Rica in the last 60 years there has been a charge for water use, and has increased the fee for water use, resulting in an increase over 1000%. The country has taken a step further and defines that this funding should be linked to resource protection, so the Ministry approved that 50% of these funds will be used to protect water resources, in the public and private protected areas of the country.” (Costa Rica).

...the low level of revenue generation is cited as one reason for the lack of financial resources...

The low level of revenue generation is cited as one reason for the lack of financial resources and the need to rely on government budgets (e.g. Pakistan, Namibia) and this also extends into the problems with O&M due to lack of funds (e.g. Namibia, Ghana) and the frequent need for replacement infrastructure (e.g. Jamaica).

Improved water resources management and development has had great impact

...efficiency gains in terms of water use/unit of GDP...

China reported 90% efficiency gains in terms of water use/unit of GDP as well as integrated system for urban flood control, wastewater discharge, water source protection and water environment

...new governance processes and improved coordination has been implemented across government agencies...

Mexico reported many accomplishments including a comprehensive legal system, a national water authority, a functioning water rights system, and incipient water markets; New governance processes and improved coordination has been implemented across government agencies in Brazil with a strong role for stakeholders;

...stakeholder participation has resulted in greater commitment to improved water resources management...

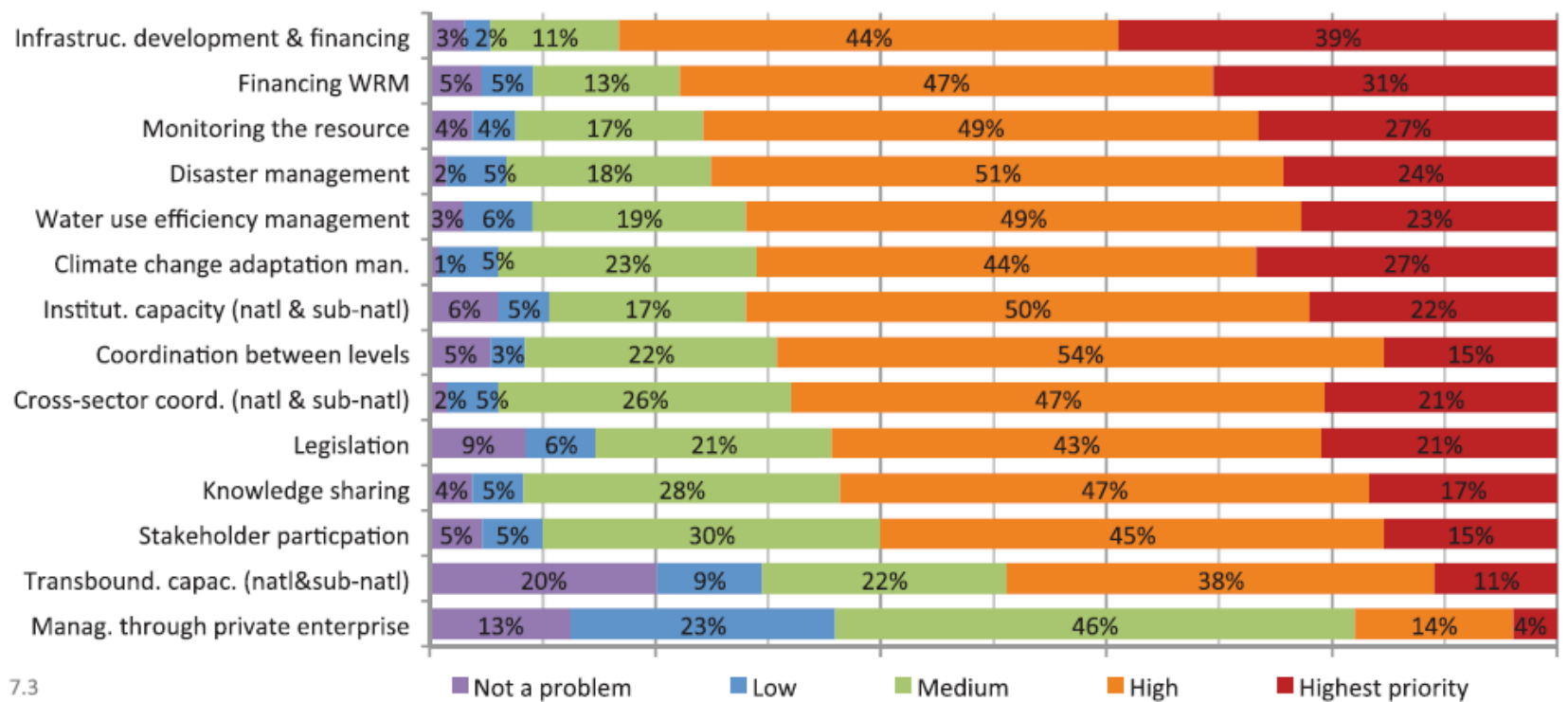
In Mozambique and Estonia stakeholder participation has resulted in greater commitment to improved water resources management; Private sector involvement has brought increased financial flows in Armenia and Mozambique

...water use efficiency has improved with system losses reducing from 30 to 17% in Estonia...

Many countries reported improved access to water supply, including Albania, Armenia, Benin, Cap Verde, Ghana, Guatemala, Jamaica, Namibia, Samoa, Tunisia, and Uganda; Wastewater management reforms in Spain have reduced costs; Water use efficiency has improved with system losses reducing from 30 to 17% in Estonia;

IWRM : Key global management challenges...Present Priorities

Survey of 134 countries worldwide

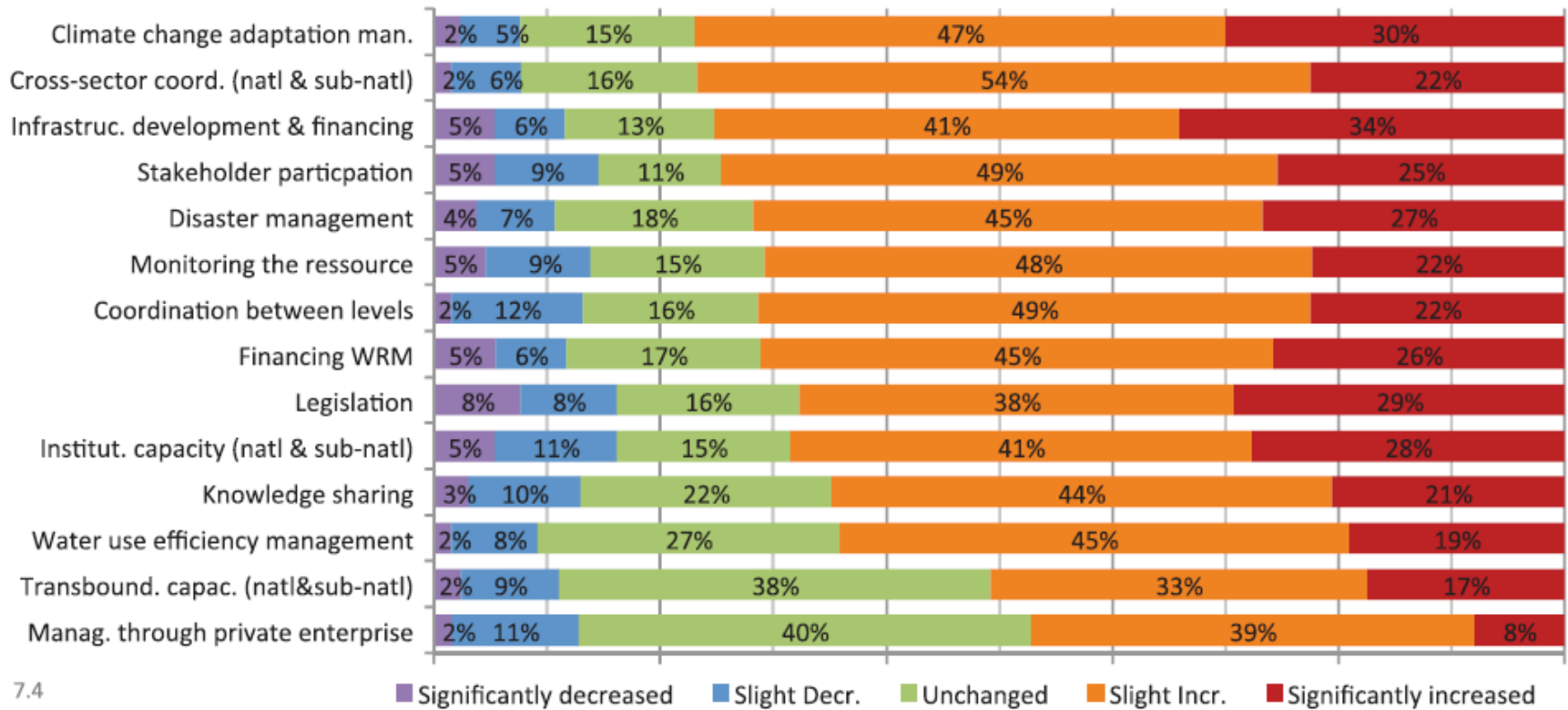


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Source : Status Report on The Application of Integrated Approaches to Water Resources Management – UN Water 2012

IWRM : Key global management challenges...Evolution of priorities over the last 20 years...

Survey of 134 countries worldwide



Source : Status Report on The Application of Integrated Approaches to Water Resources Management – UN Water 2012

Some key findings...

IWRM is worldwide recognised as a useful tool for better water resources management



Nearly all countries in the world have integrated this tool as core part of its water policy



However IWRM implementation is a complex process made of success stories and less successful stories



Priority given to the different IWRM management tools vary from a country to another



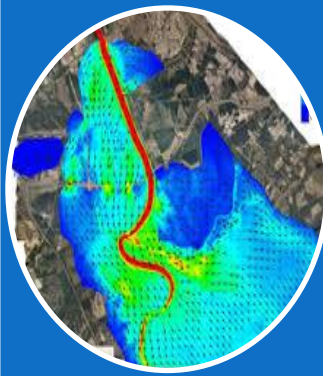
Capacity Building and Training : One of the way of classifying the IWRM Topics...



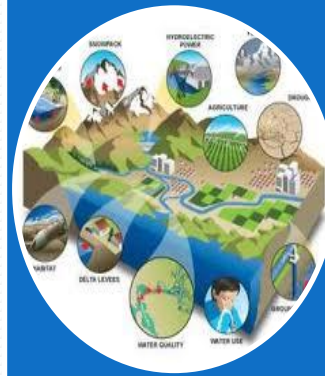
Policies,
strategies,
legal
framework



Water
resources
knowledge



Decision
Tools



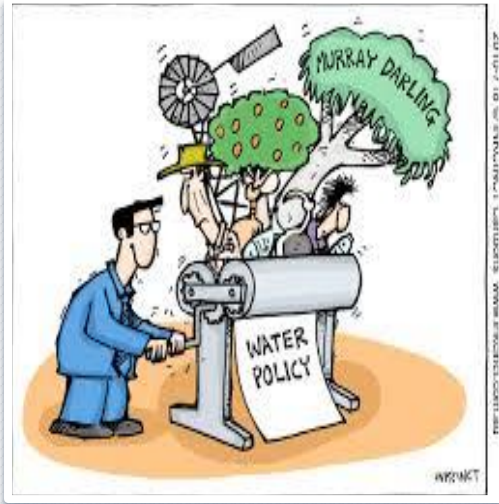
River Basins
Management



Ensuring
Water
Security



IWRM Topics :Policies – Strategies – Legal Framework



Public Policy & Strategy Analysis

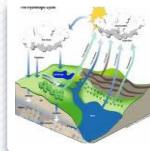
- Economic Analysis Tools

Water Law

- International & legal documents review
- Legal & Regulatory aspects in NRM



IWRM Topics : Water Resources Knowledge



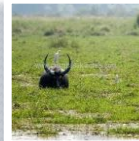
Hydrologic Cycle
Monitoring

Water Quality
Management



Groundwater
knowledge &
monitoring

Wetlands and
Environmental
Flows River Ecology



Water resources
related Data Bases

Sharing knowledge
(Internet and Social
Platforms)



IWRM Topics : Decision Tools



Develop analytic approaches - scenarios

Mainstreaming IWRM in Sectors planning - EIA/SEA Tools

- Hydropower Development
- Mining Development
- Land use changes
- Navigation



Modelling Tools

IWRM Topics : Integrated River Basin Management

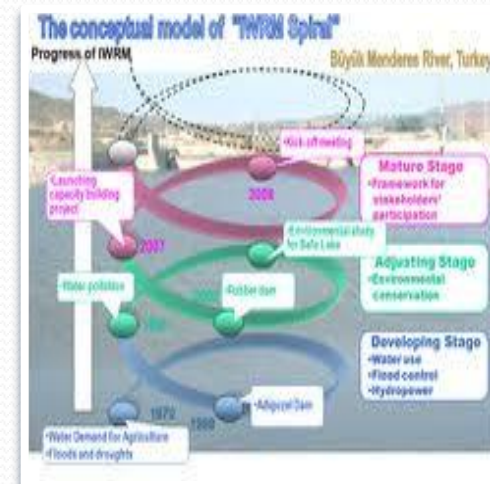


Coordinating the Water Dialogue

- Stakeholders Development & Involvement
- Capacity Building & Awareness
- Gender Mainstreaming
- Water & Poverty
- Conflict Management & Resolution
- Communication skills (Water Leadership)

Coordinating the River Basin Management Plan

- Basin Profile
- Planning Tools for implementation (Road Map & RBP)
- Mainstreaming RBM in Socio-Economic Development Plans
- Multisectorial Coordination & Cooperation
- Transboundary RBM additional challenge



IWRM Topics : Ensuring Water Security



Securing Water Demand
Managing drought risks
Climate change mitigation & adaptation

Integrated Flood Risk Management
Climate change mitigation & adaptation



Water Quality Risks Management

This training ...Where we are ?...

IWRM Basic Training

Understand the IWRM Framework

Understand the RBM Framework

Understand Water Resources Knowledge & Basins Profiles



Policies – Strategies – Legal Framework

Public Policy & Strategy Analysis

Water Law

RBM

Coordinating the Water Dialogue

RBM – Coordinating RBMP

Water Resources Knowledge

Hydrologic Cycle Monitoring

Water Quality Management

Groundwater knowledge & monitoring

Wetlands and Environmental Flows River Ecology

Water resources related Data Bases

Sharing knowledge (Internet and Social Platforms)

Water Security

Securing Water Demand – Water Safety - Drought risks management & related Climate change mitigation & adaptation

Integrated Flood Risk Management & related Climate change mitigation & adaptation

Water Quality Risks Management

Decision Tools

Develop analytic approaches - scenarios

Mainstreaming IWRM in Sectors planning - EIA/SEA Tools

Modelling Tools

Think about it ...



What is the general attitude towards integrated water management in Lao PDR and what sectoral barriers have to be taken before IWRM can be implemented?



Considering the government structures in Lao PDR, what institutional and legal reforms are needed to implement IWRM and what are the requirements to make it effective?



What are the main sectors involved in the exploitation of water resources in Lao PDR and what are the interactions between these sectors?

How are men and women affected differently by changes in water resources management?



Is there an urgency to manage water resources in an integrated manner and how is this best done? What will be the benefits for the different sectors?

Examples of online IWRM capacity building tools



Global Water Partnership (<http://www.gwp.org/>)

- Toolbox with numerous case-studies



Cap-Net (www.cap-net.org)

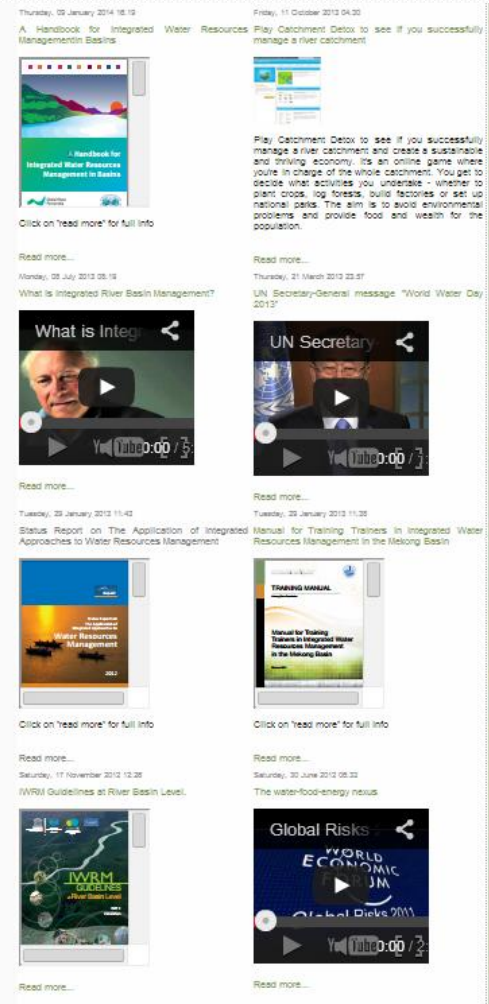
- Training and capacity building resources



riversnetwork.org (www.riversnetwork.org)

- Case studies classified by river basins and by IWRM topics

Manuals – Guidelines - Videos



Various resources may downloaded at :

<http://www.riversnetwork.org/rbo/index.php/education/river-basins-a-watersheds-management>

<http://www.riversnetwork.org/rbo/index.php/education/water-conflictswater-security>

<http://www.riversnetwork.org/rbo/index.php/education/groundwater>

Thank you...

