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UNESCO-IHE CD Symposium

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**Article on “Global Assessment of IWRM Progress”**

**1. Introduction**

“Integrated Water Resources Management (IWRM) is a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems” as per Global Water Partnership’s definition (2000). Therefore, IWRM is a building block of Sustainable Development.

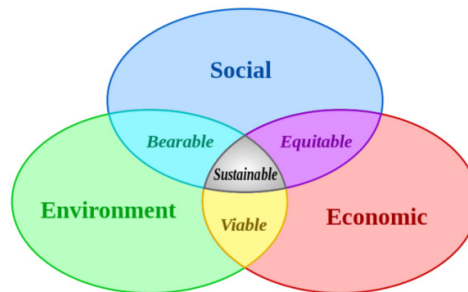


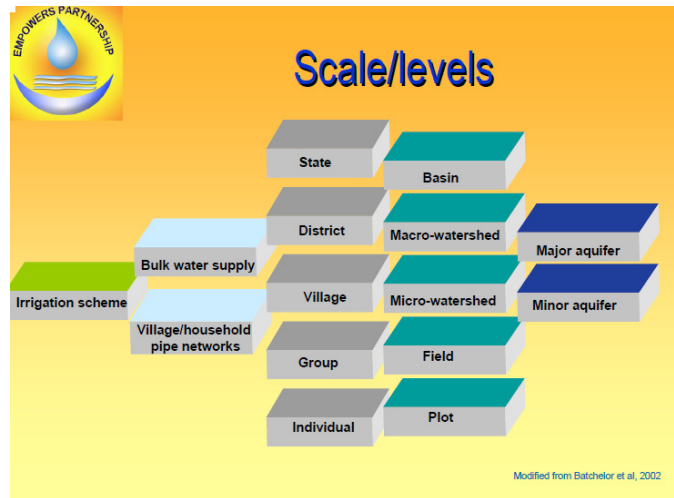
Fig. 1. Venn Diagram of Sustainable Development

Since the Rio Conference in 1992, many actions have been taken to implement IWRM programmes, projects, activities all over the world. Most of the international programmes outputs are given at <http://www.un.org/waterforlifedecade/iwrn.shtml> (United Nations) and <http://www.iwrn-net.eu/node/14634> and <http://www.aquaknow.net/> (European Commission). After two decades, the recent releases of the *Handbook on IWRM of Transboundary River Basins, Lakes and Aquifers* by INBO/GWP/UNECE/UNESCO/GEF/AFD and *Water Security and Climate Resilient Development* by the African Union/AMCOW/GWP and the recent completion of the *African Monitoring of Environment for Sustainable Development Programme* (AMESD) of the African Union and the European Union towards a *Global Monitoring of Environment and Security Programme-Africa* (GMES-Africa) and the forthcoming completion of the Water Sector Reform in Rajasthan (European Union-Government of India), the time has come to assess the progress made and to learn lessons for ensuring more future success stories.

## 2. IWRM implementation

There are four different levels of IWRM implementation.

- Transboundary river basins, lakes or aquifers (case of River Basin Organisations)
- National level (case of all countries preparing IWRM plans)
- River basin, lake or aquifer level (within a country)
- Local level involving decentralized local authorities and communities



## 3. Lessons learnt

There are a few elements which are limiting the speed of IWRM implementation all over the world, among which:

- The lack of understanding of the concept
- The lack of knowledge of the expected IWRM outputs and benefits
- The implementation of only part of the concept
- The dependency on politics, economics and social development
- The resistance to change

These limiting factors can be reduced by capacity development approaches:

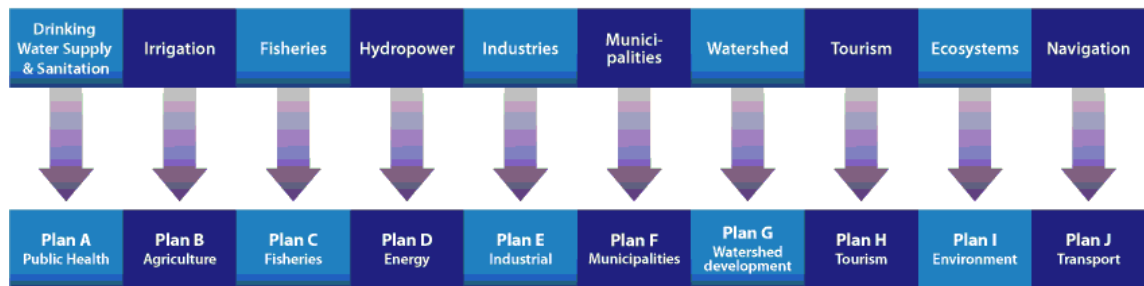
IWRM implementation is also the opportunity for:

- Women participation in water management
- Marginalised groups participation in water management
- Achieving Millenium Development Goals (MDGs)

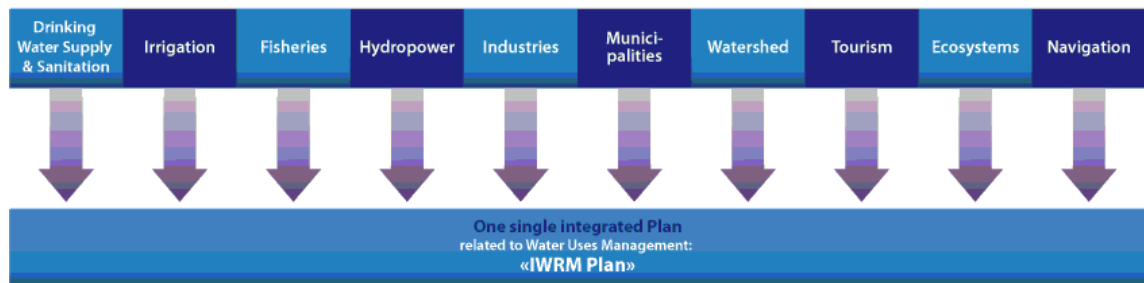
### a. Lack of understanding of the concept

The sectoral water resources management limitations can be explained by two simple diagrams showing the sectoral approach (before IWRM) versus the integrated approach (after IWRM).

## SECTORAL WATER RESOURCES MANAGEMENT



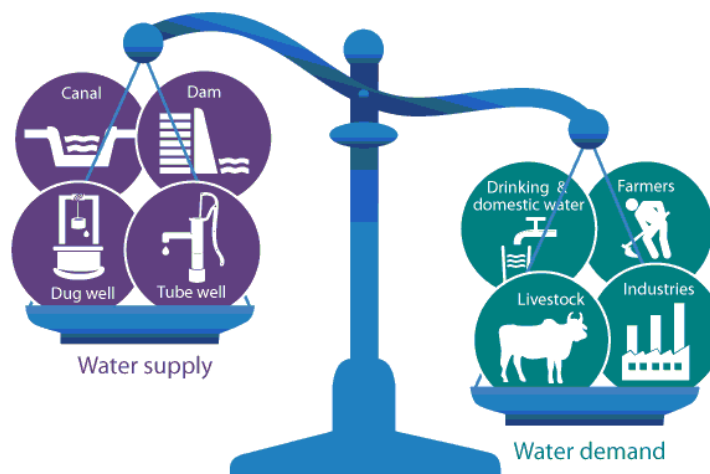
## AFTER INTEGRATED WATER RESOURCES MANAGEMENT (IWRM)



### b. Lack of knowledge of expected IWRM outputs and benefits

Rajasthan undertook a demand-supply gap analysis of its water resources and identified a 9 billion cubic meter gap in 2015, increasing to 9.4 in 2045.

### WATER DEMAND-SUPPLY GAP (case of Rajasthan, India)



Except few regions like SADC which undertook Cost-benefits analyses of all their water uses by country, most of countries limit their IWRM implementation to an integrated plan sometimes implemented, sometimes not implemented.

In addition, potentials of benefits sharing among riparian countries of a transboundary basin (developed by Fady Hamadé, BRL Ingénierie) are not known by decision-makers worldwide and therefore not applied in practice to share water resources more equitably, avoiding conflicts over them.

c. Part of IWRM concept applied

Most of the transboundary river basin organisations and countries have prepared their IWRM action plan with priority measures to be implemented. However, the economical and social analyses are often lacking. Murray Darling River Basin in Australia is a good example where these studies have been conducted.

d. Dependent on politics, economics, social development

Politics, economics and social development are interfering with IWRM implementation. Indeed, stakeholders and public participation requires some levels of democracy which are easier in countries like India. Water uses optimization, benefits sharing and virtual water trade are economic tools for implementing IWRM and getting some visible outcomes at ground level. The goal of equity in access to safe drinking water and basic sanitation as well as regarding irrigation has some impacts on social development.

e. Resistance to change

Water uses-related Ministries are very often unwilling to change their planning as they fear they will lose control over their sector planning. Only after key decision-makers have understood the IWRM concept and expected outputs, then the civil servants will adopt the required change of behavior. This attitude is slowing the progress of IWRM implementation worldwide. Annex 1 is summarizing the institutional framework for water resources management in Africa.

f. Women participation in water management

Women are daily drawing water up to 68% of the total population in Rajasthan (India). They are represented at Gram Panchayat (communal) level as Auxiliary Nurse Midwife (ANM) in charge of water quality monitoring and Angawadi in charge of pre-schooled children care. Some women can even be nominated Sarpanch (Mayor) but their role is

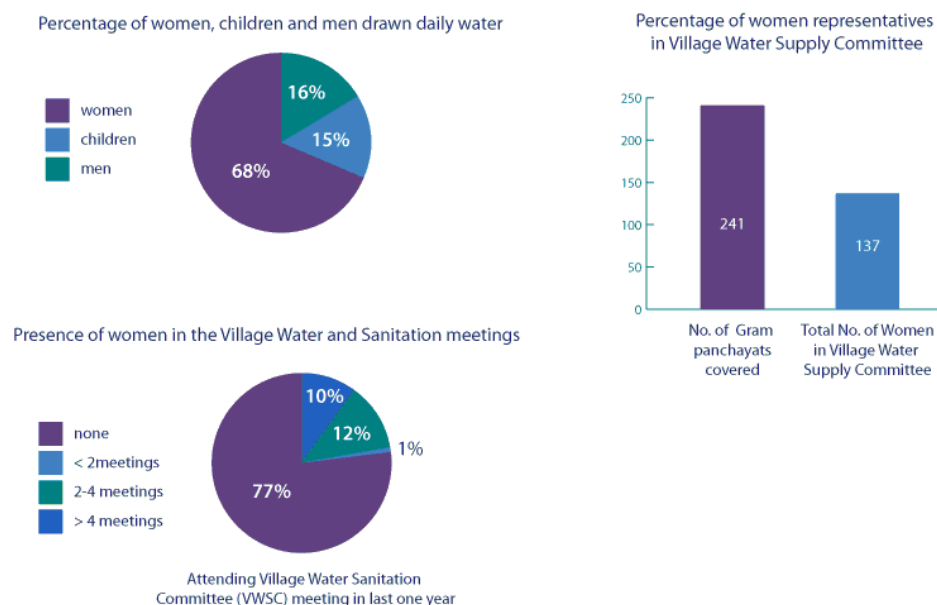


often hiding their husband interventions. At Block (cantonal) level, they are sometimes given the role of Block Development Officers (BDO as in the picture) but with lower power than their male counterparts. At State level in Rajasthan, few women are found as engineers and none at Executive and Chief Engineers', Principal Secretaries' and Chief Minister's positions.

Water management is an area where women can be empowered as they have very different concerns and attitudes than men. Usually, they sought individual household connexion for drinking water supply to avoid losing time fetching water daily. Farming

women also proposed that power supply for irrigation could be limited from 5 to 3 hours daily so that wastage of groundwater may be reduced and therefore groundwater resources used more sustainably below the annual monsoon recharge level which requires a groundwater budgeting tool such as the one adapted for the EU State Partnership Programme-Rajasthan.

### WOMEN PARTICIPATION IN RURAL WATER MANAGEMENT IN RAJASTHAN, INDIA



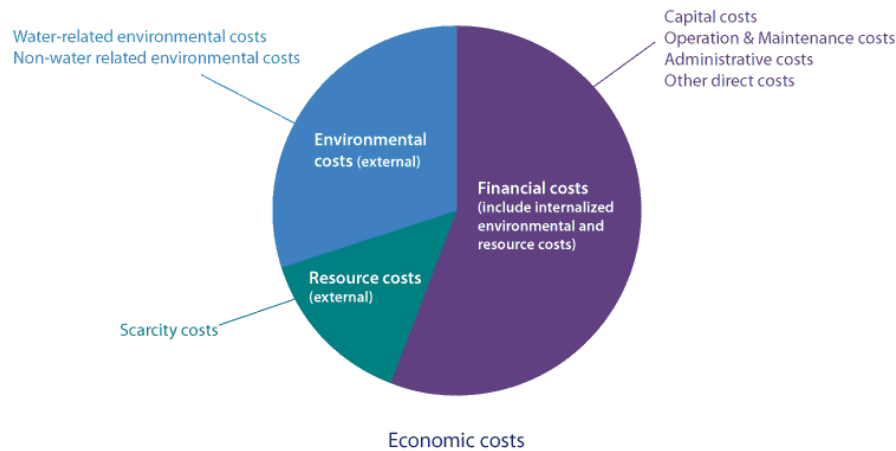
#### g. Marginalised groups participation in water management

The Government of India and European Union programme on the Water Sector Reform in Rajasthan mobilized at a large scale Scheduled Casts and Schedules Tribes as well as the poorest members of the communities in 3,182 communes.

#### h. Economic value of water

The fourth Dublin principle of the IWRM approach is far from being implemented. Even if financial costs of water supply systems are charged, resource (lowering level of groundwater, etc) and environmental (pollution, biodiversity loss, etc) costs are not always taken into account.

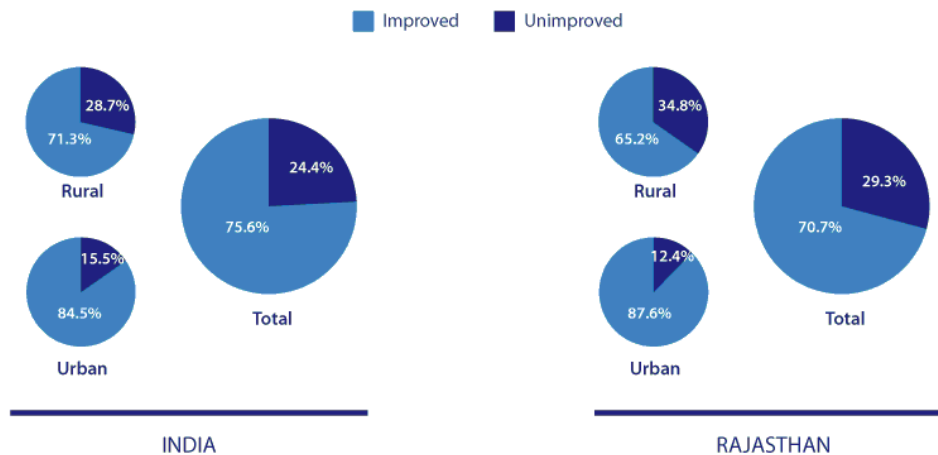
## WATER IS AN ECONOMIC GOOD



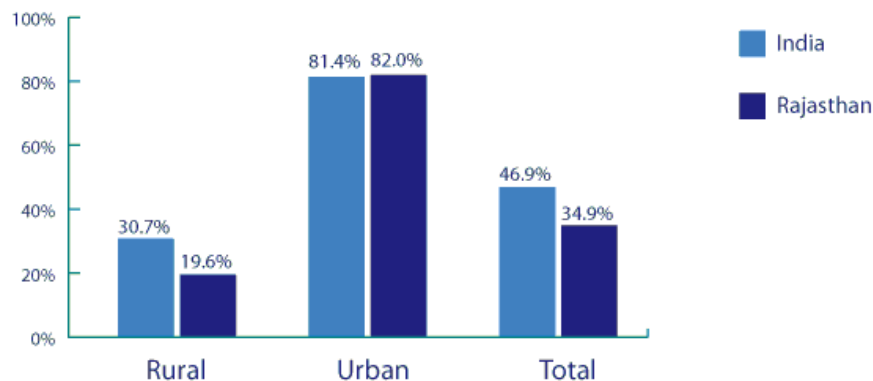
### i. IWRM and MDGs

IWRM implementation can be linked with Millenium Development Goals (MDG 7 related to Environmental Sustainability) achievements, that is halving population without access to safe drinking water and basic sanitation by 2015. This link is often forgotten and IWRM progress indicators do not relate to MDGs. Moreover, sometimes IWRM (the integration of all water uses) is opposed to the water supply and sanitation sub-sector (one of the water uses).

## PERCENTAGE OF HOUSEHOLDS BY IMPROVED AND UNIMPROVED SOURCE OF DRINKING WATER SUPPLY FACILITY, 2011



## PERCENTAGE OF HOUSEHOLDS HAVING LATRINE, INDIA AND RAJASTHAN, 2011



### 4. Conclusion

There has been a tremendous concerted efforts of the United Nations, the European Commission and global networks such as INBO, IWMI and GWP to put the concept of IWRM into practice since the UNECE Dublin Conference in 1998.

In practice, lack of understanding of the concept, lack of knowledge of expected IWRM outputs and benefits, implementation of only part of the IWRM concept, dependancy on politics, economics and social development, resistance to change, and often limited women and marginalized groups participation in water management are still limiting the successful progress of the concept.

However, some success stories can be highlighted here such as the Water Sector Reform of Rajasthan State in India by the European Commission for which 3,182 communes have been actively participating in IWRM planning with the mobilization of women and marginal groups of the communities and where IWRM implementation is ongoing focusing on socio-economic indicators.

### 5. References

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# ANNEX 1. INSTITUTIONAL FRAMEWORK FOR WATER RESOURCES MANAGEMENT IN AFRICA

