

**IWRM and Ecosystem , the Gap between Theory and Application
(Jordan River Basin Case)**

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Paper Objectives

This paper presents the need to consider ecosystem as an essential element in the IWRM and not duplication. However, the main issue here is not the in the concepts but rather in the application.

The IWRM for Jordan River Basin is used as an example to demonstrate the gap between theory and application.

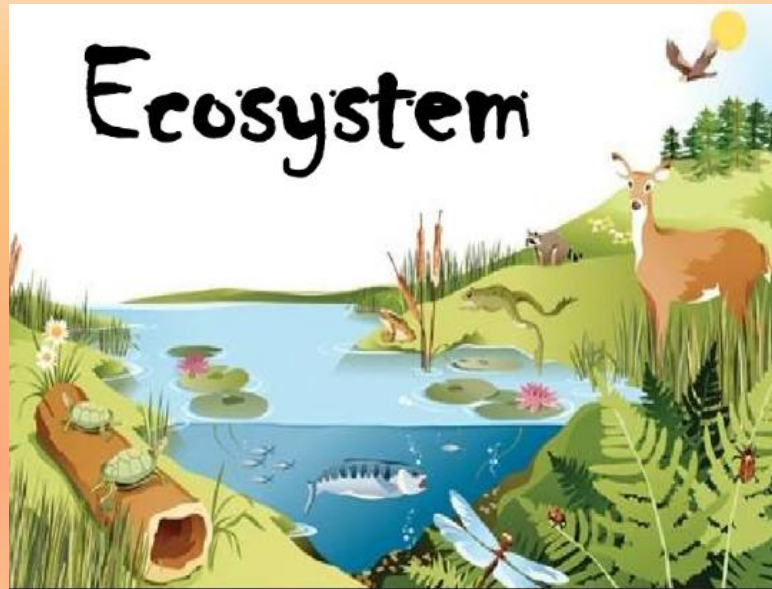
IWRM Definition

The Global Water Partnership's definition of IWRM is widely accepted. It states that '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.'

ECOSYSTEM

In nature, ecosystems is an area formed from :

- water,
- soil,
- animals,
- plants,
- climate,
- light,
- air,
- species



It can be small in size like pond or large in size like river, lake, or forest or desert.

IWRM vs ECOSYSTEM

IWRM form the strategies and actions to protect key element in the ecosystem which is the water.

This make it clear that there is no competition or duplication between IWRM and Ecosystem but rather complementary to each other.

Gap

The problem here is not in the IWRM and Ecosystem concepts and interrelation

but rather

in the application part where the IWRM plans do not consider the ecosystem in all its elements but focus on one or some part only and ignore the others.

Benefits of IWRM and ECOSYSTEM Integration

- Biodiversity benefits and increased resilience to extreme climate events such as floods and droughts, which would complement more traditional benefits such as hydropower and navigation.
- It covers an essential part related to compensations of resulted damage or impact in the failure of services related to any element of ecosystem.
- It encourages incentives and markets for managing and providing healthy and sustainable ecosystems, and addressing drivers of ecosystem change more systematically.

Jordan Basin Case

- The Ministry of Water and Irrigation (MWI) in Jordan had developed an Integrated Water Resources Management (IWRM) system for the Jordan River basin (Jordan Valley). The system focus was on how to increase the water availability and water quality in the catchment area of the Jordan Valley without endanger vital ecosystems and social and economic conditions.
- The Jordan Valley area is characterized by extreme water shortage, over-exploitation of the groundwater resources as well as fast increase in population. The rate of water abstraction from the aquifers is much higher than the amount of groundwater recharge leading to decreasing groundwater levels and dried up well systems. The surface water system affected by both local conditions such drop in rainfall and regional conditions such as transboundary conditions with Israel and Palestinians.



The IWRM goals for Jordan Basin were;

- Include all water resources, minimize quality degradation and maximize efficiency
- Consider & evaluate specific social, economical and ecologic conditions & impacts of water resource development options
- Identify the benefit and applicability of alternative technologies for sustainable water usage
- Increase the understanding of the hydrological system of the Jordan Valley

As shown above the goals covered only part of the ecosystem elements (water, quality, ecological conditions, impact of water resources development , sustainable water usage) . Other elements such as soil, climate, animals, biodiversity, floods protection were not covered.