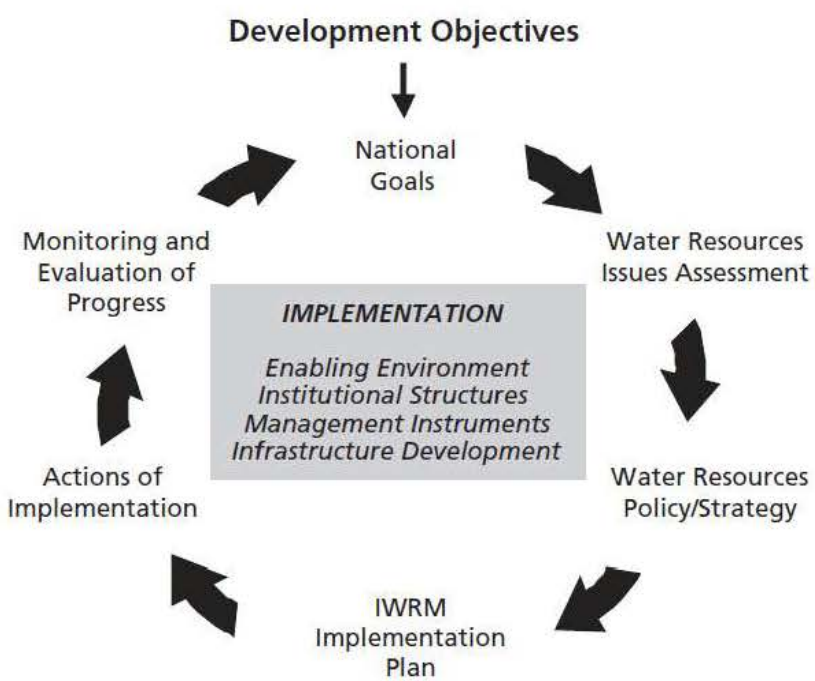
collected in natural or man-made spaces, such as rivers, reservoirs, swamps and marshes. These have been important to societies throughout history as sources of drinking or cleaning water, communications networks and natural defences.

Nowadays, the quantity of water required for consumption, agriculture and industry is higher than ever before, and increasing. However, the quantity of water available for use is reducing. This situation has caused an increase threat of drought and water shortages. It is therefore crucial to manage water resources carefully and efficiently to minimise water shortage problems.

The International Decade for Action 'Water for Life '2005-2015' has recently come to an end and the world has come to a realisation of the need to 'apportion diminishing supplies between ever-increasing demands'. (United Nations Department of Economic and Social Affairs (UNDESA). October 2016] The accepted international model for this is a holistic approach: Integrated Water Resource Management (IWRM) (Figure 1). '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'. (Hassing, J., Ipsen, N., 2009) The crucial objective of water resource management is sustained yields. (Jaroensin, A., 2000)