

## ◉ Prior Appropriation

- This doctrine evolved as a result of the failure of the riparian doctrine to meet modern challenges of allocating water equitably. This gives room of access to water for land owners who are not located in close proximity to the stream. Water is appropriated based on the principle of “first in time, first in right”

## ◉ Groundwater Law

- Under the common law, rights to groundwater are inherent in the overlying property; the owner of this property is free to abstract the water. This can only hold if the groundwater resource is vast, but if the water is inadequate to meet all needs problems will emerge and this often lead to court cases which brought about decisions that tends towards the doctrine of reasonable use.

## ◉ National water policy

- ◉ The nation’s water sources are under serious threat from inadequate catchment management and widespread pollution, including the indiscriminate disposal of hazardous substances.
- ◉ The National Water Resources Policy aims at providing a framework for addressing these challenges in order to achieve the following:
  - Clear and coherent regulation.
  - Clear definitions of the functions and relationship of sector institutions.
  - Coordination Finds solution to the problem of dwindling funds.
  - Reliable and adequate data for planning and projections.
  - Decentralization in order to boost efficiency, performance and sustainability.
  - Autonomy of water supply agencies.
  - Regard water as an economic good.
  - Create public awareness about water conservation and management.

## ◉ Integrated Water Resources Management (IWRM)

- At its simplest, integrated water resources management is a logical and appealing concept. Its basis is that the many different uses of water resources are interdependent.
- High irrigation demands and polluted drainage flows from agriculture mean less freshwater for drinking or industrial use; contaminated municipal and industrial wastewater pollutes rivers and threatens ecosystems; if water has to be left in a river to protect fisheries and ecosystems, less can be diverted to grow crops.
- There are plenty more examples of the basic theme that unregulated use of scarce water resources is wasteful and inherently unsustainable.

◉ Integrated water resources management is therefore a systematic process for the sustainable development, allocation and monitoring of water resource use in the context of social, economic and environmental objectives.

◉ A meeting in Dublin in 1992 gave rise to four principles that have been the basis for much of the subsequent 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 policymakers 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 as well as a social good.*

## ◉ Suggested Text Books:

- Manual of Individual and Non-Public Water Supply Systems. United States Environmental Protection Agency. EPA 570/9-91-004
- Water Measurement with Flumes and Weirs. Publication 58. International Institute for Land Reclamation and Improvement (ILRI), Netherlands
- Smart Water Harvesting Solutions. Netherlands Water Partnership.
- Design of Small Dams, Bureau of Reclamation , United States Department of Interior. 3<sup>rd</sup> Edition 1987
- Integrated Water Resources Management Plan. Training Manual and Operational Guide. CAPNET, GWP, UNDP
- Hydrologic Analysis and Design. 2<sup>nd</sup> Edition by McCuen R.H. Patience Hall Publishers.
- Groundwater Hydrology. US Army Corps of Engineers. EM-1110-2-1421.