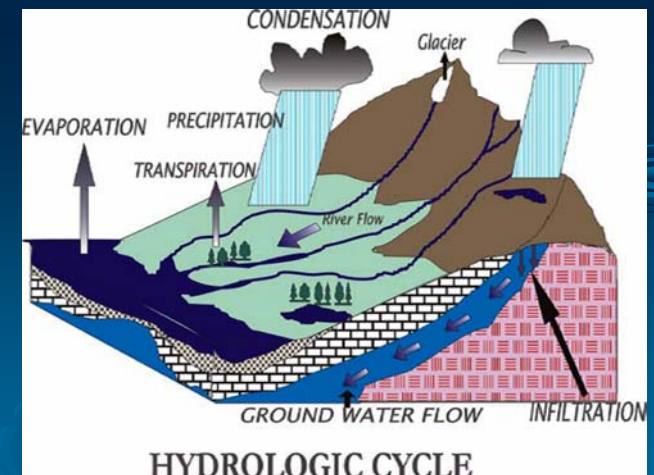
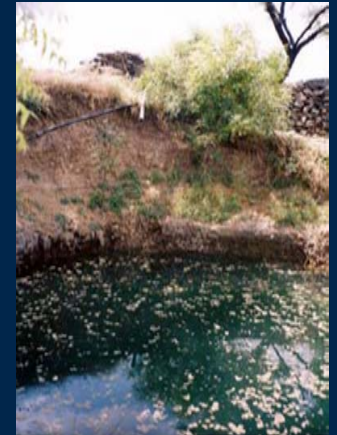


Planning and Management of Groundwater



Groundwater is a resource

- Part of a larger system of water resources – HYDROLOGICAL CYCLE
- Part of a larger system – ENVIRONMENT
- ENVIRONMENT – made of different components and processes



India and Groundwater

- India is the largest user of groundwater for agriculture, in the world.
- India also has the largest area under groundwater irrigation in the world.



Problem of Groundwater

Development oriented approach

More well
more water

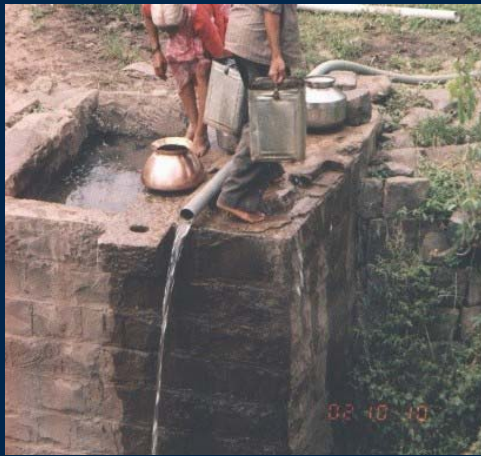
More water over
shorter time period

Supply driven

Wells- Thought to be sources of water rather than mechanisms of tapping a source

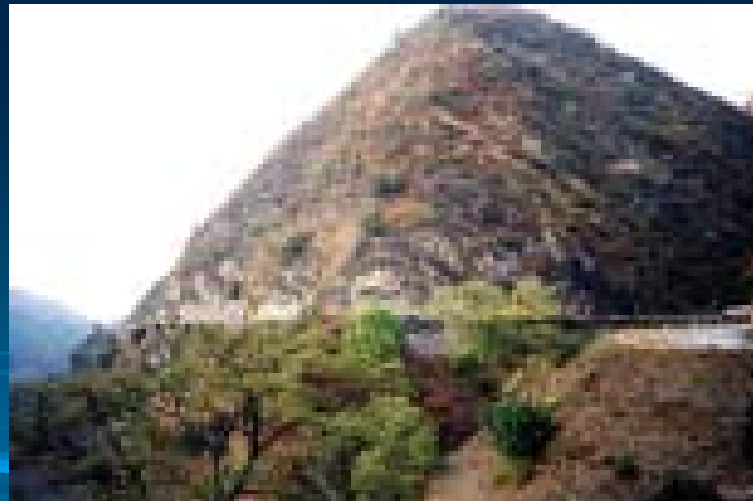
UNSUSTAINABILITY

Hence there is a need for **MANAGEMENT ORIENTED** approach



Management requires

INTEGRATION OF GROUNDWATER DEVELOPMENT + WATERSHED MANAGEMENT (WSM)



Managing Groundwater Involves

- **Understanding the resource** – through Hydrogeology
- **Use of appropriate techniques and technology**
- **Demand Management** – Social Engineering



Integration

- WSM as a lever to achieve groundwater management in over exploited areas.
- Groundwater management as a lever to achieve WSM in groundwater under exploited areas



Supply Management

Ground water Exploration



Resource Capacity to meet demand



Appropriate Technology Selection



Ex. Mechanism of groundwater abstraction to be chosen according to aquifer type

Understanding role of groundwater is important for its management



Processes important for planning

- Science
- Technology
- Community Involvement
- Legislation



Lessons

Plan



Develop groundwater
on the basis of protocols



Manage it through Pilots



Strategies

