

# Contents

---

## Chapter 1

### Water Resources

1.1	Introduction.....	1
1.2	Worldwide Supply, Renewal, and Distribution .....	1
1.3	Indian Water Resources .....	2
1.4	Water Resources of Andhra Pradesh .....	3
1.5	Hydrological Cycle .....	4
1.6	Surface Water .....	5
1.7	Groundwater .....	5
1.8	World Water Resource Distribution .....	9
1.8.1	Surface Water .....	9
1.8.2	Rivers .....	10
1.8.3	Floods .....	12
1.8.4	Drought .....	13
1.9	Use and Over Use of World Water Resources .....	16
1.10	Water Resources-Indian Scenario .....	19
1.11	Water Resources Andhra Pradesh Scenario .....	20
1.12	Methods for Managing Water Resources .....	22
1.13	Solutions : Supplying More Water-Dams .....	24
1.14	Environmental Impacts of Large Dams .....	28
1.15	Major Impacts of Large Dams .....	29
1.15.1	Siltation .....	29
1.15.2	River Load .....	30
1.15.3	Reservoir Induced Seismicity .....	31
1.15.4	Water Logging and Salinity .....	32
1.15.5	Displacement of Population .....	33
1.15.6	High Capital Cost.....	33
1.15.7	Dam Failures .....	33

1.16	Environmental Impacts of Large Dams-Indian Scenario .....	33
1.16.1	Impacts of Irrigation (Water Logging and Salinity) in Massive Irrigation Projects .....	34
1.16.2	Problems Associated Rehabilitation of Displaced People/Tribals due to Major Dams .....	38
1.16.3	Meagre Compensation .....	40
1.16.4	Resettlement Problems .....	41
1.16.5	Rehabilitation Policy .....	42
1.17	Ecologically Sound, Economically Viable Engineering Alternatives to Large Dams .....	44
1.18	River Water Disputes .....	45
1.19	Krishna Water Disputes .....	47
1.20	Water Pollution .....	49
	<b>Questions .....</b>	<b>50</b>

## Chapter 2

### Watershed Management

2.1	Introduction .....	53
2.2	Integrated Watershed Management .....	54
2.3	Watershed Management Technologies .....	54
2.3.1	Appraisal of Resources .....	54
2.3.2	Vegetative and Other Conservation Measures .....	55
2.3.3	Contour bunding/Graded Bunding .....	57
2.3.4	Water Harvesting and Recycling .....	58
2.4	Steps Involved in Watershed Management .....	58
2.5	Integrated Water Resources Management in Andhra Pradesh - Case Study .....	59
2.6	Suggestions for Effective Watershed Development .....	61
2.7	Rainwater Harvesting .....	63
2.7.1	Rain Water as an Alternative Water Resource .....	63
2.7.2	Rainwater Harvesting - Advantages .....	65
2.7.3	How to Harvest Rainwater .....	65

---

2.7.4	Catchment Area .....	66
2.7.5	Run-off.....	66
2.7.6	Storage Tanks .....	67
2.7.7	Rainwater Harvesting for Industrial/ Domestic Purpose .....	67
2.7.8	Industrial usage of Rainwater .....	68
2.7.9	Conduits and Conveyance .....	68
2.7.10	Pre-treatment.....	69
2.7.11	Rainwater for Recharging Groundwater Aquifers .....	71
2.7.12	Recharge Pit for Individual House Plot.....	71
<b>Questions .....</b>		<b>73</b>

### **Chapter 3**

#### **Role of Individuals in Conservation of Natural Resources and Environmental Management**

3.1	Conservation of Natural Resources .....	75
3.2	Role of Individuals in Sustainable Environmental Management .....	79
3.3	Value System and Equitable Resource Use for Sustainable Life System .....	81
3.4	Role of Individuals in Conservation and Prevention of Pollution .....	82
3.4.1	Case Study .....	83
3.4.2	Change Begins from the Bottom up .....	85
3.4.3	Saving Energy and Reducing Outdoor Air Pollution...	86
3.4.4	Earth’s Ten Commandments .....	90
<b>Questions .....</b>		<b>93</b>
<b>MCQs .....</b>		<b>95</b>