

# River Basin Management, Adv.

## Chapter 4 WATER RESOURCES MANAGEMENT

### Water Resources Management

Water resources demand ←Local government (authorize)←Users  
Agriculture, Industry, Hydropower, Water supply (drinking water),  
Fishery, Navigation, Amenity, Ecosystem,....

### Water supply

“water right” (registered) ←*issued by river manager*  
“river maintaining discharge” ←*river manager*  
Traditional water right  
Other purposes (environmental flow)  
“normal flow discharge”=discharge for water rights + river maintaining discharge  
←*river management*

### Supply from river (surface flow)

Normal flow discharge ←Return period=10 years  
Newly developing water ←supply to a river ←Dam construction and operation  
(Reservoir) ↓  
*Multi-purpose dam flood control, hydropower;*  
*water resources, river maintaining discharge*

豊水流量 river discharge is not less than which 95 days in a year  
平水流量 river discharge is not less than which 185 days in a year  
低水流量 river discharge is not less than which 275 days in a year  
渇水流量 river discharge is not less than which 355 days in a year

### History of Water Resources Utilization in Central Japan

Traditional water use by farmers (rice pad)

Large scale development (reclamation) of farm land with large-scale irrigation system

Hydropower

Industrial water

Pumping of underground water → serious land subsidence

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Regulation of pumping + water resources development by dams

↓ (multi-purpose dam)

Urbanization + Increase of population + change of life style

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City water (drinking water)

Current issues: “draught” = demand > supply *in river-discharge level*

Social aspects *life style, higher safety level is needed*

Global aspects (global warming) decrease of precipitation  
Increase of variability of rainfall

↓  
Decrease of water resources safety

↓  
Risk management = “draught management”  
Arrangement among users  
Arranged release from dams

