Water Quality

- 台灣地區河川污染特性
  - 污染來源
    - 工業廢水污染：老街溪、中港溪、大甲溪、北港溪、八掌溪、二仁溪、花蓮溪。
    - 畜牧廢水污染：濁水溪、高屏溪、東港溪、林邊溪。
    - 生活污水污染：淡水河、頭前溪、烏溪、蘭陽溪、秀姑巒溪、卑南溪。
    - 混合型污染：南崁溪、社子溪、後龍溪、大安溪、朴子溪、急水溪、曾文溪、鹽水溪。

Water Quality

陸域地面水體分類分為甲、乙、丙、丁、戊五類，其適用性質如下：

水體分類	適用性質
甲類	適用於一級公共用水、游泳、乙類、丙類、丁類及戊類。
乙類	適用於二級公共用水、一級水產用水、丙類、丁類及戊類。
丙類	適用於三級公共用水、二級水產用水、一級工業用水、丁類及戊類。
丁類	適用於灌溉用水、二級工業用水及環境保育。
戊類	戊類：適用環境保育。

海域地面水體分類分為甲、乙、丙三類，其適用性質如下：

水體分類	適用性質
甲類	適用於一級水產用水、游泳、乙類及丙類。
乙類	適用於二級水產用水、二級工業用水及環境保育。
丙類	適用環境保育。

Water Quality

一、一級公共用水：指經消毒處理即可供公共給水之水源。
二、二級公共用水：指需經混凝、沈澱、過濾、消毒等一般通用之淨水方法處理可供公共給水之水源。
三、三級公共用水：指經活性碳吸附、離子交換、逆滲透等特殊或高度處理可供公共給水之水源。
四、一級水產用水：在陸域地面水體，指可供鱒魚、香魚及鱸魚培養用水之水源；在海域水體，指可供嘉臘魚及紫菜類培養用水之水源。
五、二級水產用水：在陸域地面水體，指可供鰱魚、草魚及貝類培養用水之水源；在海域水體，指虱目魚、烏魚及龍鬚菜培養用水之水源。
六、一級工業用水：指可供製造用水之水源。
七、二級工業用水：指可供冷卻用水之水源。

Planning of Water-Resources Projects

Planning is an important step in the development of a water-resources project.

The planning of project generally involves a political incentive or recognition of need for project.

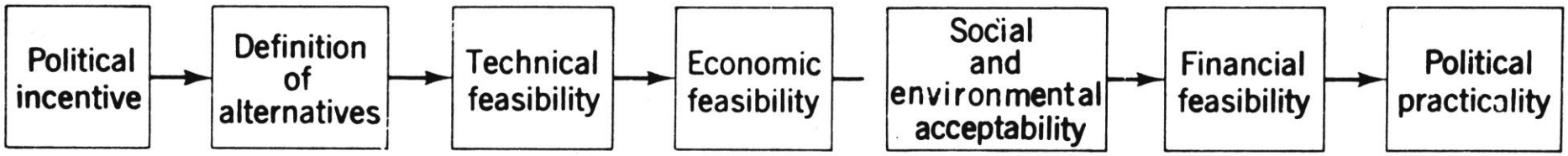


FIGURE 1.1
Steps in planning a water-resources project.

The European Water Framework Directive, an example for water management in national and internationel river basins

- legislative actions since 1975 for
- drinking waters (Directive 80/778/ECE),
- ground-waters (Directive 80/68/EEC),
- fish waters (Directive 78/659/EEC),
- shellfish waters (Directive 79/923/EEC),
- bathing waters (Directive 76/160/EEC),
- different dangerous substances Directives,
- .....
- in total 30 !

The European Water Framework Directive, an example for water management in national and internationel river basins

- expanding the scope of water protection to all waters
- achieving “good status” for all waters by a certain deadline
- “combined approach” of emission limit values and quality standards
- water quantity addressed
- getting the citizens involved more closely
- improved data and information management
- water management based on river basins

The European Water Framework Directive, an example for water management in national and internationel river basins

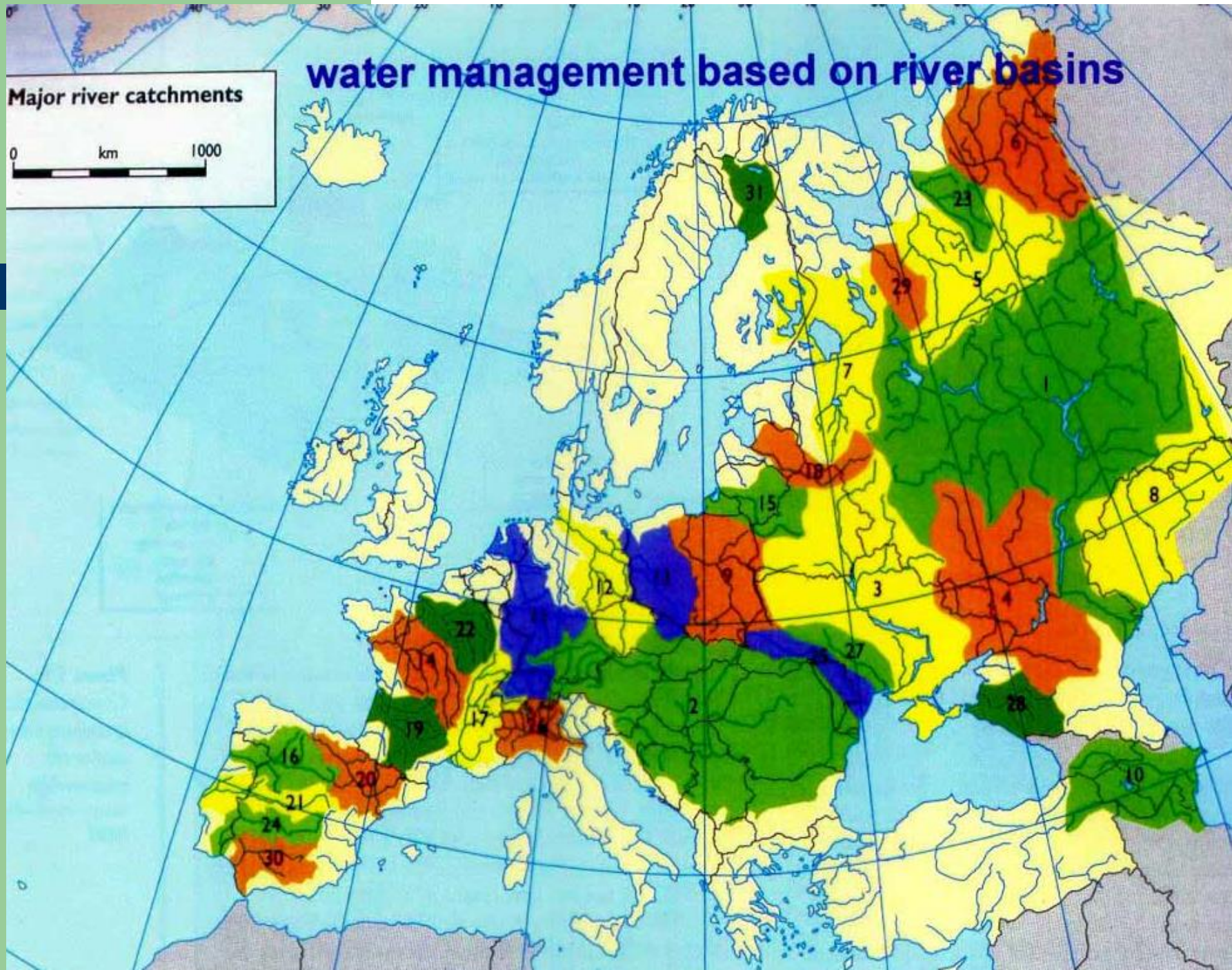
Expanding the scope of water protection

- to prevent further deterioration, and to protect and enhance the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems;

- to promote sustainable water consumption based on the long therm protection of available water resources;

- to contribute to the provision of a supply of water in the qualities and quantities needed for its sustainable use, and

- to aim at enhanced protection and improvement of aquatic environment through specific measures for the progressive reduction of discharges, emissions and losses of priority substances.


water management based on river basins
Major river catchments
0
km
1000
31
23
6
29
5
7
1
18
15
8
12
11
9
3
4
22
27
2
28
19
17
16
20
10
21
24
30

The European Water Framework Directive, an example for water management in national and internationel river basins

Water management based on river basins (1)

- One of the Framework Directive's innovations is that rivers and lakes will need to be managed by river basin – the natural geographical unit – instead of according only to administrative or political bondaries.

- Surface waters and groundwaters belonging to the same ecological, hydrological and hydrogeological system need to be treated as a unit and co-ordinated.

- It seems advisable to combine or join river basins with similar climatic, environmental and socio-economic conditions to form one individual river basin district.

The European Water Framework Directive, an example for water management in national and internationel river basins

Water management based on river basins (2)
River Basin Management Plan

- For each river basin district, some of which transcend national frontiers, a “river basin management plan” is needed to be established.

- This plan will have to include an analysis of the river basin’s characteristics, a view of the impact of human activity on the status of waters in the basin, and an economic analysis of water use in the basin district.

- Within a river basin where use of water may have transboundary effects, the requirements for the achievement of environmental objectives should be co-ordinated for the whole of the river basin district.