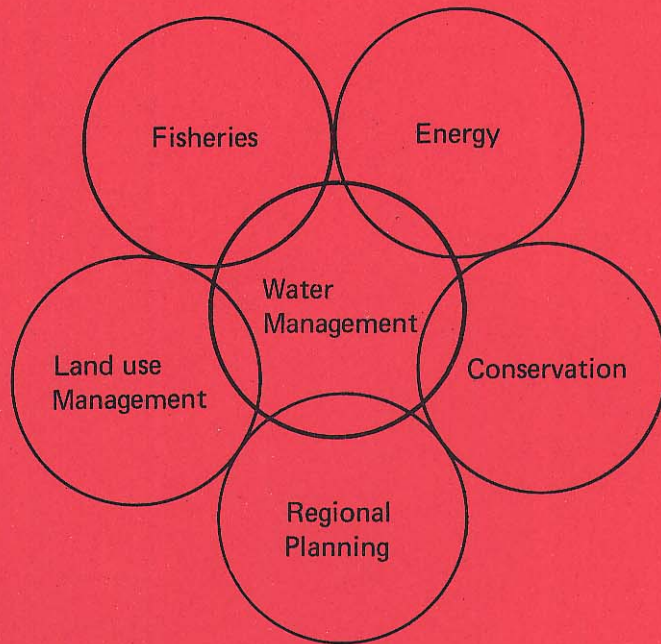


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OECD Natural Resource Management Programme

Improved Integration of Water Resources Management with other Government Policies



Norwegian Policy Integration Overview

NIVA – RAPPORT

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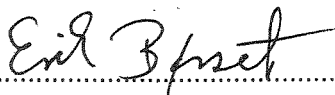
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Ekstrakt: A Norwegian overview of water management integration with other political areas is presented. The presentation is based on guidelines prepared by the Environment Directorate in OECD. The identified integration areas are: * Energy * Conservation * Fisheries * Regional planning * Landuse management

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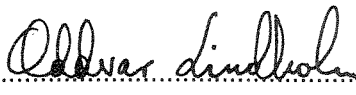
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PREFACE AND ACKNOWLEDGEMENT

This report is a contribution to OECD Natural Resource Management Programme on policies to improve surface and ground water management. The Programme consists of three sub-projects. This report is prepared for sub-project 1 entitled Improved Integration of Water Resources Management with other Government Policies.

The work has been undertaken by the writer on consultancy attachment to the OECD Secretariat in Paris.

The report is referenced with existing relevant source material written in English.

The writer gratefully acknowledges Mr. John M. Raaheim, Head of Division, Ministry of Environment and Mr. Erik Børset, Research manager, Norwegian Institute for Water Research for valuable comments on the draft of this report. Mr. Raaheim is the Norwegian delegate to the Group on Natural Resource Management.

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S E C T I O N 1

1. INTRODUCTION

1.1 Historical perspective

Before World War II, most problems related to water management in Norway were concerned with hydro power production and transportation. Except for the lower parts of a few watercourses, freshwater pollution was usually insignificant due to the fact that most of the towns and industries were located along the coast. Water quality problems, except those directly related to drinking water supply, were not of any concern before the 1950's. In the early 1960's, however, water pollution problems caused by urbanization, industrialization, and modern agriculture methods were recognized. An increased concern about water pollution problems became evident and these problems have been on the political agenda during the 1970's and will continue into the 1980's.

The environmental movement in the 1970's brought changes to other areas of the water management. A growing opinion against hydro power development caused a lot of conflicts. The most famous of them was the Alta Hydro Power Project which was, for the first time in history, brought to the Supreme Court after the decision was made by the Storting. The Supreme Court concluded, however, that the Storting had the legal right to make a decision on the development of the Alta Project.

1.2 Organisation and legislation in water management in Norway

Over the years the Norwegian organisation for water management has changed. The present administrative structure is presented in Figure 1.1.

As can be seen, the responsibility in water management is divided between 6 ministries with the Ministry of Environment and the Ministry of Petroleum and Energy as the most important ones. A more detailed description of water acts and responsible authorities is presented in Table 1.1.

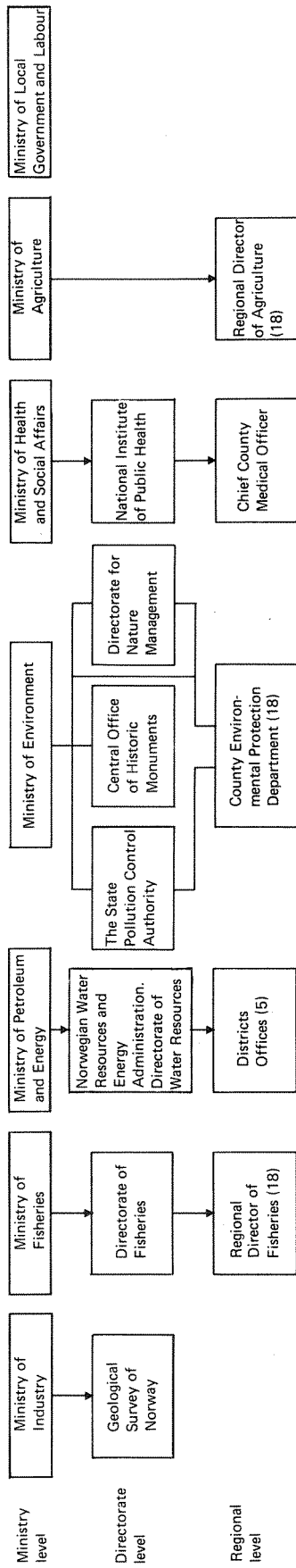


Figure 1.1. The Norwegian organisation for water management

Table 1.1. Authorities, responsibilities and water acts in water management in Norway.

MINISTRY	RESPONSIBILITY	WATER AND WATER RELATED ACTS
Ministry of Environment	<ul style="list-style-type: none"> - Responsible for long-term physical/economic planning and management of water resources. - Responsible for nature conservation, pollution control, drinking water supply, open-air recreation, fishing and hunting. 	<p>The Planning and Building Act, 1985</p> <p>The Nature Conservation Act, 1970</p> <p>The Pollution Control Act, 1981</p> <p>The Salmon and Inland Fishing Act, 1964</p>
Ministry of Petroleum and Energy	<ul style="list-style-type: none"> - Superintends water rights and terms for regulations of storage reservoirs and instream flows. - Considers applications on hydro power projects, flood control measures and other technical installations in the watercourses. - Deals with hydrological services. 	<p>The Watercourse Regulation Act, 1917</p> <p>The Watercourse Act, 1940</p>
Ministry of Health and Social Affairs	<ul style="list-style-type: none"> - Responsible for drinking water supply together with the Ministry of Environment. 	<p>The Health Act, 1860</p>
Ministry of Fisheries	<ul style="list-style-type: none"> - Responsible for regulations of the ocean fisheries. - Considers applications on breeding of fish, shellfish, etc. 	<p>The Breeding of Fish and Shellfish Act, 1985.</p>
Ministry of Agriculture	<ul style="list-style-type: none"> - Prepares plans on agriculture land concerned with flood control, pollution control measures and irrigation. - Considers applications on aquaculture plants. - Supports drainage, flood control and irrigation by loans and funds. 	<p>The Measures against Fish Diseases Act, 1968</p>
Ministry of Industry	<ul style="list-style-type: none"> - Responsible for ground water hydrology service. 	
Ministry of Local Government and Labour.	<ul style="list-style-type: none"> - Supports drinking water supply in rural areas by loans and funds. 	

1.3 Future perspective

The administrative structure presented in Figure 1.1 is supposed to be rather stable for the coming years. Recently there was a discussion on this structure in relation to the reorganisation of the Norwegian Water Resources and Energy Administration. The question being raised was whether the Directorate of Water Resource should be supervised by the Ministry of Petroleum and Energy or the Ministry of Environment. If the supervision had been moved to the Ministry of Environment, the water management authority in Norway would have been much more concentrated. The Storting decided, however, to keep the management structure as presented in Figure 1.1.

Though rather few changes are suspected in the macro model of the administrative structure shown in Figure 1.1, a couple of changes at the micro level should be mentioned.

The first one relates to the integration of water policy with the land use management. Integrated physical/economic planning is considered to be one of the main means in water management at the regional and municipal level.

Figure 1.2 shows the hierarchical structure of this planning which is in accordance with the recently renewed Planning and Building Act, which has stimulated the integration of water and land use management.

Norway has 18 counties and approximately 450 municipalities which are governed by public elected representatives. All counties and municipalities in Norway are by this Act required to prepare comprehensive survey plans, take due account of environmental factors, and provide a flexible framework for long-range development and rational use of the natural resources in the county or the municipality concerned.

Plans which aim at integrating water policy with land use management, have normally a multipurpose perspective, and in daily speaking they are called water use plans.

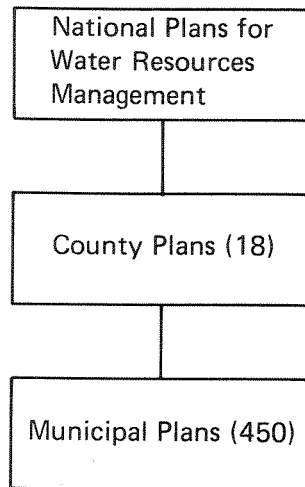


Figure 1.2. Hierarchical structure of water use planning integrated in physical/economic planning.

The second change has to do with organisation for integration of quality and quantity aspects in water management. Today water quality and quantity questions are handled more or less separately.

The Ministry of Petroleum and Energy is the water quantity authority. By an application system water rights and rights to regulate storage reservoirs have been issued to energy companies all over Norway who are now in the possession of legal rights concerning water quantity management.

The Ministry of Environment is the water quality authority which by means of effluent permits, combatments against non-source effluents and other pollution control measures, is trying to meet the water quality objectives.

Though it is difficult to describe what the future organisation would be, there are currently under discussions changes toward organisation of integration between quality and quantity in water management. These changes are due to take place without changing the responsibility in the macro model shown in Figure 1.1.

S E C T I O N 2

2. AREAS OF POLICY INTERACTION

Five interaction areas between water management policies and other relevant policy-making areas have been identified to be of environmental significance. They are:

- Energy
- Conservation
- Fisheries
- Regional planning
- Land use management.

A sixth interaction area deals with organisation for integration of quality and quantity aspects in water management. This area was mentioned in paragraph 1.3 as an example of lack of integration and will not be further elaborated in this section.

2.1 Interaction area: ENERGY

Hydro power is an important and valuable source of energy in Norway. It provides almost all electricity and covers about 40 percent of our energy consumption. The economic exploitable hydro power potential is calculated to about 174 TWh in years with mean flow. Of this potential 99 TWh has been developed while 23 TWh is being protected against hydro power development. Approximately 40 TWh has been evaluated in a national Master Plan for Water Resources and the rest of the potential is either in the licence process or in the process of being developed.

In 1984 the power intensive industry used 37 percent of the firm power supply. Total industrial consumption was about 51 percent. The household consumption was about 33 percent while the remaining 16 percent was used by business, institutions, services, etc.

These figures show very well the connection between water management and the industrial activities in Norway as far as energy consumption concerns.

Several instruments are used in order to obtain integration between water management policy and the energy policy.

The Ministry of Petroleum and Energy is continually preparing Energy Reports to the Storting where forecasts for necessary future firm power supply are set. Moreover the different energy sources to be developed, in order to meet the increasing demand for electricity, is also defined.

The same Ministry is in head of an application procedure which has to be followed when applying for a licence to develop hydro power projects.

The Ministry of Environment is in charge of preparing the mentioned Master Plan for Water Resources. This Plan is presented to the Storting, where priorities on development of hydro power projects are set in accordance with decisions on future forecast of the electricity consumption made in the Energy Reports.

2.2 Interaction area: CONSERVATION

The most important tools in water related nature and culture conservation in Norway have been the national plans for protection of river systems in pursuance of the Watercourse Regulation Act and the protection work done in pursuance of the Nature Conservation Act.

In the Government's Long-term Programme for 1986-89, Report No. 83 to the Storting (1983-85), it has been stated that more emphasis should be put on integration of conservation policy in the ongoing physical/economic planning at the regional and local level, according to the Planning and Building Act.

The three jurisdictions mentioned are all areas for integration of conservation policies with water management policies. While the Ministry of Petroleum and Energy is the authority for the plans for protection of river systems, it is the Ministry of Environment who is in charge of the other jurisdictions.

2.3 Interaction area: FISHERIES

Aquaculture is an important industry for coastal districts in Norway and has created employment to a number of local communities. A policy which actively supports this industry will continue to be pursued.

The Ministry of Fisheries is in charge of the policy formulation in this area. Among other things the policies concentrate on rural development, the importance of infrastructure and market perspectives and developments. As an integrated part of this policy it will be necessary to regulate the establishment of new aquaculture plants through allocation of a certain number of new licences each year. Licences can be granted for the farming of shellfish and other fish species, for hatchery installations and for the production of smolt and fry of other organisms.

Fish farming requires a great deal of space and may, for this reason, conflict with other user interests. In addition the farms may represent a considerable source of pollution which in some places may create problems for the industry itself. Disease which may wipe out the total fish population is another problem.

In light of this situation, strict requirements will continue to be set with respect to the location and operation of fish farming facilities. To do this in a proper way there is a need for a national plan for assessment of the Norwegian coastal water and rivers for aquaculture. The Ministry of Environment has recently initiated a plan proposal for this purpose related to the county planning process.

2.4 Interaction area: REGIONAL PLANNING

Though the Ministry of Environment has the overall central responsibility for the integrated physical/economic planning and for the coordination of the management of natural resources, high authority has been delegated to the county and municipal level.

When the new Planning and Building Act was put into force in 1986, not only land use - but also water use concerns were defined as part of the physical environment. This has created a new situation where multipurpose water use planning has become part of the county planning process.

Water use planning at this level is a way to organise administrative structures where mainly regional but also central agencies can work out policies for integrated water management. The policies will at the end be approved politically out by the County Council. Plan recommendations will either be carried out by the sector authorities or be delegated to the municipality level. Though it is not the normal situation there is also an opinion for the counties to use their own financial resources to carry out plan recommendations.

Examples of sectors which could be integrated in water use planning at the county level is:

- Hydro power development
- Pollution control measures
- Drinking water supply
- Nature and cultural conservation
- Recreation
- Fishing and hunting
- Flood protection measures
- Tourism
- Irrigation
- Sand and gravel excavation.

2.5 Interaction area: LAND USE MANAGEMENT

Planning at the municipal level gives opportunities to integration of water use policies with land use management at a detailed level. There are two important requirements for the content of the municipal plan:

- Long-term objectives for the municipal development, guidelines for sector planning, land use management and management of natural resources.
- Short-term action programmes for different sector activities.

In addition local plans with a corresponding action programme can be developed for certain areas of the municipality. A local plan, which can be a water use plan for a certain area is the best instrument to obtain inte-

gration of water use policies with land use management at a detailed level.

A water use plan at the local level could describe:

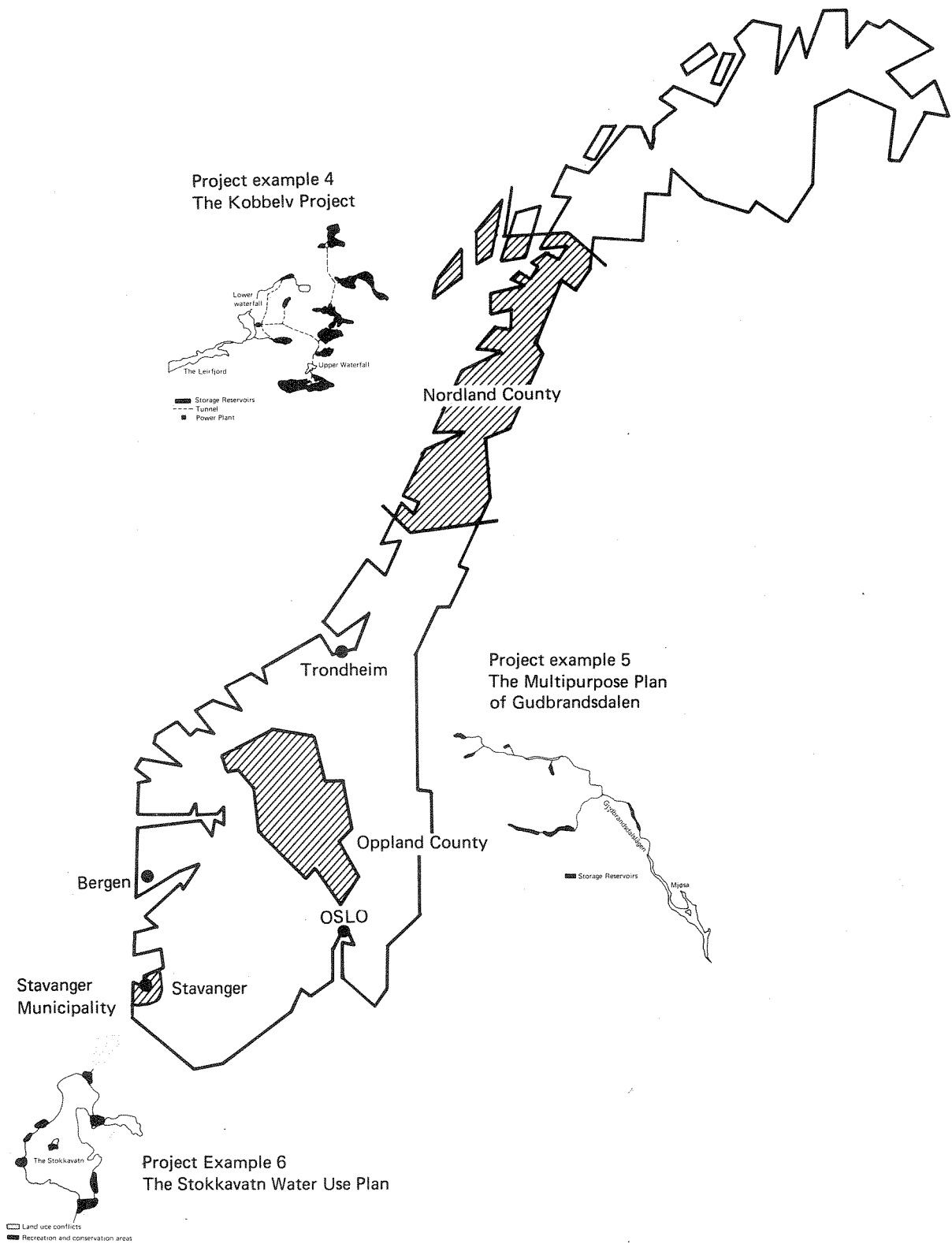
- Development areas
- Agriculture, nature and recreation areas
- Areas for resource excavation
- Areas for transport activities
- Restricted areas for certain purposes
- Use and protection of watercourses and coastal waters
- Drinking water supply and sewage systems
- Measures against pollution.

S E C T I O N 3

3. EXAMPLES OF POLICY INTEGRATION

The project examples chosen are all illustrations of successful policy integration processes. Each of them represents one of the interaction area described in section 2. Hopefully, the examples will be relevant to other OECD-Member Countries and contribute to better understanding of the interaction mechanisms.

The first 3 examples relate to national planning with respect to interaction with the policy of energy, conservation and fisheries. The 3 other examples cover case studies from different parts of Norway, shown in Figure 3.1. The fourth example interacts with the energy policy, the fifth with regional planning policy, and the sixth with land use management policy.



Figur 3.1. Overview of Norwegian case studies used as project examples.

PROJECT EXAMPLE 1

Approximately 98 percent of the electricity production in Norway stems from hydro power. The development has taken place on a project by project basis without a coordinated plan. A master plan process was started in order to make up priorities concerning the development of the exploitable hydro power potential which was calculated to 40 TWh. All together 310 projects including a total of 540 alternatives were evaluated. The projects were presented in 285 different Reports on the Watercourse and ranked into 16 priority groups which again were grouped into three categories. The preparatory work and the results from the Master Plan will be used as project example 1.

3.1.1 Name

The Master Plan for Water Resources. In this report abbreviated to the Master Plan.

3.1.2 Interaction context

Multiple agency interaction at different levels (ministry, directorate and regional participation from political bodies at the county and municipal level and from non-governmental organisations.

3.1.3 Agency functions

The organisational flow chart is shown in Figure 3.2.

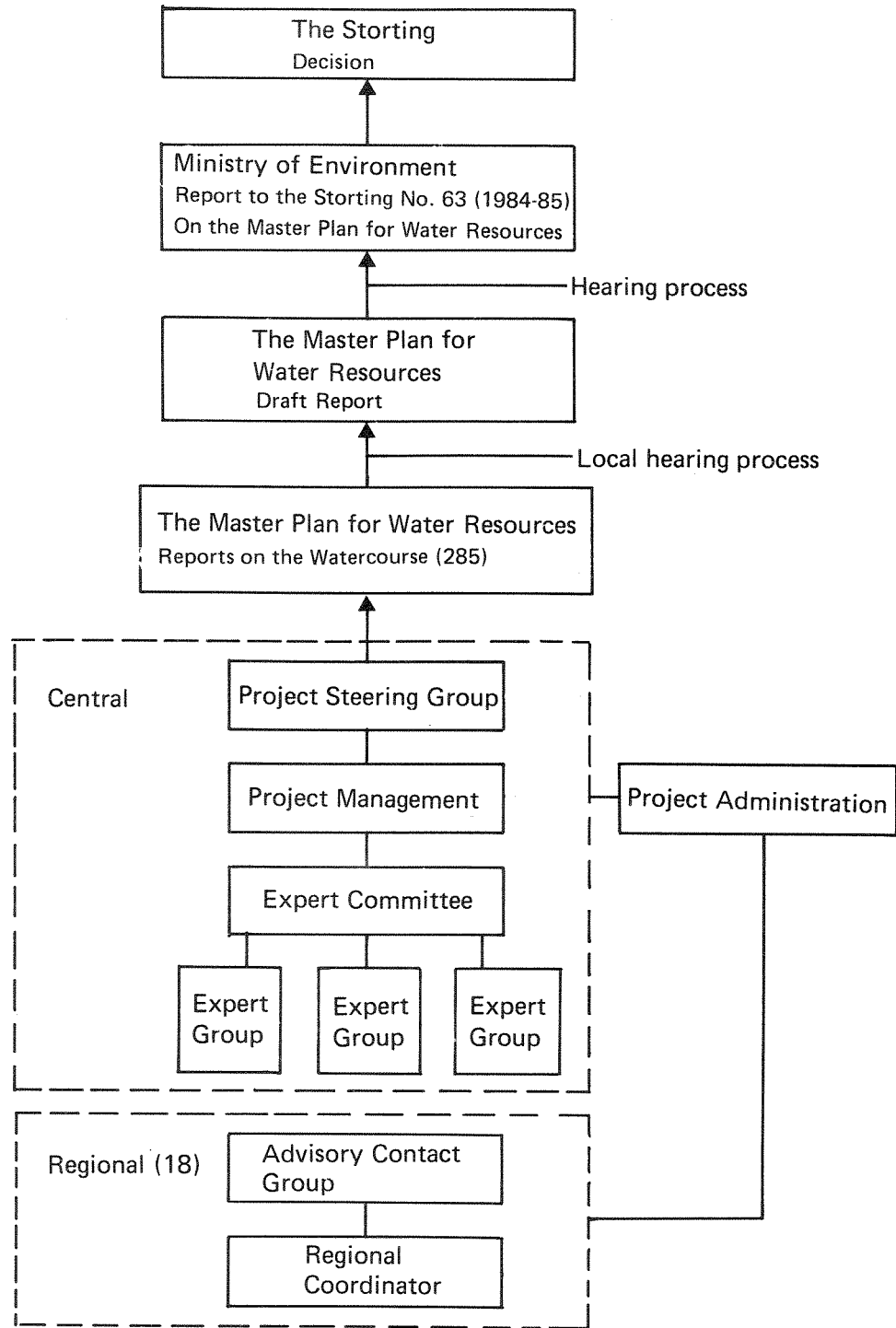


Figure 3.2. The Master Plan for Water Resources - organisational flow chart.

Ministry of Environment: Administrative preparation of the Draft Report, and preparation of the Report to the Storting on the Master Plan for Water Resources.

The Steering Group: Comprised by Ministry of Petroleum and Energy, Ministry of Local Government and Labour, Ministry of Agriculture, Ministry of Health and Social Affairs and Ministry of Environment.

The Project Management: Comprised by Ministry of Petroleum and Energy and Ministry of Environment with the Directorate of Water Resources as observer.

The Project Administration: Ministry of Environment, the Department of Natural Resources.

3.1.4 Levels of government involved

Mainly national and regional and partly local level.

3.1.5 Management level involved

National planning with emphasis on environmental impact assessment and methodical approaches to project evaluation and project ranking.

3.1.6 Stimulus for change

The development of hydro power has taken place on a project by project basis without a co-ordinated plan for the whole country. In the last ten years serious conflicts with other user interests have become more and more usual. Moreover the so-called "hydro power epoch" is drawing to an end.

The Master Plan was introduced in order to solve some of the problems mentioned. The main objective was to set priorities in developing the rest of the hydro power potential at a minimum level of conflict as far as environmental aspects are concerned.

3.1.7 Administrative context

3.1.7.1 Objectives

The objective of the Master Plan was for the first time stated in the Report to the Storting, No. 54(1979-80) on the "Future Use and Production of Energy". In this Report the Government stated that in further planning of hydro power projects and in connection with the granting of licences, emphasis should be placed on developing the watercourses which are the most favourable both economically and from an environmental standpoint.

This statement was repeated in the Proposition to the Storting No. 130- (1981-82) on "Power Coverage in the 1980s and the Relation to the Master Plan for Water Resources". In this Proposition the Government approved the main goal of the Master Plan, which was to present to the Storting a proposal for a priority grouping of hydro power projects for subsequent consideration for a licence. Further, the plan was to provide the basis for taking a standpoint on which watercourses could be used for other purposes.

3.1.7.2 Administrative jurisdiction

The Ministry of Environment has responsibility for the co-ordinated planning and management of natural resources. Hence, the Ministry is responsible for the long-term management of the water resources. The Ministry of Environment was therefore appointed as lead agency.

The Master Plan aimed at integrating the different administrative jurisdictions with the authority to carry out the plan, located in an interdepartmental Steering Group shown in Figure 3.2.

3.1.7.3 Enforcement powers

The Master Plan grouped the projects into three categories.

The first category comprised projects, representing a total of about 11 TWh mean power, all of which could be considered for licence immediately and consecutively, in order to cover the energy demand in the years to come.

The second category included projects, representing a total of about 7 TWh mean power, which might be exploited for power production or for other purposes.

The third category included projects which, on the basis of the technical solutions for development considered, were not regarded as relevant for development, either because of serious conflicts with other user interests, or because of the high costs involved.

The Government decided that only projects ranked in the first category could be evaluated for a licence. This decision, which was also adopted by the Storting, was the most important enforcement power in implementing the Master Plan.

Since the Ministry of Environment will have to update the Master Plan according to project changes, this could be seen as an enforcement power.

On the other hand the Ministry of Petroleum and Energy, who is responsible for the licence procedure for hydro power projects, has control of economic and legal instruments. These instruments can be used as incentives to develop projects in category 1 in the Master Plan, if the owner of the waterfall does not wish to apply for a licence.

While the Ministry of Environment is lead agency for the Master Plan, the Ministry of Petroleum and Energy has control of certain enforcement powers to stimulate development of projects in category 1. This division of authority is not optimal for implementation of the Master Plan.

3.1.7.4 Administrative structure

The administrative structure reflected the fact that the administrative jurisdictions were divided between the Ministry of Environment and the Ministry of Petroleum and Energy.

3.1.7.5 Administrative discretion

As can be seen from the flow chart in Figure 3.2 the Master Plan was carried out on a project basis. This gave the administrators in head of the process sufficient flexibility to cope with problems which rose during the preparation of the Master Plan.

3.1.7.6 Financial resources

The Ministry of Environment was the main financial source and provided sufficient financial resources to prepare the Master Plan. This included wages to the project administration in the Ministry and wages to the regional coordinators in the county administrations. Besides that a lot of specially engaged professionals were hired to prepare documentation reports on impacts on different areas of interest.

An Expert Group on hydro power projects, placed in the Directorate of Water Resources was responsible for preparing technical and economic evaluation of the projects included in the Master Plan.

The cost of the Master Plan amounted to 60 mill. NOK in 1984.

3.1.7.7 Administrative flexibility

Since the Master Plan was prepared as a project with its own organisation, the administrative system was able to adapt to new ideas and new information.

3.1.7.8 Data availability and communication

Since the project organisation was divided into one central and 18 regional units, it was possible to obtain good communication with participants at all levels.

The two-step hearing process, shown in Figure 3.2, made information available to those involved in the decision-making process. The hearing processes were, however, conducted with time restrictions.

3.1.7.9 Staff quality

The central project administration and the regional coordinators were comprised by young people, with different fields of education. They were biologists, ecologists, economists, sociologists, engineers, planners, but none in the field of political sciences. The composition of different educated people created a good basis for integration of many viewpoints throughout the planning process.

3.1.7.10 Decision-making

As described in paragraph 3.1.7.1, the Storting made an explicit statement of the objectives of the Master Plan before the planning process started. The project organisation was modelled to meet the objectives and to secure that the different agencies associated with the problem were involved. The Municipality and County Councils gave for example, recommendations on the plan proposals.

The basic documentation in the project was the Reports on the Watercourse which contain project descriptions and environmental impact analyses. Each report was subject to hearing processes at the regional and the local levels.

Based on these reports, a Draft Report on the Master Plan was prepared by the Project Administration in the Ministry of Environment. This report was also subject to a hearing process.

The hearing processes were fundamental for the decision-making process and gave credibility to the final decision made by the Storting on the Master Plan.

3.1.7.11 Public accountability

The final decision on the Master Plan was made by the Storting. The Master Plan allowed the representatives from various political parties to take into account certain regional aspects when ranking the projects into different categories. This allowance was, however, not used in the first consideration of the Master Plan in 1986.

3.1.7.12 Image

The Ministry of Environment had of course a better reputation among nature organisations than among industries and energy companies. This situation was reflected in comments made. While the first group were rather satisfied with the Draft Report the latter were not. Their claim was that category 1 contained too many small projects with low production value (GWh) and rather few big ones.

The fact that the Ministry of Environment had an environmental image gave a kind of balance to the energy image of the Ministry of Petroleum and Energy. In this perspective the Master Plan created a basis for co-operation between ministries with different reputation. This has created better integration between water management policies and energy policies.

3.1.7.13 Performance evaluation

The Master Plan will be updated in order to cope with possible changes in technical solutions and economic calculations in different projects. Moreover the plan and particularly the Reports on the Watercourse provide a good basis for considering hydro power applications for a licence in a more integrated perspective.

The same relates to water use planning in connection with physical/economic planning at the county and municipal level.

Finally the Master Plan and specially information gathered on water projects ranked in category 3, can be used to select watercourses for fourth and a final Protection Plan for River Systems in Norway, see project example 2.

3.1.8 Response

The main integrating mechanism was the political decision made by the Storting. To come to this decision administrative measures like interdepartmental committees, environmental impact assessments, technical feasibility studies and project evaluation methods were used.

In addition the two-step hearing process was fundamental for the decision made.

3.1.9 Results

The Master Plan has integrated water management policies with the energy policy. The Government has indicated that 125 TWh mean year production capacity was a reasonable illustration of careful water power development in Norway. Projects ranked in category 1, which could be considered for a licence, immediately had a total mean year production which was fitted for the development of 125 TWh hydro power production.

3.1.10 Comment

This example is well documented and could be expanded for a more detailed study.

PROJECT EXAMPLE 2

The Norwegian Storting enacted its first protection plan for river systems - now called Protection Plan I - as early as 1973. This was followed up by Protection Plan II, passed in 1980. In these two plans 146 river systems were permanently protected while 64 were protected temporarily until 1985. These river systems were evaluated in Protection Plan III which passed in 1986. The preparation of the third protection plan is used as the second project example.

3.2.1 Name

Protection Plan for River Systems III. In this report abbreviated to the Protection Plan.

3.2.2 Interaction context

Multiple agency interaction at different levels (ministry, directorate and regional). Participation from political bodies at the county and the municipal level and from non-governmental organisations.

3.2.3 Agency functions

The organisational flow chart is shown in Figure 3.3.

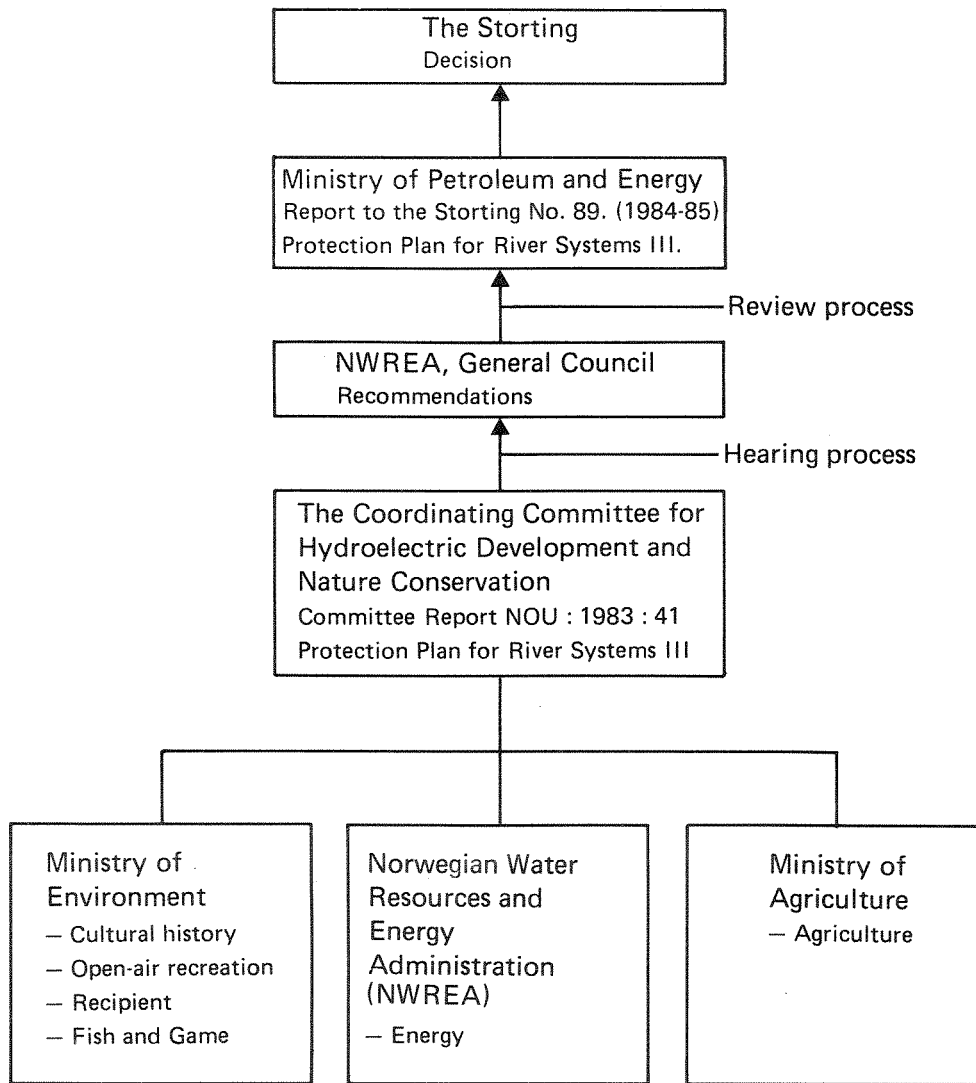


Figure 3.3. The protection Plan for River Systems III - organisational flow chart.

The Coordinating Committee for Hydroelectric Development and Nature Conservation: Consists of representatives from various agencies and from the State Council for Conservation of Nature and the State Council for Open Air Recreation.

Ministry of Petroleum and Energy: Responsible for preparing the Report to the Storting.

Ministry of Environment: Responsible for investigations of different conservation interests.

Ministry of Agriculture: Responsible for investigations of agriculture and reindeer keeping interests.

Norwegian Water Resources and Electricity Administration: Responsible for investigations of the exploitable hydro power. Secretariat for the Coordinating Committee.

3.2.4 Levels of government involved

Mainly national level.

3.2.5 Management level involved

Planning with emphasis on ecological value criteria for nature and cultural conservation.

3.2.6 Stimulus

The Storting enacted its first Protection Plan for River Systems in 1973. This was followed up by Protection Plan II, passed in 1980. According to these decisions 60 river systems were protected temporarily until 1985. The Storting therefore asked for an overall survey of these river systems and this survey resulted in Protection Plan III.

3.2.7 Administrative context

3.2.7.1 Objectives

Guidelines for the Protection Plan were given by the Storting and were used by the Coordinating Committee:

- i) The selected river systems with adjacent areas should provide a variety of uses and river landscapes.
- ii) The Protection Plan must ensure a fair distribution throughout the country, but still give priority to centrally located river areas of recreational value to many people.

- iii) The plan must not be so comprehensive as to place a too heavy burden on Norway's electricity supply.
- iv) Other inroads on protected areas that may impair their value for nature conservation, sports, recreation and science should be avoided.

3.2.7.2 Administrative jurisdiction

The Ministry of Petroleum and Energy is responsible for the Watercourse Regulation Act. According to this Act the Storting can make decision on none hydro power development in specific river systems.

The Ministry of Environment is responsible for the Nature Conservation Act. So far this Act does not cover conservation of river systems against development within the catchment.

Protection of river systems can, however, be included as part of National Parks and Nature Reserves.

3.2.7.3 Enforcement powers

With reference to the Water Regulation Act, the Storting can make decision on protection of river systems against hydro power development.

3.2.7.4 Administrative structure

The administrative structure reflects the difference in administrative jurisdiction between the three ministries involved.

Though the administrative jurisdiction was not rational, the Coordinating Committee managed to solve potential conflicts between the ministries involved by negotiations.

3.2.7.5 Administrative discretion

Within the objectives of the Protection Plan given by the Storting the administrators in different agencies were given sufficient flexibility to ensure that their actions were effective.

3.2.7.6 Financial resources

The provision of financial resources was divided between the three ministries involved according to the responsibility shown in Figure 3.3. The administrative costs of the Committee were paid by the Ministry of Petroleum and Energy.

The total cost amounts to 30 mill.NOK in 1983, approximately 80 percent was paid by the Ministry of Environment and spent in the investigation of conservation interests.

3.2.7.7 Administrative flexibility

Since this was the third Protection Plan, the administrative system had learnt to know each other's arguments. The coordinating Committee was therefore in the position to adapt to new ideas, which mainly dealt with new value criteria for nature and culture at conservation.

3.2.7.8 Data availability and communication

Data availability and information to those involved in the decision-making process is supposed to have been satisfactory.

3.2.7.9 Staff quality

The members of the Committee had various experiences and various educational backgrounds which created a good basis for integration of viewpoints.

Research and investigations in relation to conservation value criteria have increased the scientific knowledge in different biological fields.

3.2.7.10 Decision-making

The recommendations in the Committee-report were, with the exception of three river systems, presented unanimously. This implies that the report itself was an evidence of policy integration.

In addition, the hearing and review process shown in Figure 3.3 made it possible for various agencies to comment on the report before it was presented to the Storting.

3.2.7.11 Public accountability

The final decision on the Protection Plan was made by the Storting after a hearing and review process. The decision made is supposed to have little influence on the representatives' chance of being re-elected.

3.2.7.12 Image

The fact that the Committee presented their recommendations almost unanimously has covered potential problems concerning the different agencies' reputation.

3.2.7.13 Performance evaluation

The information material and knowledge gathered in connection with the Protection Plan can be used as a basis for further scientific research. Besides that, investigations made can be used in water use planning at the county and the municipal level.

3.2.8 Response

The main integrating mechanism was the political decision made by the Storting. The main instrument to come to this decision was the work made in the interdepartmental committee, combined with a succeeding hearing and review process.

3.2.9 Results

The final decision implies that 46 river systems, with a hydro power potential of 9,7 TWh, have been protected against hydro power development.

PROJECT EXAMPLE 3

The aquaculture industry in Norway has expanded greatly over the last years. Licences for aquaculture plants have been issued according to different application procedures, but a national plan with priorities concerning location of aquaculture plants has not been established.

In 1986 the Ministry of Environment initiated a plan for suitability mapping of both the coastal zone and the watercourses for aquaculture. The plan is an effort to obtain better integration between the aquaculture industry policy and other user interests related to the same resources. Project example 3 contains a description of this project. Unfortunately all the questions concerning the administrative context can not be answered because the project has just started.

3.3.1 Name

The Assessment of the Norwegian Coastal Waters and Rivers for Aquaculture. In this report abbreviated to the Aquaculture Plan.

3.3.2 Interaction context

Multiple agency interaction at the ministry, directorate and regional level. Participation from political bodies at the county level and from non-governmental organisations.

3.3.3 Agency functions

The Aquaculture Plan was initiated by the Ministry of Environment. At this time there was no political statement saying that the Ministry of Environment should be lead agency. A final decision on the project organisation has not yet been made. One of the questions being discussed is how the plan recommendations should be introduced to the Storting.

The present organisation shown in Figure 3.4, is built up by a central project administration and regional project administrations located in the counties.

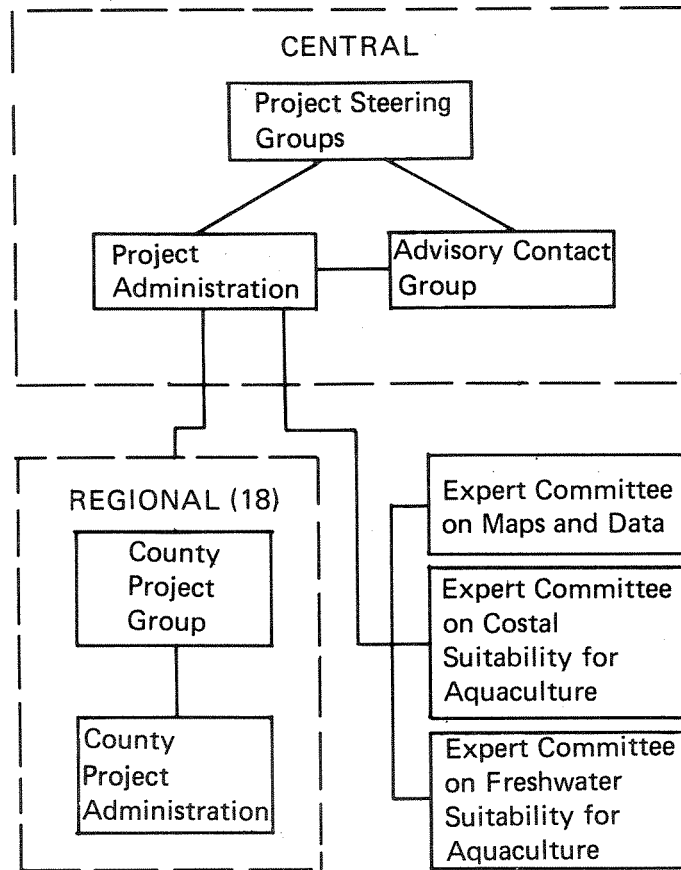


Figure 3.4. The Assessment of the Norwegian Coastal Waters and Rivers for Aquaculture - organisational flow chart.

Project Steering Group: Composed by the Ministry of Fisheries and the Ministry of Environment. The main task is coordination and to make decisions on project management questions.

Advisory Contact Group: Composed by Ministry of Fisheries, Ministry of Environment, Ministry of Local Government and Affairs, Ministry of Agriculture, Directorate of Fisheries and Directorate of Water Resources. The main task is exchange of information and viewpoints.

Project Administration: Ministry of Environment.

Expert Committee on Maps and Data: The main task is to develop maps and procure the necessary data to the project. The secretariat is located to the Norwegian Hydrographic Service.

Expert Committee on the Coastal Zone: The main task is to develop guidelines for suitability mapping of the coastal zone for aquaculture. The secretariat is located to the Directorate of Fisheries and the Institute for Marine Research.

Expert Committee on the Watercourses: The main task is to develop guidelines for suitability mapping of the watercourses for aquaculture. The secretariat is located to the Directorate for Nature Management.

3.3.4 Levels of government

National, but mainly regional level.

3.3.5 Management level involved

Planning with emphasis on methods for suitability mapping of the coastal zone and the watercourses for aquaculture.

3.3.6 Stimulus for change

The Aquaculture Plan is not meant to be a substitute for the licence procedures. The plan was initiated in order to stimulate integration of the industry policy with other water policies. The objective is that recommendations made in the plan can be used as guidelines in the licence procedures, and as a framework for regional and local planning.

3.3.7 Administrative context

3.3.7.1 Objectives

The Ministry of Environment has formulated three objectives.

The plan shall stimulate to a positive expansion in the aquaculture industry and shall contribute with basic information to:

- i) Aquaculture planning at the county and municipal level
- ii) Applications for licences
- iii) Reports to the Storting concerning the aquaculture industry.

3.3.7.2 Administrative jurisdiction

The development of aquaculture plants are regulated by four Acts and four different administrative jurisdictions. The Ministry of Fisheries with subordinates (Directorate of Fisheries and Regional Directors of Fisheries) has the responsibility to grant licences according to the Breeding of Fish and Shellfish Act.

Moreover the proponent has to apply for permission according to the Pollution Control Act, and if the aquaculture plant is located in freshwater, it might be necessary to apply for a permission according to the Watercourse Act. The responsibility to give permission according to the former Act is delegated to the County Environmental Protection Department, while permission according to the latter Act are issued by the Directorate of Water Resources.

The fourth Act, the Measures against Fish Diseases Act, is under control by the Ministry of Agriculture. A permission to locate aquaculture plants must also be given in accordance with this Act.

In addition to the licence procedures described, it is important to recognize that the Ministry of Environment has the responsibility for the regional planning according to the Planning and Building Act. This explains why the Ministry is in the position of being lead agency, and why the project will be carried out in relation to the county planning process.

3.3.7.3 Enforcement powers

Compared to the Master Plan presented in project example 1, there was no formal statement from the Storting saying that the plan should be prepared.

The Ministry of Environment, being responsible for natural resources management, therefore initiated this plan alone. As shown in Figure 3.3 the plan has to be developed in close cooperation with the sectorial ministries.

3.3.7.4 Administrative structure

The administrative structure shown in figure 3.4 reflects the administrative jurisdictions.

3.3.7.5 Administrative discretion

In this project where even a formal statement to start the Aquaculture Plan was missing, the administrators had sufficient flexibility to make their actions efficient.

3.3.7.6 Financial resources

The total cost of the project is estimated to 24 mill. NOK in 1986 within a three year planning period. Approximately 30 percent will be paid by the Ministry of Environment, the rest by the counties and other governmental agencies.

Organising the Aquaculture Plan as a project implies that the planning resources are spent in a co-ordinated way. The policy integration that can be obtained is supposed to have a good rate of return on the money spent.

3.3.7.7 Administrative flexibility

The experiences so far are that the Ministry of Fisheries has been rather reluctant to participate in the Aquaculture Plan. One explanation could be that the Aquaculture plan will come too late to solve the problems or that the Ministry has difficulties to see how recommendations in this plan can be used in the licence procedure. Another explanation could be that the Ministry felt its authority threatened by participating in a plan proposal prepared by the Ministry of Environment.

3.3.7.8 Data availability and communication

One of the main objectives of the Aquaculture Plan is to procure maps, data and other information to those involved in the decision-making processes.

3.3.7.9 Staff quality

The way the Aquaculture Plan is organised makes it possible to use experts in various fields and to let them work together for the benefit of the decision-making process.

3.3.7.10 Decision-making

Too early in the project to be answered.

3.3.7.11 Public accountability

Too early in the project to be answered.

3.3.7.12 Image

Too early in the project to be answered.

3.3.7.13 Performance evaluation

Too early in the project to be answered.

3.3.8 Response

The integrating mechanisms will be regional planning combined with cooperation in interdepartmental committees. Regional plans prepared by the county will be reviewed by regional agencies and the public will be given the opportunity to comment on the plan proposals.

3.3.9 Result

The objective is to make national policies for the development of Aquaculture, based on work in the counties. The form and content of the national report has not yet been decided.

PROJECT EXAMPLE 4

The Kobbelv Hydro Power Project is located in Nordland County in a mountainous area with peaks at an elevation of approximately 1 500 m. Two national parks are located in the area.

Originally the development plan for the hydro power potential was based on two different waterfalls for the same power plant (the upper and the lower waterfalls).

3.4.1 Name

The Kobbelv Hydro Power Project in this report abbreviated to the Kobbelv Project.

3.4.2 Interaction context

The State Power Board in interaction with other agencies at the ministry, directorate and regional level, political bodies at the county and municipal level and non-governmental organisations.

3.4.3 Agency functions

The Application Procedure for Hydro Power Projects according to the Watercourse Regulation Act is shown in Figure 3.5. The procedure consists of four phases.

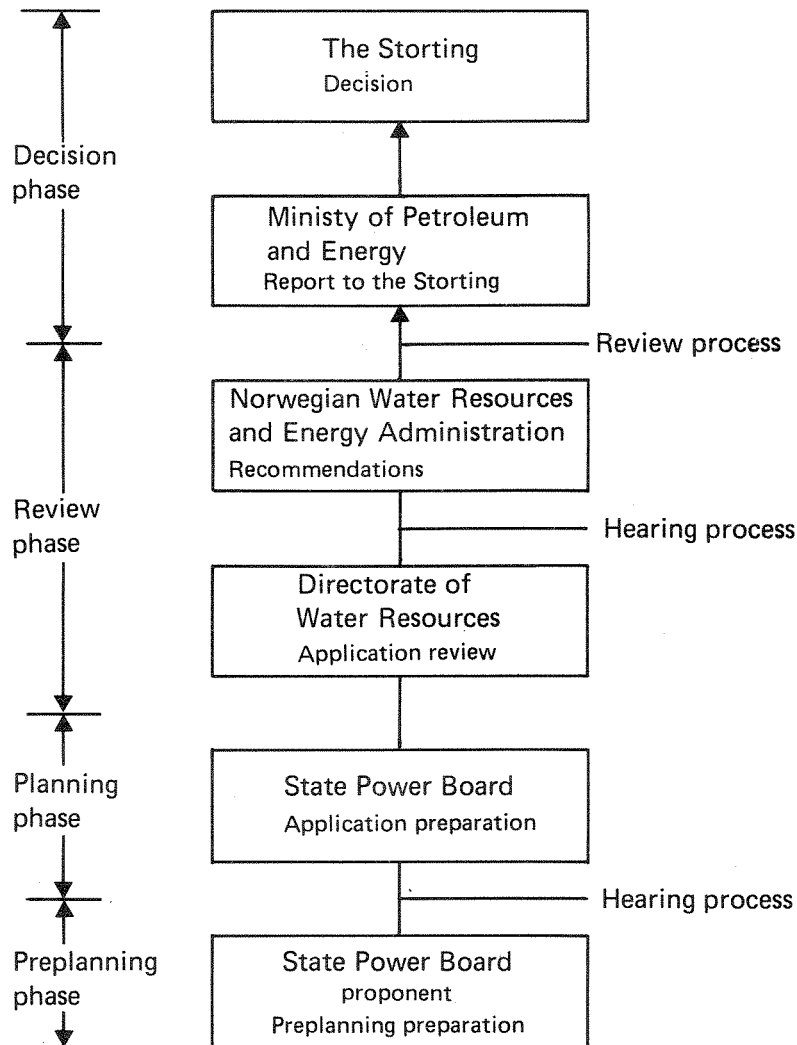


Figure 3.5. The Application Procedure for Hydro Power Projects.

Preplanning phase: The proponent gathers data. Since 1985 he has to check the project application with the Master Plan for Water Resources. (This was not the case in the Kobbelv Project).

Planning phase: A notice of information is gazetted and the proponent prepares the application.

Review phase: The Directorate of Water Resources reviews the application and conducts a hearing process before recommendations are made by the Norwegian Water Resources and Energy Administration (NWREA).

Decision phase: The recommendations by NWREA are reviewed and the Ministry of Petroleum and Energy prepares a report to the Storting who makes the final decision.

3.4.4 Levels of government involved

Local, regional and national level.

3.4.5 Management level involved

Planning and design and decision on terms of construction, operation and monitoring of impacts.

3.4.6 Stimulus for change

Increased demand for electricity.

3.4.7 Administrative context

3.4.7.1 Objectives

According to the Watercourse Regulation Act the licence to develop a hydro power project shall only be given when the benefits exceed the negative impacts of the project.

3.4.7.2 Administrative jurisdiction

The Ministry of Petroleum and Energy and its subordinates are responsible for the application procedure. As part of the procedure the proponent has to carry out an Environmental Impact Assessment (EIA) which is the integrating measure for the administrative jurisdictions affected.

The Ministry of Environment is responsible for natural resources management, which means that the EIA is of great importance to the Ministry. Together with other affected agencies they put forward requirements concerning the scope and the content of the EIA.

Since the application procedure shown in Figure 3.5 contains a two-step hearing process the opportunity of integrating the different administrative jurisdiction should be very good.

3.4.7.3 Enforcement powers

The Directorate of Water Resources can refuse to accept an application which is not consistent with their objectives. On the other hand the Directorate is not in the position of imposing an energy company to apply for development of a particular waterfall. However, the Directorate controls some economic instruments which can be used in order to meet the objectives.

3.4.7.4 Administrative structures

The administrative structure seems to be well organised both in relation to the problem and in relation to the various administrative jurisdictions.

3.4.7.5 Administrative discretion

Administrators in the Directorate of Water Resources are bound to rather strict rules formulated in the Watercourse Regulation Act and in guidelines given in connection with this Act. The procedure described in Figure 3.5 has to be followed. The same applies to the content of the application which is described in detail in the guidelines.

The fact that the procedure and the content of the application is so well defined may in some cases restrict the administrators to find the most effective action.

3.4.7.6 Financial resources

The planning of the Kobbelv Project took place between 1973 and 1981. The total planning costs were calculated to approximately 12.7 mill. NOK in current amount. The costs of the Environmental Impact Assessment, amount to 2,5 mill. NOK which were approximately 20 percent of the total planning costs. The planning costs were fully paid by the pronent.

The total project costs by 1 June 1981 were calculated to 1,740 mill. NOK.

3.4.7.7 Administrative flexibility

Changes in the application procedure toward more flexibility have been discussed and even investigated in the last 5 years. So far relatively few changes have been improved.

Since the application procedure and even the guidelines for content of the application were described in detail there was little room for administrative flexibility.

3.4.7.8 Data availability and communication

The public and the agencies involved in the decision-making process were informed about the beginning of the planning process and start of the review by announcement in the local newspapers. Information was also made available in special brochures.

The public and the agencies involved could therefore make their comments on the plan proposals.

3.4.7.9 Staff quality

Most of the staff in the State Power Company were engineers. Even though the company is the largest in electricity production in Norway, very few impact studies were carried out by in-house resources. In stead the studies were made by high qualified people in university departments, research institutes and consultants. The engineering feasibility studies, however, were mainly prepared by the company.

3.4.7.10 Decision-making

As can be seen in Figure 3.5, the various agencies were involved both in the review and in the decision phase. While the hearing process in the review phase is open to everybody, the review in the decision phase is normally limited to the ministry level.

Together with the EIA these arrangements encouraged the integration of policies.

3.4.7.11 Public accountability

A final decision to build the Kobbelv Project was made by the Storting. The decision included terms of construction, operation and monitoring of impacts.

The opposition against the decision made was very low and would therefore have little influence on the politicians' possibility of being re-elected.

3.4.7.12 Image

Hydro power developments will normally create conflicts between the energy policy represented by the Ministry of Petroleum and Energy and the energy companies on one side and the environmental policy represented by the Ministry of Environment and various environmental groups on the other side.

The image of these agencies is rather stable. In such a situation instruments like the EIA can contribute to better co-operation and integration between water management policy and energy policy.

3.4.7.13 Performance evaluation

The fact that the application procedure is well defined and used in all hydro power development projects, makes it possible for the licence authorities to transfer experiences from one project to another.

In addition the accomplishment of monitoring programs as part of construction, an operation of the project will give background information when reviewing other licences and particularly the minimum instream flow requirements.

3.4.8 Response

The integrating mechanism was the licence to develop the Kobbelv Hydro Power Project according to the Watercourse Regulation Act. In order to derive to this licence, administrative measures like EIA and departmental and interdepartmental review was used. In addition public participation was an important part of the decision-making process.

3.4.9 Result

The Storting decided to built out the upper, but to preserve the lower waterfalls. This was according to the recommendations made in the EIA.

PROJECT EXAMPLE 5

Gudbrandsdalslågen is the main river to Lake Mjøsa, the largest lake in Norway. The river basin is 11,500 km² with a population of approximately 70,000. The maximum instream flow in the inlet of Mjøsa is measured to 2,625 m³/s, while the mean and the minimum instream flow is 246 m³/s and 12.2 m³/s, respectively. Mjøsa is 117 km long, with a maximum width of 9 km and mean depth of 153 m. The theoretical delay time is 5.6 years.

The main conflicts in the river basin are related to hydro power development and eutrofication problems in Mjøsa. The multipurpose planning project initiated by Oppland County will be used as project example 5.

3.5.1 Name

The Multipurpose Plan for Watercourses in Gudbrandsdalen in Oppland County. In this report abbreviated to the Multipurpose Plan.

3.5.2 Integration context

Multiple agency interaction at the county level.

3.5.3 Agency functions

The organisational flow chart is shown in Figure 3.5.

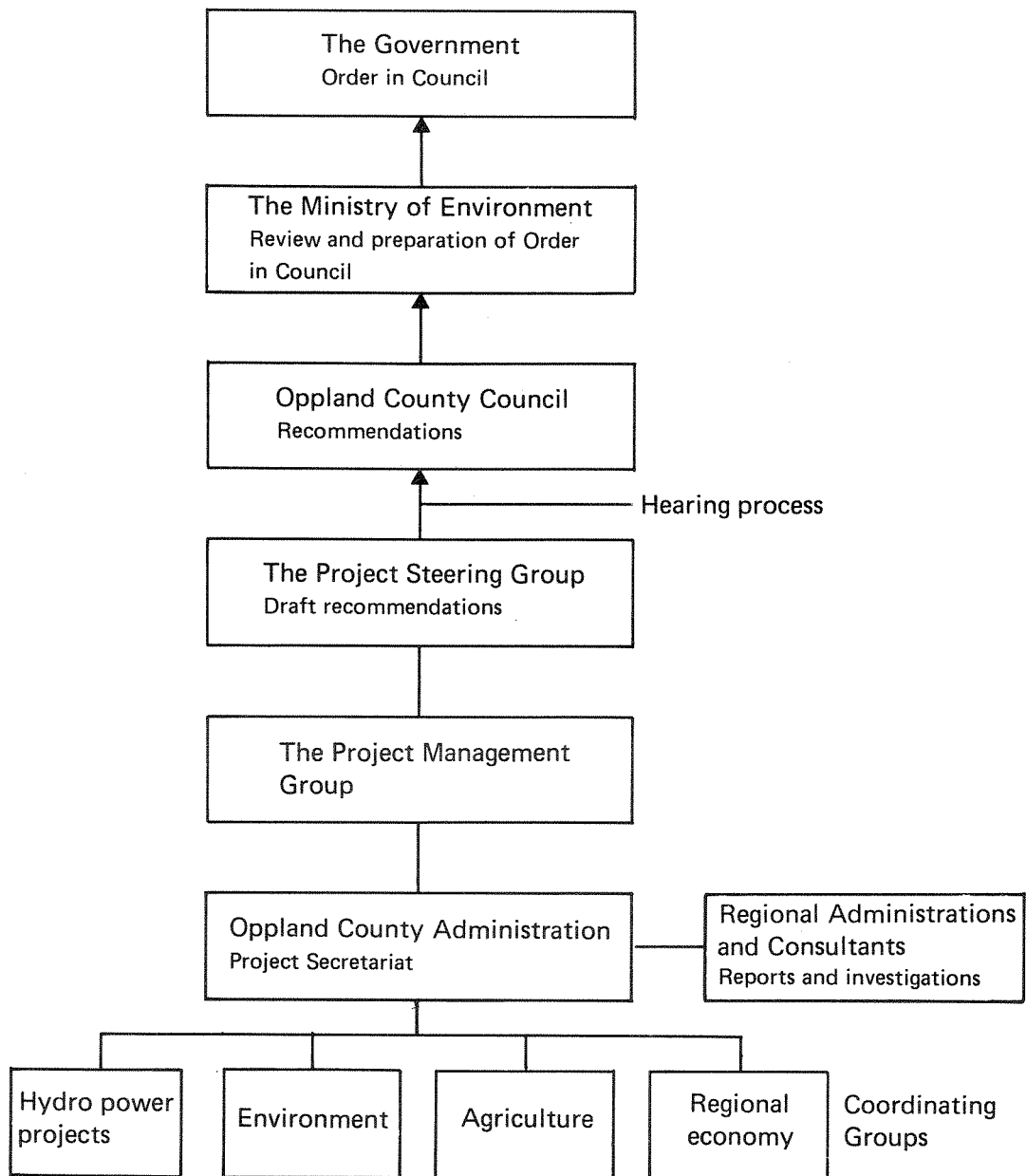


Figure 3.6. The Multipurpose Plan for Watercourses in Gudbrandsdalen-organisational flow chart.

The Government: Makes decision on an Order in Council concerning national recommendations to the Oppland County Plan where the Multipurpose Plan counts for one of several sectors.

The Ministry of Environment: Reviews the County Plan and prepare the Order in Council.

Oppland County Council: Makes decision on plan recommendations.

The Project Steering Group: Prepares draft recommendations. Comprised by county politicians and the County Governor of Oppland. The Group has a political chairman.

The Project Management Group: Gives advises to the project secretariat. Comprised by administrative representatives from regional water management agencies.

Co-ordinating Groups: Co-ordinate investigations and propose objectives and needs within the respective sectors. Each group is chaired by the responsible administration for the sector.

3.5.4 Levels of government involved

Mainly regional and partly national and local level.

3.5.5 Management level involved

County planning with emphasis on multipurpose water use planning.

3.5.6 Stimulus for change

The existing hydro power production in the basin is approximately 3,000 GWh. The remaining potential is of the same size. Plans exist for further development, among them a big storage reservoir and several locations for hydro power plants in the main stream and in the tributaries. Further development of the hydro power potential was one of the main incentives for the Multipurpose Plan.

Gudbrandsdalen is one of the most famous valleys in Norway and because of the nature and cultural landscape one of the biggest attractions for tourism. Actions for further development of tourism is another topic in the Multipurpose Plan.

There are two national parks in the river basin and several tributaries are protected against hydro power development. In addition several areas

are defined as nature conservation areas. The Multipurpose Plan aims at defining other areas to be conserved.

The lake Mjøsa was threatened by eutrofication 10 years ago. Actions were taken and the water quality was improved. Over the last 2 to 3 years the quality has decreased. The Multipurpose Plan will investigate what kind of new actions should be made. In addition water quality impacts on the Mjøsa, caused by a new storage reservoir in the upper part of the river basin, will be investigated.

The drinking water supply to several villages in the valley is based on ground water supply which might be contaminated from human activities. The Multipurpose Plan will propose actions to secure the drinking water supply.

Development of the main road in Gudbrandsdalen has created a lot of conflicts with nature conservation and open-air recreation interests. The public access to the shores has been destroyed for several kilometres. The same conflicts have occurred in connection with sand and gravel excavation and flood protection. The Multipurpose Plan will propose actions to avoid new and reduce existing conflicts.

3.5.7 Administrative context

3.5.7.1 Objectives

A formal statement of the objectives was approved politically on the county level. The objectives for the Multipurpose Plan were formulated as:

- i) To prepare a priority list for the development of hydro power projects in the river basin.
- ii) To describe certain areas along the watercourse which should be preserved for drinking water supply, irrigation, open air recreation etc.
- iii) To propose measures which could promote the general public interests in the watercourse and the surrounding areas, for example nature and culture conservation, measures concerning water quality and water quantity management, fishing, flood management etc.

3.5.7.2 Administrative jurisdiction

As shown in Figure 1.1 the administrative jurisdiction is divided among several regional agencies who by delegation are in the position of legal authority.

The purpose of the Multipurpose Plan is to coordinate sectorial activities within different jurisdictions and to draw up objectives and guidelines for the use of resources in a long-time perspective and to describe actions to be taken in order to meet the objectives. The Multipurpose Plan will be handled as part of the County Plan which process is formalised by the Planning and Building Act.

3.5.7.3 Enforcement powers

The main enforcement power is the political decision made by the County Council. Though the Council can draw up political recommendations for activities in different sectors, it has almost none legal authority. Experiences so far is that the Council has been reluctant in using economic incentives in carrying out the political decisions.

Since the legal arrangements are kept with the sectorial authorities, it is of great importance for the Multipurpose Plan that the regional agencies are brought together in a binding co-operation.

3.5.7.4 Administrative structure

The administrative structure, shown in Figure 3.6, reflects the jurisdictions and the importance of organising the planning process in such a manner that the different agencies are brought together in co-operation.

3.5.7.5 Administrative discretion

There were no strict rules for water management planning in Oppland County. Administrators had therefore sufficient flexibility to model effective planning organisations and to ensure that their actions would be effective.

3.5.7.6 Financial resources

The plan was prepared in a two year period between 1984 and 1986. The main contributor to the financing of the plan was Oppland County. In

addition different agencies at the national and regional level contributed either with human resources or with financial support.

The amount spent during the two year period was calculated to approximately 3.4 mill. NOK. The use of human resources in the involved agencies are estimated to 6 years of work.

The obtained policy integration required more financial and human resources than would have been used in water management in the area without the plan.

3.5.7.7 Administrative flexibility

The way the plan was organised, gave flexibility to adapt to new ideas and new perspectives as the planning process proceeded.

3.5.7.8 Data availability and communications

Approximately 35 reports were produced. Two seminars were organised in order to facilitate communications.

In the middle of the planning period a status report on objectives, needs and possible measures within the sectors was prepared. This report was distributed unofficially to water management agencies at the national and regional level.

While the regional agencies and to a certain degree the national agencies were informed throughout the process, this was not the situation for the public and for the municipalities. As can be seen in Figure 3.6, they will first get the opportunity to make comments in the hearing process which is scheduled to take place in winter 1987 when the Steering Committee has made its recommendations.

3.5.7.9 Staff quality

The knowledge and experiences in integrated water management was rather limited when the project started. The way the project was organised, made it possible for people specialized in different fields of education to work together. The tool of integrated water management was therefore learnt during the process.

3.5.7.10 Decision-making

The regional agencies were involved in the decision-making process even before the Steering Committee made its recommendations.

The municipalities and the public were, as stated earlier, first involved when these recommendations were prepared.

3.5.7.11 Public accountability

The fact that a political body, the County Council, makes the final decision, is supposed to have a positive influence on the policy integration. Since the Council has rather few enforcement powers, implementation might be difficult unless the sectorial authorities agree with the decision.

Whether the final decision by the County Council will influence on the politicians' chance of being re-elected is too early to say.

3.5.7.12 Image

The experience with integrated water management at the county level is rather new in Norway.

Since the County Councils have few traditions in this type of planning, the image is difficult to describe.

3.5.7.13 Performance evaluation

The plan will be handled as part of the Oppland County Plan. This plan is reviewed every fourth year and so is also the plan for water management policies.

In the meantime different type of information will be collected in order to see if the recommended actions have been carried out.

3.5.8 Respons

The political decision which will be made by the Oppland County Council, is the integrating mechanism. Administrative measures used are county

planning, co-operation in interagency groups, environmental impact assessment of different actions, and public participation as part of a hearing process.

3.5.9 Results

For the time being the Steering Group is preparing recommendations according to the objectives described in 3.5.7.1. These recommendations will be subject to a hearing process and the final approval will be made by the county Council by end of 1987. Practical results from the Multipurpose Plan are therefore too early to describe.

PROJECT EXAMPLE 6

The lake Stokkavatn is the reserve drinking water reservoir for four municipalities in the Stavanger region, with a catchment area of 9.8 km². The water quality indicates a tendency towards eutrofication caused by phosphorus loads from agriculture and housing areas. The lake and the surroundings have a high potential for recreation activities. A water use plan for this lake will be used as project example 6.

3.6.1 Name

The Plan for Water Use in Stokkavatn in Stavanger Municipality. In this report abbreviated to the Stokkavatn Water Use Plan.

3.6.2 Integration context

Multiple administration interaction at the municipal level.

3.6.3 Agency functions

The organisational flow chart is shown in Figure 3.7.

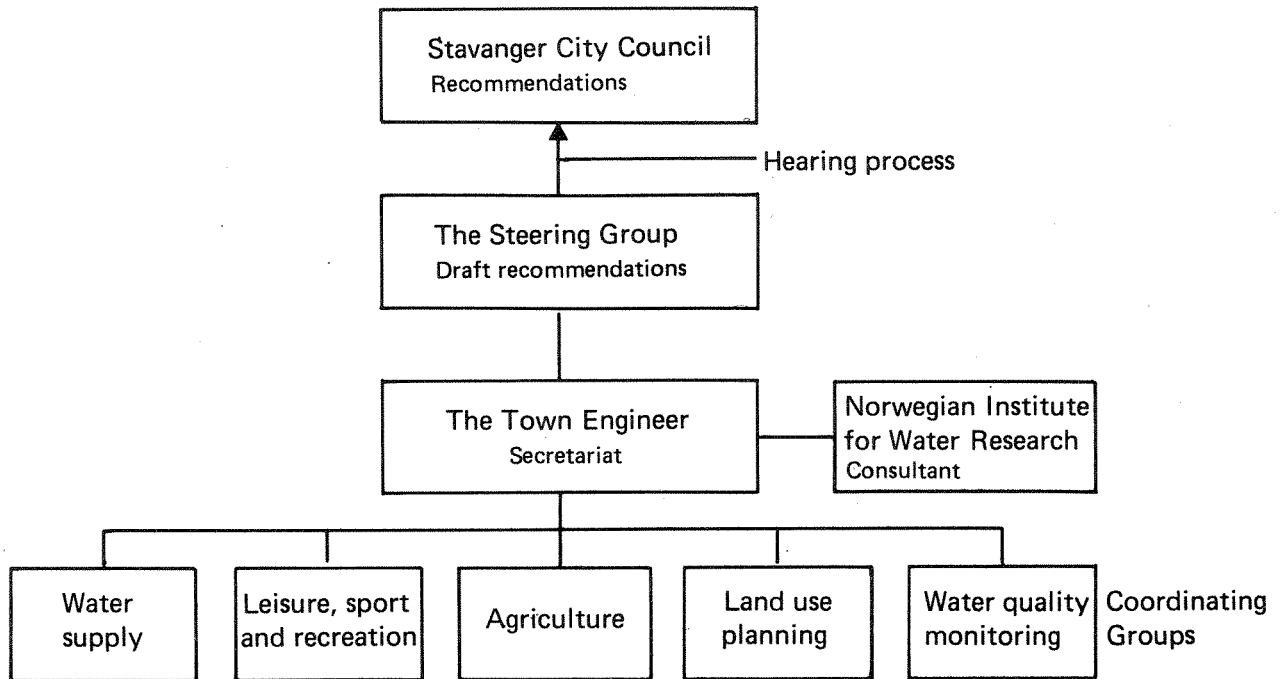


Figure 3.7. The Plan for Water Use in Stokkavatn-organisational flow chart.

Stavanger City Council: Makes decision on plan recommendations.

The Steering Group: Prepares draft recommendations. Comprised by representatives from various municipal administrations. The Group has a political chairman.

The Town Engineer: Secretariat for the Plan.

Coordinating Groups: Coordinate investigations and propose objectives and needs within different sectors. Each group is chaired by the responsible administration.

3.6.4 Levels of government involved

Mainly local level.

3.6.5 Management level involved

Municipal planning with emphasis on water use planning.

3.6.6 Stimulus for change

A proposed development plan for housing in the lake catchment, combined with the ongoing agriculture activities, and the effect this would have on the water quality, the recreation activities and the possibility of retaining the lake as a reserve drinking water reservoir were the main reasons for why the planning process was started.

3.6.7 Administrative context

3.6.7.1 Objectives

The objectives for the plan was formulated by the Steering Group. The main objective was to increase the water quality in the lake by reducing the phosphorus load. The additional objective was to prepare guidelines for land use development which took into consideration different user interests in the area.

3.6.7.2 Administrative jurisdiction

The municipality can decide guidelines for land use development, however, any kind of development on agriculture land has to be approved by the Regional Director of Agriculture.

Concerning measures against pollution control (sewage and agriculture drainage), the authority belongs to the County Environmental Protection Department. The approval of the drinking water reservoir, supplying more than 1000 inhabitants, is carried by the National Institute of Public Health. Since none of these agencies were represented in the Steering Group, recommendations made at the municipal level would therefore have to be approved by these agencies in order to be realized.

3.6.7.3 Enforcement powers

The main enforcement power is the political decision made by Stavanger City Council. This decision also includes budget consequences like for

instance the amount which should be spent in different sectors to meet the political objectives.

3.6.7.4 Administrative structure

The Steering Group was comprised by representatives from sectorial administrations in the municipality. The same administrations were chairing each of the Coordinating Groups which gave premisses to the secretariat.

Since the Steering Group did not have members from the regional authorities, this might cause problems when realising the plan recommendations. So far it is too early to say whether this would happen.

3.6.7.5 Administrative discretion

Though administrators are bound by the budget, they should still have sufficient flexibility to ensure that their actions are effective within the given resources.

3.6.7.6 Financial resources

A consultant was hired to help in preparing the plan. The cost was calculated to approximately 600,000 NOK in 1985. Some of the costs were subsidised by the Ministry of Environment and the Regional Planning Office of Jæren.

The plan was prepared in a two year period between 1983 and 1985. The use of time in the different municipal administrations was stipulated to 16 months.

The policy integration which was obtained, required more financial and human resources than would have been used in water management in the area without the plan.

3.6.7.7 Administrative flexibility

Experiences from the Stokkavatn Water Use Plan showed that municipal administrations were little used to work together and that the process of integration was rather time-consuming. The administrations were therefore, at least in the beginning, little capable to adapt to integrating mechanisms and to shift to different ways of using the resources.

Experiences showed, however, that the establishment of a coordinating body like the Town Engineer helped to create administrative flexibility.

3.6.7.8 Data availability and communication

The different municipal administrations were well informed throughout the planning process. The public, however, was first informed when the Steering Committee had drafted their recommendations. For this occasion a special information brochure was prepared.

3.6.7.9 Staff quality

The Stokkavatn Water Use Plan was the first of this type of planning in Stavanger Municipality, when the process started, knowledge in integrated water management was limited. A consultant with qualification in water quality aspects and water management was therefore hired.

3.6.7.10 Decision-making

The municipal administrations were involved in the decision-making process by being members of the Steering Group. During the two year planning period the Group had all together 15 meetings. The frequency of the meetings was important for the policy integration result.

3.6.7.11 Public accountability

The Stavanger City Council made the final decision. This implied that the plan was coordinated with other municipal planning activities and that the plan recommendations were co-ordinated with the budget decision.

The public was involved rather late in the process. As can be seen from Figure 3.7, the hearing process did not start before the Steering Group had prepared its draft recommendations.

3.6.7.12 Image

The image of the Steering Group and the fact that the Stavanger City Council made the final decision had a positive effect on the development of an integrated water management policy of Stokkavatn.

3.6.7.13 Performance evaluation

The plan will be followed up. The Co-ordinating Groups will collect data in order to see if the plan objectives are met. These data will be used whenever reviewing the management policy of Stokkavatn.

3.6.8 Response

The political decision made by Stavanger City Council is the integrating mechanism. This decision was based on municipal planning governed by a Steering Group with representatives from different municipal administrations.

Public participation was used to get comments on draft recommendations prepared by a Steering Group.

Regulatory measures like water quality objectives, reviewing of pollution permits, measures against agriculture drainage and guidelines for land use development in the lake catchment area were included in the recommendations.

3.6.9 Results

With reference to the objectives following results have been obtained:

- The development plan for the housing area has been stopped.
- Different measures have been made in order to reduce pollution from the existing housing areas.
- A rehabilitation plan for rural sewage plants has been prepared.
- Measures against drainage from agriculture areas has been prepared.
- Plans for building of roads have been changed.
- A water quality monitoring program is put into operation.

S E C T I O N 4

4. INSTRUMENTS FOR INTEGRATED MANAGEMENT

4.1 Introduction

The objective of this project is stated by the OECD Group on National Resource Management to be:

"To identify the institutional arrangements, legal requirements and economic and regulatory mechanisms which lead to an improvement in the integration of water resources management with other natural resources management and other government policies so as to enhance the net economic, environmental and social benefits of water resources use and conservation taking into account the interaction with other resources and sectors."

This implies that within the Norwegian organisation framework of water resources agencies, shown in Figure 1.1 and the hierarchical system of political bodies, shown in Figure 1.2 the objective is to identify measures which stimulate integration of water management with other government policies. In this report, this is done without a discussion on possible changes in the organisation and the political framework. The conclusions in this report are therefore limited to experiences gained in the 6 project examples presented in section 3.

At the end of this section comments are made on whether water resources management in the 6 examples has enhanced the economic, the environmental or the social benefits. These assessments are based on qualitative judgement.

4.2 Criteria for project evaluation

Three of the project examples are concerned with integration at the national level, the fourth with integration in sector planning, the fifth in regional planning and the sixth in local planning.

Conclusions on integration of water management with other government policies are made in relation to the different types of planning involved. Integrating measures whether they be economic, administrative, legal or regulatory are identified and described.

The Guidelines for Country Overviews were attached with a summary table for evaluation of the role of the administrative characteristics in creating an effective integration. All the project examples are recognized to be illustrative of effective integration. A filled in summary table for each example is presented in Appendices 1.1 - 1.6. A couple of comments should be made to these tables.

First, the crosses which are filled in the tables express aggregated values. These are based on appraisals on weights among the characteristics and on valuation of the role each single characteristic play in creating effective integration. For example a characteristic can on a single basis be valued positive in relation to integration in one project example while in another it can be valued negative.

Second, the guidelines describing the administrative characteristics like administrative jurisdiction, enforcement powers, administrative discretion, administrative flexibility and image, have not made a precise distinction of whether it is the lead agency or the group of responsible agencies which should be characterized. In the viewpoint of the consultant this distinction is rather important to the way the characteristics contribute to integration. The tables presented in Appendices 1.1. - 1.6. should therefore be used with caution.

4.3 Conclusions

The conclusions can be summarized as follows:

4.3.1 National level

- Effective integration at the national level is mostly dependent on administrative characteristics like objectives, administrative structures, financial resources and decision-making.

- Statements on objectives for two of the project examples were made politically by the Storting. This was crucially important for an effective integration.
- Since the administrative jurisdictions were distributed among several authorities, the organisation of the administrative structure of the planning processes was very important. This structure constructed by interdepartmental committees, interagency groups at the regional level and by expert committees has been successful in creating integration.
- The available financial resources were sufficient and have created effective integration.
- The political decisions made in two of the project examples were by themselves important integrating mechanisms. So were also the hearing and review processes used before the decisions were made.
- Since the Master Plan will continually be updated, and the result will be used in other water management areas, the characteristic performance evaluation is supposed to be of crucial importance.
- To obtain effective integration the lead agency should be in the possession of administrative discretion and administrative flexibility. The more discretion and flexibility the other involved agencies have, the easier is the task to obtain integration.

4.3.2 Regional level

- Effective integration at the regional level is mostly dependent on administrative characteristics like administrative structures, administrative flexibility and performance evaluation.
- Since the county in general is in the possession of few enforcement powers, the organisation of the administrative structure of the planning process is crucially important for integration. Co-operation in interagency groups together with high degree of administrative flexibility among the agencies involved explains why the structure of the Multipurpose Plan in Gudbrandsdalen was successful as a planning process. At the moment it is too early to evaluate concrete results.

- The characteristic, performance evaluation is thought to be of crucial importance for integration at the regional level. Whether this will be the situation in Gudbrandsdalen is too early to say.
- The political decision which will be made by the County Council is important to integration. So is also the hearing process which includes public participation. The planning process, with the joint efforts to create a knowledge basis for future actions, is supposed to be more important for integration than the political decision itself.

4.3.4 Local level

- Effective integration at the local level is mostly dependent on administrative characteristics like administrative structures, decision-making and performance evaluation.
- The administrative structure used in preparing the Stokkavatn Water use Plan was based on co-operation between municipal administrations, with one administration as lead agency. Though the structure did not involve regional agencies it is believed that the planning organisation created basis for an effective integration.
- The political decision which was made by the Stavanger City Council, was an important integrating mechanism. So was also the hearing process which was conducted before the political decision was made.
- Though it is too early to say, the characteristic performance evaluation is thought to be of crucial importance for integration at the local level. Included in this characteristic are important measures like water quality objectives, pollution permits, measures against non-point pollution sources and guidelines for land used development.

4.3.5 Sector level

- Effective integration at the sector level which in this case concerns the hydro power sector, is mostly dependent on administrative characteristics like enforcement powers, administrative structures and decision-making.

- From a perspective of integration, enforcement powers can be important for the lead agency if the agency has a co-ordinating role to play. In sector administration, however, powers should be distributed between the involved agencies to obtain the best integration.
- The administrative structure which in general includes the process of Environmental Impact Assessment, was crucially important to integration in the Kobbelv Project.
- The political decision which in general is made by the Storting, was a very important integrating mechanism in the Kobbelv Project. So was also the departmental and interdepartmental review and the hearing processes which were conducted before the political decision.

4.3.6 Different level integration

It is important to recognize that integration between water management and other government policies takes place at different levels (national, regional, local, sectorial). In this report for example integration between water management and the energy policy is shown at three levels:

- At the national level in the Master Plan for Water Resources.
- At the sector level in the application procedure for the Kobbelv Project.
- At the regional level in the Multipurpose Plan for Gudbrandsdalen.

Corresponding situations could be described in the interaction areas of fisheries, conservation and land use management.

The national level is the most important arena for water management policy integration with energy and conservation policies. While the local level is the most important for integration with the land use management policy.

4.3.7 Benefits from water management integration

A qualitative judgement of the benefits obtained by water management integration in the six examples is as follows:

- Economic benefits: particularly Project Example 3, 4 and 5.
- Environmental benefits: All examples, particularly Project Example 2 and 3.
- Social benefits: All examples, albeit to a varying degree.

S E C T I O N 5

5. POSSIBLE FUTURE CASE STUDIES

In the Norwegian context of water management where the authorities are distributed among 6 ministries and the political power divided between the Storting, the County Council, and the Municipal Council, national planning is a very important approach to integration of water management policies with policies in other areas.

The Master Plan for Water Resources is the best illustration on integrated water management approach at the national level. The consultant will therefore recommend this project to be used in the second stage of the OECD project. Following arguments explain why the project is suitable for investigations in greater depth:

1. The project is relevant to other member countries as an illustration of national planning used as an integrating tool.
2. The planning process and the methods used are well documented.
3. The Storting approved the Master Plan in 1986 and a revised version of the plan will be introduced in 1987.
4. An English report is presently available on the project, and the Ministry of Environment has in mind to update this report in connection with the revised version of the Master Plan.

S E C T I O N 6

6. REFERENCES

The reference list contains only reports written in English.

- ECE, Senior Advisers to ECE Governments on Environmental Problems:
Environmental Impact Assessment for the Kobbelv Hydro Power Project
in Norway. Group of Experts on Environmental Impact Assessment.
ENV/GE. 1/R.46. Geneva, 1985.
- Ministry of Environment: Environmental Approaches in Norway. Oslo, 1982.
- Ministry of Environment: Nature Conservation in Norway. Development of
a national conservation policy plan. Oslo, 1982.
- Ministry of Environment: Review of Environmental Policies and Strategies
in Norway. Oslo, 1985.
- Ministry of Environment: The Master Plan for Water Resources. Oslo, 1985.
- Ministry of Finance: Norwegian Long-term Programme 1986-89. Report No.
83 to the Storting (1984-85). Oslo, 1985.
- Norwegian Geographical Survey: National Atlas of Norway. Protection Plan
for River Systems. Oslo, 1985.
- Norwegian National Committee of the 13th Congress of the World Energy
Conference 1986: National Energy Data Profile. Oslo, 1986.
- Norwegian Water Resources and Energy Administration: Water Power in
Norway. Oslo, 1983.
- Norwegian Water Resources and Energy Administration: Energy in Norway.
1986 Edition. Oslo, 1986.
- State Pollution Control Authority: Water use and development in Norway.
Oslo, 1976.

A P P E N D I X 1

Evaluation of administrative characteristics
in the project examples

APPENDIX 1.1

Contry: NORWAY

Name of Example: The Master Plan for Water Resources

Would you describe this example as being illustrative of:

Effective Integration X
 Ineffective Integration (Please tick one space)
 No Integration

Characteristic	Role of characteristic in creating present situation			
	Crucially Important	Very Important	Important	Not Important
1. Objectives	<u> X </u>	<u> </u>	<u> </u>	<u> </u>
2. Administrative jurisdiction	<u> </u>	<u> </u>	<u> X </u>	<u> </u>
3. Enforcement powers	<u> </u>	<u> X </u>	<u> </u>	<u> </u>
4. Administrative structures	<u> X </u>	<u> </u>	<u> </u>	<u> </u>
5. Administrative descretion	<u> </u>	<u> X </u>	<u> </u>	<u> </u>
6. Fiscal resources	<u> X </u>	<u> </u>	<u> </u>	<u> </u>
7. Administrative flexibility	<u> </u>	<u> X </u>	<u> </u>	<u> </u>
8. Data availability	<u> </u>	<u> X </u>	<u> </u>	<u> </u>
9. Staff quality	<u> </u>	<u> </u>	<u> X </u>	<u> </u>
10. Decision-making	<u> X </u>	<u> </u>	<u> </u>	<u> </u>
11. Public accountability	<u> </u>	<u> </u>	<u> X </u>	<u> </u>
12. Image	<u> </u>	<u> </u>	<u> X </u>	<u> </u>
13. Performance evaluation	<u> X </u>	<u> </u>	<u> </u>	<u> </u>

APPENDIX 1.2

Contry: NORWAY

Name of Example: The Protection Plan for River Systems III

Would you describe this example as being illustrative of:

Effective Integration X
 Ineffective Integration (Please tick one space)
 No Integration

Characteristic	Role of characteristic in creating present situation			
	Crucially Important	Very Important	Important	Not Important
1. Objectives	<u> X </u>	<u> </u>	<u> </u>	<u> </u>
2. Administrative jurisdiction	<u> </u>	<u> </u>	<u> X </u>	<u> </u>
3. Enforcement powers	<u> </u>	<u> X </u>	<u> </u>	<u> </u>
4. Administrative structures	<u> X </u>	<u> </u>	<u> </u>	<u> </u>
5. Administrative descretion	<u> </u>	<u> X </u>	<u> </u>	<u> </u>
6. Fiscal resources	<u> X </u>	<u> </u>	<u> </u>	<u> </u>
7. Administrative flexibility	<u> </u>	<u> </u>	<u> X </u>	<u> </u>
8. Data availability	<u> </u>	<u> </u>	<u> X </u>	<u> </u>
9. Staff quality	<u> </u>	<u> X </u>	<u> </u>	<u> </u>
10. Decision-making	<u> X </u>	<u> </u>	<u> </u>	<u> </u>
11. Public accountability	<u> </u>	<u> </u>	<u> </u>	<u> X </u>
12. Image	<u> </u>	<u> </u>	<u> X </u>	<u> </u>
13. Performance evaluation	<u> </u>	<u> </u>	<u> X </u>	<u> </u>

APPENDIX 1.3

Contry: NORWAY

Name of Example: The Assessment of the Norwgian Coastal Waters and Rivers for Aquaculture

Would you describe this example as being illustrative of:

Effective Integration (Please tick one space)
 Ineffective Integration
 No Integration

Characteristic	Role of characteristic in creating present situation			
	Crucially Important	Very Important	Important	Not Important
1. Objectives	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Administrative jurisdiction	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Enforcement powers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Administrative structures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Administrative descretion	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Fiscal resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Administrative flexibility	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Data availability	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Staff quality	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Decision-making *)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Public accountability *)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Image *)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Performance evaluation *)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*) Too early in the process to be answered.

APPENDIX 1.4

Contry: NORWAY

Name of Example: The Kobbelv Hydro Power Project, Nordland County

Would you describe this example as being illustrative of:

Effective Integration (Please tick one space)
Ineffective Integration
No Integration

Characteristic	Role of characteristic in creating present situation			
	Crucially Important	Very Important	Important	Not Important
1. Objectives	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Administrative jurisdiction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Enforcement powers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Administrative structures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Administrative descretion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Fiscal resources	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Administrative flexibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Data availability	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Staff quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Decision-making	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Public accountability	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Image	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Performance evaluation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX 1.5

Contry: NORWAY

Name of Example: The Multipurpose Plan for Watercourses in Gudbrandsdalen, Oppland County.

Would you describe this example as being illustrative of:

Effective Integration X
 Ineffective Integration (Please tick one space)
 No Integration

Characteristic	Role of characteristic in creating present stituation			
	Crucially Important	Very Important	Important	Not Important
1. Objectives		X		
2. Administrative jurisdiction		X		
3. Enforcement powers			X	
4. Administrative structures	X			
5. Administrative descretion		X		
6. Fiscal resources		X		
7. Administrative flexibility	X			
8. Data availability			X	
9. Staff quality			X	
10. Decision-making		X		
11. Public accountability			X	
12. Image			X	
13. Performance evaluation	X			

APPENDIX 1.6

Contry: NORWAY

Name of Example: The Plan for Water Use in Stokkavatn, Stavanger Municipality

Would you describe this example as being illustrative of:

Effective Integration X
 Ineffective Integration (Please tick one space)
 No Integration

Characteristic	Role of characteristic in creating present situation			
	Crucially Important	Very Important	Important	Not Important
1. Objectives	<u> </u>	<u> X </u>	<u> </u>	<u> </u>
2. Administrative jurisdiction	<u> </u>	<u> X </u>	<u> </u>	<u> </u>
3. Enforcement powers	<u> </u>	<u> X </u>	<u> </u>	<u> </u>
4. Administrative structures	<u> X </u>	<u> </u>	<u> </u>	<u> </u>
5. Administrative descretion	<u> </u>	<u> X </u>	<u> </u>	<u> </u>
6. Fiscal resources	<u> </u>	<u> X </u>	<u> </u>	<u> </u>
7. Administrative flexibility	<u> </u>	<u> X </u>	<u> </u>	<u> </u>
8. Data availability	<u> </u>	<u> </u>	<u> X </u>	<u> </u>
9. Staff quality	<u> </u>	<u> </u>	<u> X </u>	<u> </u>
10. Decision-making	<u> X </u>	<u> </u>	<u> </u>	<u> </u>
11. Public accountability	<u> </u>	<u> X </u>	<u> </u>	<u> </u>
12. Image	<u> </u>	<u> </u>	<u> X </u>	<u> </u>
13. Performance evaluation	<u> X </u>	<u> </u>	<u> </u>	<u> </u>

A P P E N D I X 2

Integration network between different agencies
in the projects examples

OTHER GOVERNMENT POLICY MAKING BODIES	Natural resource management agencies	Other government policy making agencies	Water agencies at other governmental levels	Water agencies and functions at the same level of government	Private sector groups
WATER RESOURCE AGENCY FUNCTIONS	Forestry Agency Land Management Agency Fisheries Agency Other Nat. Res. Agencies International Agencies	Agriculture Agency Industry Agency Treasury Economic Devt. Agency Energy Agency Health Agency Environment Agency International Agencies Others	International Federal Regional Local Other	Water Provision Pollution Control Water for Fisheries Water-Based Tourism and Recreation Water for other Aquatic Life Aquatic Nature Reserves Waste Disposal Navigation Minimum Flow Provision Flood Control Hydro-Electric Energy Drainage Others	Individuals Water Users Associations Environmental Pressure Groups Farmers Assn. Industry Assn. Native Water Rights Others
Water Provision		X		X	X
- municipal - industrial - agricultural - power		X X	X		X
Pollution Control	X	X		X	
Water for Fisheries					
Water-based Tourism and Recreation					
Water for other Aquatic Life					
Aquatic Nature Reserves		X	X	X X	X X X
Waste Disposal					
Navigation					
Minimum Flow Provision					
Flood Control	X	X X	X	X	X
Hydro-Electric Energy	X	X		X	X X X
Drainage					
Others					

COUNTRY: Norway
 EXAMPLE NAME: The Protection Plan for River Systems III.

APPENDIX 2.4

OTHER GOVERNMENT POLICY MAKING BODIES	Natural resource management agencies	Other government policy making agencies	Water agencies at other governmental levels	Water agencies and functions at the same level of government	Private sector groups
WATER RESOURCE AGENCY FUNCTIONS Water Provision - municipal - industrial - agricultural - power Pollution Control Water for Fisheries Water-based Tourism and Recreation Water for other Aquatic Life Aquatic Nature Reserves Waste Disposal Navigation Minimum Flow Provision Flood Control Hydro-Electric Energy Drainage Others	Forestry Agency Land Management Agency Fisheries Agency Other Nat. Res. Agencies International Agencies	Agriculture Agency Industry Agency Treasury Economic Devt. Agency Energy Agency Health Agency Environment Agency International Agencies Others	International Federal Regional Local Other	Water Provision Pollution Control Water for Fisheries Water-Based Tourism and Recreation Water for other Aquatic Life Aquatic Nature Reserves Waste Disposal Navigation Minimum Flow Provision Flood Control Hydro-Electric Energy Drainage Others	Individuals Water Users Associations Environmental Pressure Groups Farmers Assn. Industry Assn. Native Water Rights Others

COUNTRY: Norway
 EXAMPLE NAME: The Kobbelv Hydro Power Project, Nordland County.

OTHER GOVERNMENT POLICY MAKING BODIES	Natural resource management agencies	Other government policy making agencies	Water agencies at other governmental levels	Water agencies and functions at the same level of government	Private sector groups
WATER RESOURCE AGENCY FUNCTIONS	Forestry Agency Land Management Agency Fisheries Agency Other Nat. Res. Agencies International Agencies	Agriculture Agency Industry Agency Treasury Economic Devt. Agency Energy Agency Health Agency Environment Agency International Agencies Others	International Federal Regional Local Other	Water Provision Pollution Control Water for Fisheries Water-Based Tourism and Recreation Water for other Aquatic Life Aquatic Nature Reserves Waste Disposal Navigation Minimum Flow Provision Flood Control Hydro-Electric Energy Drainage Others	Individuals Water Users Associations Environmental Pressure Groups Farmers Assn. Industry Assn. Native Water Rights Others
Water Provision			X	X	X
- municipal					
- industrial					
- agricultural					
- power					
Pollution Control			X	X	X
Water for Fisheries					
Water-based Tourism and Recreation				X	X
Water for other Aquatic Life					
Aquatic Nature Reserves					
Waste Disposal					
Navigation					
Minimum Flow Provision					
Flood Control					
Hydro-Electric Energy					
Drainage				X	X
Others (land devel.)				X	X

COUNTRY: Norway
 EXAMPLE NAME: The Plan for Water Use in Stokkavatn, Stavanger Municipality.