SECTOR K

ORGANIZATION, INSTITUTION AND LEGAL SYSTEMS

1. EXISTING INSTITUTIONS AND ORGANIZATIONAL SETUP FOR THE BASIN WATER MANAGEMENT

1.1 Regional Government System in Indonesia

The new Autonomy Law (No. 22/1999) was enforced in May 1999. But the regulations for its implementation are enacted only for certain units. Thus, the present regional government system is in a transition period, awaiting the promulgation and implementation of the new regional regulation on the organization and procedures based on the new Law. In this Chapter, *italic words* show Indonesian terms

Regional Governments are categorized into two levels, namely, Level 1 and Level II. Level I Regional Governments are composed of Provinces (*Propinsi*) and Level II Regional Governments are Districts (*Kabupaten*) or Municipalities (*Kota*). Districts are governments in rural areas and Municipalities are in urban areas. Thus, Palembang Municipality (*Kota Palembang*) is a Level II Regional Government in an urban area.

Districts/Municipalities are the basic units of regional government system. Matters which affect over one District/Municipality are assumed by Provinces while those over one Province are assumed by the Central Government. Regional Representative Offices (*KANWIL: Kantor Wilayah*) of Ministries of the Central Government no longer exist except for Finance, Education and Religion. (Formerly, Regional Representative Offices made technical guidance to or technical coordination with Regional Government Services in the related field.)

Regional Parliaments (*DPRD: Dewan Perwakilan Rakyat Daerah*) are established at each Level of Regional Government. Approval by the Regional Parliaments is necessary for making a budget and regional regulation. In addition, each Regional Parliament elects candidate(s) of the regional government's head. Governor (*Gubernur*), the head of Province is appointed by the President, and *Bupati*, the head of District and Mayor (*Walikota*), the head of Municipality are appointed by the Governor.

Structure of regional government offices are similar both for Level I and Level II. Under the head of the regional government, established are Vice Head, such as Vice Governor (*Wakil Gubernur*), *Wakil Bupati* and Vice Mayor (*Wakil Walikota*), Secretariat (*Sekretariat Daerah*), Regional Development Planning Board (*BAPPEDA: Badan Perencanaan Pembangunan Daerah*), Inspectorate (*Inspektorat*) which reports to the head of the regional government, and Services (*Dinas*).

Vice Head assists the Region's Head, coordinates the activities of the Regional Government institutions and is responsible to the Region's Head.

Secretariat supports the Region's Head, collects and analyze information on regional administration.

Services are offices for implementation of government services in respective fields. They execute implementation procedures of services, guidance, planning, licensing and supervision/administration of implementation. Each Service has Secretariat, Sub-Service and Branch Offices under the Head of Service. (Branch offices no longer exist at the Level II.)

BAPPEDA draws up a development plan and financial plan, coordinates government services between the Services in dealing with problems on development.

Sub-Regional Governments

Under Districts/Municipalities, there are Sub-Regional Governments. Their characteristics are summarized as follows.

Table K1.1.1 Sub-Regional Governments

Name	Status	Function	Description
Sub-District (*Kecamatan*)	Under District / Municipality	Coordinate Village Administrations in its jurisdiction.	Head (*Camat*) is appointed by and reports to *Bupati*/Mayor. No parliament.
Village-administration (*Kelurahan*)	Under Sub-District in Urban Areas	A government office in direct contact with the public.	Head (*Lurah*) is appointed by and reports to Head of Sub-District. No parliament.
Village (*Desa*)	Under Sub-District in Rural Areas	A government office in direct contact with the public. Can make village internal Regulations by the proposal and/or approval of the Village Consultative Assembly (*Badan Perwakilan Desa*).	Head (*Kepala Desa*) is elected directly by the Village residents and appointed by and reports to Head of Sub-District.

Points of the New Autonomy Law (No. 22/1999)

The points of new Autonomy Law can be summarized briefly in the following three points:

(1) Authorities of the higher level of the Governments have been transferred to Districts/Municipalities. Matters related only in one District/Municipality are managed by the District/Municipality. Matters related to more than one District/Municipality are managed by the Province.

(2) *Bupati*/Mayor is directly responsible to the Regional Parliament not to the Central Government. The only one candidate of *Bupati*/Mayor is elected by the Regional Parliament and appointed by the Governor.

(3) A Vice Head in a Regional Government is established under the Region's Head to reduce the burden of the Region's Head. Thus, the Region's Head is released from routine work and can devote oneself into policy matters.

Refer to **Annex K1.1.1** for the structure of the Regional Governments and **Annex K1.1.2** for government organizations in water sector, details of which are described in the following sections

Points of the Fiscal Balance Law (No. 25/1999)

The execution of Regional Government's tasks and the Regional Parliament shall be financed from and borne by the Regional budget. The execution of the Central Government's tasks in the Region shall be financed from and borne by the Central Government's budget.

The sources of revenue in the implementation of Regional Government's tasks are:

(1) Regional original revenue;

(2) Proportion Funds;

(3) Regional loans; and

(4) Other legal regional revenues.

Sources of Regional original revenue consist of:

(1) Regional tax collection;

(2) Regional retribution collection;

(3) Income of the region owned enterprises, from the management of separated Region's assets; and

(4) Other legal regional original revenue.

The Proportion Funds consists of:

(1) Region's proportion from Land and Building Tax revenue, Land and Building Acquisition Duty and revenues from natural resources;

(2) General Allocation Funds; and

(3) Special Allocation Funds.

Certain percentage of he Proportion Funds are paid to Regional Governments. The proportion between the Central Government and the Regional Government is discussed in **4. FINANCIAL STATUS IN VARIOUS ORGANIZATIONS RELATED TO WATER MANEGEMENT**.

1.2 Related Organization in National Level

1.2.1 Directorate General of Water Resources in Ministry of Settlement and Regional Infrastructure (*KIMPRASWIL*)

Tasks of Directorate General of Water Resources are:

(1) To conserve sustainable water resources,

(2) To coordinate and integrate water resources management,

(3) To promote just and fair water resources utilization,

(4) To control and mitigate floods,

(5) To empower and improve communities for water resources management, and

(6) To improve availability and accessibility of data and information on water resources development and management.

The Government of Indonesia accumulated its short-term debts rapidly with the Asian financial crisis in 1997 as well as a severe drought and low international oil prices. The World Bank expressed its inability to provide additional financial assistance without substantial reform in institutions. The Water Resources Sector Adjustment Loan (WATSAL) was approved by the World Bank as one of the institutional reform programs offered to Indonesia. See **3. WATSAL AND ITS RELATED PROGRAMS** for a further discussion on WATSAL. Thus, the Government of Indonesia made the policy reform in water resources development through the program so called Water Sector Adjustment Program (WATSAP). There are four components in the framework of new water resources policy:

- Establishment of the framework of water resources development and management,
- Establishment of organizational and funding resources frame of river basin management,
- Establishment of effective institutions in water resources, implementation of proper water quality management, and
- Establishment of effective institutions in water resources, and reformation of irrigation management.

Roles of Directorate General of Water Resources have been changed with decentralization of authority and the policy reform. Water resources development and management must sufficiently consider Provincial, District and Municipality government authorities. In the past, water resources development was based on the nature of rivers i.e. using river basin boundary (hydrological boundary) approach. The central government's role existed dominantly. By the promulgation of New Autonomy

Law (No. 22/1999), government demarcations on water resources development and management are simplified. In addition, all stakeholders should have the same right and responsibility from the very beginning stage of the development. See **Annex K1.2.1** for the organization chart.

1.2.2 National Development Planning Agency (*BAPPENAS*)

The roles of *BAPPENAS* are:

(1) To formulate short-term, medium-term, and long-term national development plans,

(2) To coordinate planning, endeavoring to harmonize sectoral and regional portions, and to create integration in such planning within the national development plan,

(3) In conjunction with the Ministry of Finance to formulate the State Budget,

(4) In conjunction with the related institutions, to formulate credit and capital investment policies,

(5) In conjunction with the related institutions, to formulate policies for the receipt and use of foreign loans and assistance,

(6) To monitor the preparation and conduct of national development planning, as well as efforts to synchronize its programs and projects,

(7) To appraise the implementation of the national development plan, with consideration to the requirements of its programs and projects,

(8) To conduct survey and research necessary to evaluate the performance of planning tasks, as well as for appraisal of the national development, and

(9) To conduct other activities as directed by the President.

BAPPENAS concluded earlier that implementation by the various agencies responsible for water provision was severely deficient without a national program which laid out a strategy for efficient and productive water utilization. It joined WATSAL Steering Committee and set up WATSAL Task Force.

See Annex K1.2.2 for the organization structure.

1.3 Regional Level

1.3.1 Water Resources Service of South Sumatra Province

The organization of the Water Resources Service of South Sumatra Province is stipulated in the Organization and Procedures for Water Resources Service, which is signed and promulgated by the Governor.

Status: Water Resources Service is an Implementation Element of the Provincial Government in the field of water resources management, led by a Head of Service, being subordinated to and responsible to the Governor of the Province;

Tasks are as follows:

(1) Implementation of part of the Provincial Government services in the field of water resources management, and

(2) Implementation of supporting tasks for the Provincial Government services in the field of water resources management transferred to Provincial Government.

Functions are as follows:

(1) Formulation of development plan and management of technical policy, provision of guidance and licensing in the field of water resources pursuant to the policy stipulated by the Governor,

(2) Implementation of development in the field of water resources,

(3) Supervision and technical control of water resources development, operation and maintenance of water resources infrastructure and facilities, and activities of water sources' exploitation, monitoring and control,

(4) Guidance toward Water Resources Section in the Districts/Municipalities in the field of water resources having technical and functional characteristics based on the policy stipulated by the Minister of Settlement and Regional Infrastructure,

(5) Management of Service administration, and

(6) Management of the Water Resources Management Office (*Balai PSDA)*.

Planning Unit was established in July 2002 under the Head of Service with the tasks of:

(1) To formulate master plans of river basins,

(2) To evaluate and monitor flood and drought,

(3) To analyze data for water resources plan, and

(4) To coordinate public consultation on water resource development.

See **Annex K1.3.1** for the organization structure.

1.3.2 Water Resources Management Unit (*Balai PSDA*) for Musi River Basin

Based on the Regional Regulation No. 50/2001 (Formation of *Balai PSDA* in South Sumatra Province), Water Resources Management Unit (*Balai PSDA*) for Musi River Basin has been established, which serves as a technical implementation office under Water Resources Service covering Musi River Basin.

Its jobs are those related to more than one District/Municipality. On the other hand, jobs which are related to only one District/Municipality are transferred to the District/Municipality.

The tasks of *Balai PSDA* are:

(1) Irrigation beyond one District/Municipality;

(2) Raw water supply for multifarious purposes (industry, harbor, clean water, hydro-electric power, water traffic, ponds, etc.),

(3) River management,

(4) Reservoir, lake, natural pond (*situ*) and small reservoir (*embung*) management,

(5) Flood control and drought prevention;

(6) Swamp management;

(7) Water pollution control,

(8) Coastal protection; and

(9) Estuary and delta management.

To implement the above-mentioned tasks, *Balai PSDA* has the following functions:

(1) Operation of the service provision to the public in the field of water resources,

(2) Operation, maintenance, repairs and constructions of water resources infra-structures,

(3) Operation of water sources conservation,

(4) Maintenance of surface water sources and water resources facilities, and

(5) Implementation of administrative technical services.

See **Annex K1.3.2** for the organization structure.

1.3.3 Forestry Service of South Sumatra Province

Forestry Service (*Dinas Kehutanan*)'s main tasks concerning forest protection are:

(1) To formulate forest conservation & protection policy,

(2) To coordinate implementation of forest conservation & protection policy,

(3) To give technical guidance and control forest conservation & protection, and

(4) To provide information on forest conservation & protection to the people.

See **Annex K1.3.3** for the organization structure.

1.3.4 Regional Development Planning Agency (*BAPPEDA*) of South Sumatra Province

Tasks of *BAPPEDA* of South Sumatra are:

(1) To study, arrange and coordinate planning on middle and long-term development in South Sumatra Province,

(2) To arrange implementation plan and budget,

(3) To coordinate international and domestic cooperation,

(4) To promote public participation in planning activities,

(5) To publicize development data/information, and

(6) To evaluate and control development activities.

Concerning the formulation of spatial plans in the task of (1), *BAPPEDA* controls national parks.

See **Annex K1.3.4** for the organization structure.

1.3.5 Settlement and Regional Infrastructure Service of Palembang Municipality

Settlement and Regional Infrastructure Service of Palembang Municipality is characterized as follows:

Purpose: To enhance the execution of Government and development efficiently in particular in the field of operation and maintenance of the construction of roads, bridges, and city channels.

Status: an implementation unit of the settlement and regional infrastructure in the Municipality.

Tasks/Duties: Assisting the Settlement and Regional Infrastructure Service in the execution of Government services in the field of the construction of roads, bridges, city channels, water supply facilities and buildings.

Functions are itemized as follows:

(1) Coordinates the implementation and maintenance of the construction of roads, bridges, city channels, water supply facilities and buildings owned by the Regional Government in its working area which are financed by the Level II Regional Budget Funds, Subsidy of Level I Budget and Subsidy of the National Budget,

(2) Reporting on the result of the implementation of the works in its working area to the Head of Settlement and Regional Infrastructure Service,

(3) Submitting technical considerations to the Head of Settlement and Regional Infrastructure Service, and

(4) Implementing other works provided by the Head of Settlement and Regional Infrastructure Service.

Water Resource Management Sub-service's tasks are:

(1) To formulate water resources management plan,

(2) To develop and improve and rehabilitate irrigation systems,

(3) To manage license on water resource utilization, and

(4) To control floods and other natural disasters as well as erosion.

See **Annex K1.3.5** for the organization structure.

1.4 Other Related Organizations

Other related organizations concerning water resources management are summarized as follows:

Table K1.4.1 Other Related Authorities on Water Resources Management

Abbreviation	Indonesian Name	English Trans.	Main Tasks & Responsibilities
DPE	Departemen Pertambangan dan Energi	Ministry of Mining and Energy	Gives approval of groundwater exploitation Overseas PT PLN activities
DISTAMB	Dinas Pertambangan Daerah Propinsi Dati.I SumSel	Provincial Mining Service, South Sumatra	Determines the allocation and extraction schedules of ground water Controls sand/stone mining
BAPEDAL	Badan Pengendalian Dampak Lingkungan	Environment Impact Management Agency	To assist the President in managing environmental impacts including prevention of and control over pollution and environmental damage To assist the President in rehabilitating environmental quality.
BAPEDALDA	BAPEDAL Daerah Propinsi Dati.I SumSel	Provincial Agency for Environment Impact Management	Responsible for monitoring inspecting and controlling quality of water, air and soil. Coordinating for environmental damages.
DDN	Departemen Dalam Negeri	Ministry of Home Affairs	Responsible for supervision of public services by Regional Governments
PT PLN	Perseroan Terbatas Perusahaan Listrik Negara	State Electric Power Company	Responsible for power generation, transmission and distribution of electricity Responsible for planning, construction and operation of power supply facilities
PDAM Palembang	Perusahaan Daerah Air Minum Tirta Musi Palembang	Regional Water Supply Company (Palembang Municipality)	Responsible for providing municipal and industrial water.

2. LAWS AND REGULATIONS ON WATER MANAGEMENT

2.1 Introduction

Laws and regulations on water management can be divided into two areas, namely water resource, and spatial and environmental management. The basic or umbrella law of the former is Law No. 11/1974 (Water Resources), whose revision is now under discussion in the parliament. The latter has two main laws, Law No. 23/1997 (Environmental Management) and Law No. 24/1992 (Spatial Management). Laws and regulations are interrelated each other and look complicated with not only laws and regulations but also letters of the President and Ministers, which have the same effects as regulations. **Annex K2.1.1** illustrates the structure of laws and regulations.

2.2 Laws and Regulations on Water Resources

2.2.1 Law No. 11/1974 (Water Resources)

Implications

The State has the responsibility for control, development and management of water resources. Priority is put on water uses for drinking, irrigation and energy in water planning and allocation. Direct beneficiaries are to participate in the operation and maintenance with the Central or Regional Government assuming the operation and maintenance responsibility.

Outline

Considerations:

(1) Water including its sources is natural resources given by Almighty God bear multi-purpose benefits and is under the controlled of the state for the prosperity of the nation.

(2) Algemeen Waterreglement 1936 and other regulations related to water resource are no longer meeting the need of present and future condition.

Contents:

I. Definitions

II. Function (water and its sources bear social function and must be used for the prosperity of the people)

III. Authority (is held by the government to manage, develop, give permission, regulate, and decide the planning, utilization and provision of water and/or its sources; recognize the authority of custom society on water and its sources)

IV. Planning and technical planning (for all possible utilization of water base on priority)

V. Founding (setting procedures, regulating and managing water resources and irrigation infrastructures, preventing water contamination, securing and controlling destructive power of water, conducting research and observation on water sources, and directing special education and extension in water resource)

VI. Management (water may be managed by the government or regional government, formal and social bodies, or individuals given authority by the government)

VII. Exploitation and maintenance (conducted by the government and involve people's participation)

VIII. Protection (to secure land and water, to control destructive power of water, to prevent from contamination, and to protect infrastructures)

IX. Funding (communities, formal and social bodies, and individuals having benefits from water should bear responsibility to provide fund for water management)

X. Conviction (for those utilizing water or its sources against the plan or without permission from the authority or ignore the safe use of water are convicted crimes)

XI. Alteration

XII. Enactment

Amendment of the Water Resources Law

The Water Resources Law needs to be amended with a conditionality of Water Resources Sector Adjustment Loan (WATSAL). The new law is expected to promote environmentally and socially sustainable water resources development and management by strengthening the institutional and regulatory frameworks for river basin management, pollution abatement and water quality management, and irrigation systems. A draft of the amendment is being prepared by the Government of Indonesia as of November 2002. Key points of the draft (July 28, 2002 Version) are as follows:

- Management of water resources has the objectives to realize overall water resources benefits, integrated, sustainable and with environmental protection for the utmost welfare of the people (Article 3);
- The sate guarantee the right of everybody to get water for daily basic needs to fulfill a healthy, clean, and productive life (Article 5);

- The National Government manages a river basin that crosses Province or country border, and national strategic river basins with the coordination by the National Water Resources Council (Article 14 & 88);
- The Province Government manages a river basin that crosses District/Municipality border with the coordination by the Provincial Water Resources Council (Article 15 & 88);
- The District/Municipality Government manages a river basin that locates in one District/Municipality with the coordination by the District/Municipality Water Resources Council (Article 16 & 88);
- The National Government and Regional Governments conduct empowerment of executors and institutions of water resources with involvement of communities so that performance of water resources management can be improved (Article 72);
- Communities have the same opportunities to participate in the process of planning, implementation, and supervision of water resources management (Article 85);
- Water Resources Council has main tasks to prepare and formulate policy, as well as strategy for water resources management (Article 87);
- Water Resources Council has members which consists of government elements and non-government elements in balanced number based on the principles of representatives (Article 87); and
- Criminal provisions are stipulated in detail in the text of Article 95.

2.2.2 Government Regulation No. 22/1982 (Water Management)

Implications

This Regulation sets up the basis for river basin management including the requirement for a comprehensive water resources plan for each basin which is to be incorporated in a National Water Plan as part of the National Development Plan. Except for domestic use, all water use requires license from the Provincial Government, including groundwater extraction.

Outline

Objectives:

To manage, utilize, and control water and its sources to the most benefit for the people as the implementation of Law No. 11/1974 (Water Resources).

Contents:

- Right on water is water-use right. Water use right is the right to obtain and utilize water (Article 1 & 2);

- Water management unit is defined as river basin unit (Article 4);
- Water and its sources in a river basin or sub-basin are managed by a regional government. Water and its sources in a river basin or sub-basin covering more than one region are managed by the minister (Article 5). Underground water sources, hot springs as sources of minerals and energy are managed by the minister of mining affairs (Article 6);
- Water for drinking is the first priority (Article 13);
- Everyone holds the right to use water for domestic needs and/or for domesticated animals without permission (Article 16). Water for other uses (urban, commercial, agriculture, power, industry, mining, navigation, recreation, health, etc.) must hold permission (Article 19);
- Everyone is obliged to protect, secure, and sustain the functions of water structures (Article 34);
- Exploitation and maintenance of river structures developed by the national government or a regional government should involve participation of the people. Exploitation and maintenance of river structures developed by the people are the responsibility of the people themselves (Article 36, 37 & 38);
- Budget for the development, exploitation and maintenance of river structures is born by the national government or a regional government with involving participation of the people (Article 40 & 41); and
- The followings are convicted crimes: (a) to use water and/or water sources for use as of Article 19 without authorization, (b) anyone who has permission but does not involve in securing water, water sources, and river structures (Article 43).

2.2.3 Government Regulation No. 6/1981 (Irrigation Infrastructure Maintenance and Exploitation Fee)

Implication

The government regulation stipulates the detailed contents of irrigation infrastructures exploitation and maintenance (IIEM) fee.

Outline

- Irrigation infrastructures exploitation and maintenance (IIEM) fee includes:
  - (a) Fee collected from formal & social bodies and individuals having benefits from water, water sources, and irrigation infrastructures and
  - (b) Fee collected from those who contaminate water and its sources.
- Formal & social bodies and individuals having benefits from the provision of water are subject to IIEM fee, except farmers (who have paid regional taxes), demonstration of farm, seedling, and experiment stations.

- Calculation of IIEM fee is based on the following costs:
  - (a) Exploitation and maintenance,
  - (b) Amortization and interest rate,
  - (c) Depreciation, and
  - (d) Reserved cost for future development.

2.2.4 Government Regulation No. 27/1991 (Swamps)

Outline

Objectives:

In order to achieve optimal use of swamps as source of water and to sustain its utilization as the implementation of Law No. 11/1974 (Water Resources).

Contents:

- **Scope of regulation**: *protection, conservation, and utilization* of swamps in order to secure its ecosystem as source of water.
- **Function**: *water source with multiple use*.
- **Authority**: Authority over the swamps is *held by the government* and is implemented by the minister or a regional government.
- **Inventory and conservation**: to protect swamp ecosystem and to conserve biodiversity of flora and fauna in swamp ecosystem. In order to protect swamp ecosystem, the followings are prohibited: (a) to destruct living ecosystem, and (b) to dump solid or suspended contaminants. Whereas the followings are allowed: (a) to take the water for domestic use (without permission) and for commercial uses (with permission), (b) to take benefits from flora, fauna and other natural resources (with permission), and (c) to reclaim to increase its functions and benefits.
- **Swamp reclamation**: swamps reclamation channels can be developed by the government and a regional government, or by formal/social bodies or individuals with permission from the assigned minister. Government is responsible for exploitation and maintenance of primary channels and structures, while water users are responsible for exploitation and maintenance of tertiary channels and structures. Water users are subject to exploitation and maintenance fee which is to be used for exploitation and maintenance of swamps reclamation channels. Water body of the channels can be used for domestic water source (without permission) and for navigation (with permission). Land areas along the reclamation channels can only be used for securing the swamp reclamation system. Dumping of solid or suspended contaminants in or surrounding the reclamation channels are prohibited by law.

- **Conviction**: the followings are subject to conviction: (a) to take and use water, flora and fauna, and other natural resources from the conserved swamp areas without permission, (b) to reclaim swamps and develop swamp reclamation channels without permission, (c) to destruct living ecosystem and water source in the conserved swamp areas, and (d) to dump solid or suspended contaminants in or surrounding the swamp reclamation system.

2.2.5 Government Regulation No. 35/1991 (Rivers)

Implications

It declares that rivers have multi-purpose uses and delegates responsibility for their development and management to either the National or a regional government in accordance with a classification of their economic importance. Construction of river structure with the aim for public welfare and safety shall be made by the government or a state-owned corporation. In addition, operation of river and river facilities shall be made by the Government or a state-owned corporation.

Outline

Objectives:

In order to utilize and sustain rivers as the implementation of Law No. 11/1974 (Water Resources) which include protection, development, utilization and control.

Contents:

- **Scope of regulation**: *protection, development, utilization and control* over rivers including lakes and reservoirs. Regulation on river includes river border, river channel and ex-river channel. River border with dike is at least 5 meter from the dike along the river, river border without dike is set according to technical, economic, and social considerations.
- **River function**: *water source with multiple use*.
- **Authority**: Authority over the rivers is *held by the government* and is implemented by the minister, state-owned company, or regional government.
- **River planning**: based on *river basin unit*, includes *inventory, registration, observation, evaluation,* and *coordination.*
- **River & river structures development, exploitation, maintenance, and utilization:** *for* the prosperity and safety of the people *by* the government, or state-owned companies, or formal/social bodies, or individuals.
- **Development and management of reservoirs:** Reservoirs are *developed by* the government or formal/social bodies or individuals, *managed by* the government or formal/social bodies or individuals to sustain uses and functions, and *secured* from hazardous activities.

- **Flood control:** Flood control *procedures*, flood-prone and water retention area *management* are set by the government.
- **Prohibition:** *The followings are prohibited*: (a) to alter river channel, (b) to construct, change or destruct buildings inside or across the river, (c) to dump solid, suspended or waste materials in or surrounding the river which contaminate or decrease water quality, (d) to take and to use water except for domestic uses, and (e) to dredge or dig materials in the river.
- **Budgeting***:* Fund for rivers and river structures *development, exploitation* and *maintenance* are born from the government budget, state-owned companies, formal or social bodies, or individuals.
- **Conviction**: misconducts (as of **Prohibition**) are convicted crimes.

2.2.6 Government Regulation No. 77/2001 (Irrigation)

Implications

Assuming the Presidential Instruction No. 3/1999 (Irrigation Management Policy Reform), this Government Regulation was promulgated in order to promote reforms in irrigation area with introducing transparency and accountability of government and empowerment of farmers.

Outline

Objective and Function:

Objective: to achieve comprehensive, integrated, and environmentally sound water utilization and to increase prosperity of the people, particularly farmers.

Function: irrigation functions to maintain and increase land productivity to achieve optimal agricultural production without disregarding other benefits.

Principles of Irrigation Management:

- Irrigation management prioritizes farmers' need through establishment of water user association (WUA) as the decision making unit and main actor in irrigation management in its definite area.
- Irrigation management optimizes the use of surface and ground water in an integrated way.
- Irrigation management is carried out through the principles of *one irrigation system, one management*.

Irrigation management institutions:

- Irrigation management institution includes government, regional government, WUAs, and other parties.

- Irrigation Committee is established when irrigation water is used in multipurpose manner.
- Irrigation Forum is established when its main system is used in multipurpose manner.

Irrigation management authority transfer:

- Irrigation management authority transfer from the regional government to WUA within its area of service, is conducted in democratic process based on the principle of *one irrigation system, one management*.

Irrigation Water-Use Right

- Irrigation water-use right is given by Bupati/Mayor, Governor, and Minister to WUAs, formal or social bodies, individuals, and other water users.
- Irrigation water-use right is given as priority for agricultural activities.

Irrigation Water Provision, Allocation, and Utilization

- Irrigation water provision is directed toward optimization of agricultural production, yet considering other water use.
- Irrigation water provision annual plan is established by the Irrigation Committee based on proposal from WUAs and other water users.
- Irrigation water allocation annual plan is decided by WUA (and other water users) based on the principle of justice, balance, and agreement.
- Irrigation water for tertiary blocks is allocated through intake structures, facilitated with water flow measures and operation charts.
- Irrigation water can be utilized only through intakes at tertiary and quaternary canals.

Irrigation O & M

- WUA holds authority and bears obligation and responsibility in operation and maintenance (O&M) of irrigation system in its service area, coordinating with other water users when necessary.

Budgeting

- Budget for irrigation management is provided by WUA within its service area.
- Government and regional government help in provision of fund for irrigation management.

2.2.7 Presidential Instruction No. 3/1999 (Irrigation Management Policy Reform, PKPI: Pembaharuan Kebijakan Pengeloaan Irigasi)

Background Settings

(1) Authority for irrigation system development, management and financing under the old top-down administrative paradigm is concentrated to central government. Farmers had almost no voice in defining water service nor controlling over funds for O&M such that they had little incentive to pay service fee.

(2) Under the socialization paradigm, farmers' awareness and consciousness regarding irrigation management have been raised. But, this strategy tends to be elaborate, slow, and too intensive such that widespread adoption of the strategy is not practical.

(3) A new paradigm so-called empowerment paradigm is currently being adopted through Water Sector Policy Reform. Through this paradigm, basic institutional change is induced to determine who benefits, who takes control, who has to be accountable to whom, etc.

(4) A shift of water value from a communal resource which is abundant and could be consumed with almost no cost to become an economic resource bearing social function. In addition, water supply scarcity, water demand competition between irrigation and other usage, irrigated land conversion to other usage need an effective irrigation management policy to sustain the irrigation system as well as to secure water right for all stakeholders.

Legal Base

Law No. 22/1999 on decentralization and regional autonomy, Law No. 25/1999 on fiscal balance between central and regional government, and Presidential Instruction No. 3/1999 provide the basic mandate for policy reform in irrigation management.

Outline

Objectives:

Irrigation management policy reform is aimed to transfer the authority in irrigation management from the government (central/regional) to the farmers (water user associations) base on democracy and the principle of "one irrigation system - one management" in order to:

(1) Increase efficiency and effectiveness of irrigation management,

(2) Achieve sustainability of irrigation system, and

(3) Establish autonomy of water user association to secure prosperity of its members.

Contents (Five Key Principles):

(1) Redefinition of role and responsibilities of irrigation management institutions. The targets of this principle are:

(a) Clear and definite division of role and responsibility of each of irrigation management institutions,

(b) Achievement of transparency and accountability in irrigation management,

(c) Capacity increase of regional government officials as well as WUA's members in irrigation management, and

(d) Increase of effectiveness and efficiency of irrigation management.

(2) Empowerment of water user associations (WUAs). The targets of this principle are:

(a) Establishment of WUA as an autonomous irrigation management institution within its jurisdiction,

(b) Increase capacity of WUA as a representative of water users in the irrigation management coordination forum, and

(c) Provision of water right assurance as a collective right for WUA base upon agreement on water allocation.

(3) Irrigation management transfer to farmers. The targets of this principle are:

(a) Management transfer of irrigation system from government to WUAs,

(b) Secure and increase of irrigation system performance managed by WUAs or co-managed by WUA and government, and

(c) Increase in participation of WUAs in irrigation management.

(4) Financing of irrigation system. The targets of this principle are:

(a) Transparency of sources of fund for irrigation management,

(b) Provision of fund for irrigation management,

(c) Establishment of irrigation service fee (ISF) which is managed in a simple, transparency and accountable system,

(d) Increase in capacity of WUA in collection, management and utilization of ISF and other sources, and

(e) Increase in responsibility of farmers to sustain irrigation system through ISF payment.

(5) Sustainability of irrigation system. The targets of this principle are:

(a) Achievement of sustainability of irrigation system which is supported by participatory irrigation development and income generating activities by the farmers.

(b) Provision of strategic planning for water resource development in water districts.

(c) Enforcement of spatial planning to prevent irrigated areas from conversion to non-agricultural usages, and

(d) Secure of mechanism for investment refund if irrigated land conversion is unavoidable.

2.2.8 Ministerial Regulation of Ministry of Public Works No. 63/PRT/1993 (River Channel, River Usage and Non-usage Areas, Old Unfunctional Rivers)

Implication

Ministerial Regulation defines river borders and decrees details of their utilization. River borders may not be used for: dumping of garbage, solid and suspended wastes, developing permanent buildings, houses, and commercial facilities.

Outline

Objectives:

To sustain river functions and to secure river areas based on Government Regulation No. 35/1991 (Rivers).

Contents:

(1) **Scope of regulation**: (a) determination of river borders, (b) management and utilization of land in the outside of authorized river areas, (c) utilization of land in the authorized river areas, and (d) utilization of land in the ex-river channels.

(2) **River Borders:** Objectives:(a) to protect and sustain river functions, and (b) to control destructive water power on river and its environment. River border **with** dike is at least 3 m (in urban areas) or 5 m (outside urban areas). River border **without** dike is 10 – 30 m (in urban areas) or 50-100 m (outside urban areas). Border of lakes and reservoirs is at least 50 m from the highest tide-points. Spring border is 200 m surrounding the springs. Tidal-influenced river border is at least 100 m and functions as green-belt.

(3) **River borders may be used for:** cultivation of permitted crops; commercial; mining; quarrying; posting of billboards, power, phone, and pipe lines;

foundation of roads, bridges and railways; water navigation; water intake and drainage facilities; and social activities.

(4) **River borders may not be used for:** dumping of garbage, solid and suspended wastes, development of permanent buildings, houses, and commercial facilities.

(5) **Land-areas outside of authorized river areas:** may be used with permission from the government, users are subject to maintenance fee.

(6) **Authorized river areas:** (a) within 100 m from the river (for water retention areas), and (b) flood plains. Authorized river areas may be used for certain usage with permission from the government.

(7) **Ex-river channels**: are state property and may be used: (a) to replace land occupied by new river channels, (b) to build irrigation facilities, (c) other use, and (d) cultivation.

2.2.9 Ministerial Letter of KIMPRASWIL No. 529/KPTS/M/2001 (Procedure for Irrigation Management Authority Transfer to Water Users' Association)

Outline

Principle

Irrigation Management Authority Transfer from the Government and Provincial Government or District/City Government to the formal Water Users Associations (WUAs) must be implemented in a democratic way base on the principle "one irrigation system - one management" (Government Regulation No. 77/2001 on Irrigation).

Objectives:

Irrigation Management Authority Transfer is aimed to increase efficiency and effectiveness of irrigation management, to achieve sustainability of irrigation system, to establish autonomous and reliable WUAs, and to increase income of the farmers.

Scope of the Irrigation Management Authority Transfer:

(1) Authority, right, obligation, and responsibility in irrigation management shall be transferred, while irrigation system assets are still the property of government, provincial government, and district/municipality government.

(2) Rearrangement of authority, right, obligation, and responsibility of the irrigation management institutions as a consequence of the transfer.

(3) Provision of water-use right to the WUAs.

(4) Empowerment of irrigation management institutions.

(5) Establishment of irrigation management plan, agreement, and implementation.

Requirements for Irrigation Management Authority Transfer:

(1) WUAs/WUA Group/Federation of WUAs is democratically and formally established.

(2) WUAs/WUA Group/Federation of WUAs have been able to collect a minimum of 50 percent of potential fee or of total members.

(3) Irrigation system is mainly used for agriculture.

(4) Irrigation infrastructures are not in bad condition or totally disfunctional.

(5) WUAs/WUA Group/Federation of WUAs have already set up and implemented an irrigation management plan.

(6) Decision for the irrigation management authority transfer has been approved by members of WUAs/WUA Group/Federation of WUAs.

Approaches for Irrigation Management Authority Transfer:

(1) *Community based*: Irrigation management authority transfer is implemented through a participatory and dialectic ways, while considering members' aspiration.

(2) *Resource based*: Implementation of irrigation management authority transfer should consider local resources such as local farmer institutions, human resource, and materials in order to achieve empowerment of local potencies.

(3) *Socio-cultural, economic and technical approach*: Implementation of irrigation management authority transfer should consider local socio-cultural, economic and technical aspects in an integrated and synergic ways.

(4) *Partnerships:* Implementation of irrigation management authority transfer should be base upon partnerships between WUAs/WUA Group/Federation of WUAs with regional government in a transparent and reliable ways.

2.2.10 Ministerial Letter of Home Affairs No. 179/1996 (Organization Guidelines of Basin Water Resources Management Unit (Balai PSDA))

Outline

Position:

(1) Balai PSDAs are technical implementation units of the Provincial Office of Public Work or Provincial Office of Water Resource.

(2) A Balai PSDA is managed by the Head of Balai PSD*A* who is subordinate of and responsible to the Head of the Provincial Office of Public Works or Provincial Office of Water Resources.

Main tasks:

Balai PSDA's main tasks are to take parts of the functions of Dinas in basin water resource management which include the followings:

(1) Cross-districts irrigation matters,

(2) Provision of base water for various needs: industrial, ports, drinking water, hydropower, transportation, fishpond, tourism, etc,

(3) Rivers,

(4) Lakes and reservoirs,

(5) Drought and flood control,

(6) Swamps,

(7) Water contamination control,

(8) Coasts, and

(9) Estuaries and deltas.

Functions:

Balai PSDA's functions are:

(1) Provision of services for the public in irrigation matters,

(2) Implementation of conservation/sustainable use of water and water sources, and

(3) Technical administration services which include financial, personnel, and logistic matters.

Organization:

Balai PSDA organizational pattern consists of:

(1) Head,

(2) Sub-division of Administration,

(3) Operational sections,

   (a) Operation and Data Management Sub-section

   (b) Maintenance and Rehabilitation Sub-section

   (c) Control and Security Sub-section.

(4) Expert group.

2.2.11 Ministerial Letter of Home Affairs No. 50/2001 (Guidelines for Empowerment of Water Users' Associations)

Outline

Objectives:

Water User Associations (WUA) is established in democracy (from the farmers, by the farmers, and for the farmers).

Authority, Rights, and Obligations

WUA is authorized, within its area of jurisdiction, to:

(1) Develop irrigation management plan,

(2) Implement irrigation management, including ground and surface water management in an integrated way,

(3) Monitor and evaluate the implementation of irrigation management, and

(4) Manage irrigation management fund for the sustainability of irrigation system.

WUA, FWUA, FFWUA bear the rigts, within its area of jurisdiction, to:

(1) Determine cropping pattern,

(2) Obtain water use right,

(3) Get water allocation,

(4) Bear the right to manage irrigation infrastructures,

(5) Bear the right to manage reservoir which has been transferred,

(6) Regulate its own organization,

(7) Propose assistance and facility from the regional government or other parties,

(8) Own land and property and to have contract with other parties,

(9) Bear the right in water resource/river basin management, and

(10) Cooperate with other parties, including regional government.

WUA, FWUA, FFWUA bear the responsibilities within its area of jurisdiction to:

(1) Plan and implement canals and structures maintenance,

(2) Manage water allocation, distribution, utilization, and drainage of excess water,

(3) Rehabilitate and upgrade irrigation network,

(4) Secure the sustainable function of irrigation system,

(5) Implement its own regulation,

(6) Obey the higher regulation,

(7) Develop farming system, and

(8) Increase prosperity of its members.

Empowerment:

Empowerment of WUAs, FWUAs, FFWUAs is aimed to obtain formal status of the associations, increase human resources in management, technical and financial matters in order to be able to manage the irrigation system self-reliantly.

Empowerment of WUAs, FWUAs, FFWUAs is implemented in the following manners:

(1) Based on the principles of partnership, transparency, democracy, accountability and law assurance.

(2) Through participatory, integrated planning, socio-economic, dialogic, and resource-based approaches.

(3) Motivate, train, transfer authority, facilitate, empower and cooperate in irrigation management.

Area of Service:

(1) WUA: one tertiary unit

(2) FWUA: one secondary unit (a part of an irrigation scheme)

(3) FFWUA: primary unit (an irrigation scheme)

Financial Sources:

(1) Irrigation service fee (ISF)

(2) Donation/grant from other parties

(3) Efforts of WUA, FWUA and FFWUA

(4) Grant from government or regional government

(5) Grant from foreign foundations/institutions

ISF is collected from WUA members. Collection, management and utilization of ISF are determined by WUA, FWUA, or FFWUA.

2.3 Laws and Regulations on Spatial and Environmental Management

2.3.1 Law No. 5/1990 (Conservation of Bio-natural Resource and Its Ecosystem)

Outline

Objectives: (Article 3)

Conservation of bio-natural resource and its ecosystem is aimed to provide efforts in sustaining bio-natural resource and balancing its ecosystem in order to support the increase of prosperity and quality of human beings.

Responsibility and Obligation: (Article 4)

Conservation of bio-natural resource and its ecosystem is responsibility and obligation of both government and the people.

Activities: (Article 5)

(1) *Protection* of living buffer system.

(2) *Conservation* of diversity of flora and fauna and their scosystem.

(3) *Sustainable utilization* of bio-natural resource and its ecosystem.

Protection of Buffer System: (Article 6 - 10)

Living buffer system is natural processes of biotic and non-biotic elements to ensure sustainability of wellbeing in order to support the increase of prosperity and quality of human beings. In order to achieve this, government will:

(1) Assign an area as a living buffer system.

(2) Regulate and take necessary actions on land-use and water concession located in a living buffer system.

Conservation of Flora & Fauna and their Ecosystems: (Article 20 & 21)

Flora and fauna being protected and conserved are:

(1) those being threatened to disappear/disappearing species.

(2) scarce species.

Every one is prohibited to take, cut, own, destroy, keep, and trade whole or any parts of protected living or death plants or bring them out of one place to other place in or out of Indonesia.

Every one is prohibited to catch, kill, keep, own, domesticate, or trade whole or any parts of protected living or death animals being protected; or things made from them; or their eggs and nests; and bring them out of one place to other place in or out of Indonesia.

Sustainable Utilization of Plants and Wild Animals: (Article 36)

Sustainable utilization of plants and wild animals can be done through:

(1) Utilization of environment of the nature protected areas.

(2) Utilization of plants and wild animals while considering their sustainable potentials, support, and diversities.

People's Participation: (Article 37)

(1) People's participation in bio-natural conservation is managed and regulated by the government.

(2) Government develops and increases people's awareness on bio-natural conservation through education and extension.

2.3.2 Law No. 24/1992 (Spatial Management)

Outline

Definition:

In accordance to Law No. 24/1992 regarding spatial planning,

(1) Spatial plan is form and pattern of spatial utilization with or without planning.

(2) Spatial planning is process of spatial designing, utilizing, and controlling.

Objectives of Spatial Planning

(1) Spatial utilizations are sound environmentally.

(2) Protected and unprotected areas are established.

(3) Spatial utilizations are integrated, balanced, effective, efficient, protective, and preventive against negative impacts.

Spatial Planning Process

People's right and obligations in spatial planning:

(1) Every one has the right to have spatial benefits including spatial value-added as a result of spatial planning.

(2) Every one has the right to know spatial plan, to participate in designing, utilizing, and controlling of spatial utilization.

(3) Every one has the right to have sufficient compensation of his/her experienced condition due to the implementation of spatial plan.

(4) Every one is obliged to participate in spatial quality maintenance efforts.

(5) Every one is obliged to obey the established spatial plan.

Coordination of Spatial Plan between Provinces and Districts

Spatial plan can be divided into:

(1) National spatial plan

(2) Provincial spatial plan

(3) District/municipality spatial plan

National spatial plan:

(1) Contents: protected, unprotected, and definite areas; norms and criteria; umbrella for provincial and district/municipality spatial plan.

(2) National spatial plan is to be the guidelines for provincial and district/municipality spatial planning.

(3) Planning period: 25 year.

(4) Established by Government Regulation (No. 47/1997).

Provincial spatial plan:

(1) Contents: protected, rural and urban area management; settlement, transportation, forestry, agriculture, mining, industry, and tourism area development; regional infrastructure development; land-use, water-use, atmosphere-use, and natural resource policy.

(2) Provincial spatial plan is to be the guidelines for district/municipality spatial planning.

(3) Planning period: 15 year.

(4) Established by Provincial Regulation (Perumda).

District/municipality spatial plan:

(1) Contents: protected, rural and urban area management; settlement, transportation, telecommunication, energy, water resource and environmental management; land-use, water-use, atmosphere-use, and natural resource policy.

(2) District/municipality spatial plan is to be the guidelines for detail district/municipality spatial planning.

(3) Planning period: 10 year.

(4) Established by District/municipality Regulation (Perumda).

2.3.3 Law No. 23/1997 (Environmental Management)

Outline

Targets/objectives:

(1) To sustain environmental function.

(2) To achieve wise-use of resources.

(3) To prevent from impacts which may lead to environmental contamination and destruction.

Rights, Obligation and Participation of People:

(1) Every on has equal right to good and healthy environment, to obtain information on environment, and to participate in environmental management.

(2) Every one is obliged to maintain sustainable function of environment, to prevent from environmental contamination and destruction, and to provide accurate information on environment.

Scopes:

Sustaining the environment:

(1) All activities with large/important impacts are subject to environmental impact assessment (EIA).

(2) Persons in-charge (in designated activities) are obliged to provide waste management.

(3) Persons in-charge (in designated activities) are obliged to provide hazardous/poisonous substance management.

Managing the environment:

(1) All activities with large/important impacts must obtain permission from the authority.

(2) Wastes disposed to the environment are subject to permission from the authority.

(3) Import of hazardous and poisonous substances are prohibited.

(4) Environmental audits are encouraged.

Conflict Resolution:

(1) Environmental conflict resolution can be done inside or outside court.

(2) People bear the right to propose class action on environmental issues or problems appear to disadvantage/endanger the people.

2.3.4 Law No. 41/1999 (Forestry)

Outline

Definitions:

(1) Forestry is management of forest, forest area, and forest product which is implemented in an integrated system.

(2) Forest is an ecosystem containing bio-natural resources dominated by trees in a unity of natural environment.

(3) Forest area is an area designated by the government to protect its existence as forest.

(4) State forest is forest area locates on land bearing no right in it.

(5) Property forest is forest area locates on land bearing right in it.

(6) Custom forest is state forest locates in an area of custom society.

(7) Production forest is forest area functioning mainly for forest production.

(8) Protected forest is forest area bearing special characteristics functioning mainly for protection of water source, flood protection, erosion control, saline water intrusion prevention, and soil fertility maintenance.

(9) Conserved forest is forest area bearing special characteristics functioning mainly for biodiversity conservation of flora and fauna and its ecosystem.

(10) Nature protected forest is forest area bearing special characteristics functioning mainly as area for biodiversity conservation of flora and fauna and its ecosystem and functioning also as buffer system of living creatures.

(11) Nature conservation forest is forest area bearing special characteristics functioning mainly for protection of buffer system of living creatures, biodiversity conservation of flora and fauna, and sustainable utilization of bio-natural resource and its ecosystem.

(12) Hunting ground is forest area designated for hunting activities.

(13) Forest products are biological substance, non-biological substance and its derivatives, and services born from forest.

(14) Government is the central government.

(15) Minister is the minister given responsibility in forest affairs.

Forest Rehabilitation and Reclamation:

Forest and land rehabilitation is meant to revitalize, sustain, and increase forest and land functions such that its bearing capacity, productivity, and role is secured in order to support living creatures.

Forest and land rehabilitation is implemented through the following activities:

(1) Reforestation

(2) Re-greening

(3) Maintenance

(4) Enrichment or

(5) Application of soil conservation technology through vegetation and civil engineering techniques on critical and unproductive land.

Rehabilitation as mentioned above is carried out in all forests and forest areas, except in nature protected areas and core zones of a national park.

Explanation

Nature protected forest area in this law is part of nature protected areas designated in Law No. 5/1990 which locates in forest area.

Nature conservation forest area is part of nature conservation areas designated in Law No. 5/1990 which locates in forest area.

Regulations regarding nature protected areas and nature conservation areas in Law No. 5/1990 is applied in nature protected forest area and nature conservation forest area of this law.

2.3.5 Presidential Letter No. 32/1990 (Protected Area Management)

Outline

Definition:

Protected areas mainly function to protect environment and its sustainability which cover natural resources, man-made resources, historical and cultural properties in order to achieve sustainable development.

Objectives:

(1) To prevent from environmental degradation.

(2) To increase protection function of environment with regard to land, water, climate, flora and fauna, historical and cultural properties.

(3) To maintain diversity of flora, fauna, ecosystems, and natural uniqueness.

Scopes:

(information between parentheses are criteria for designated areas)

(1) Protection forests (≥ 40% slope and/or 2000 meter altitude).

(2) Peat swamps (≥ 3 meter peat land)

(3) Water retention areas (heavy rainfall)

(4) Coastal borders (≥ 100 meter from coastline at highest tide)

(5) River borders (≥ 100 meter for big rivers, 50 meter for small rivers, 10-15 meter at settlement)

(6) Lakes/reservoirs surroundings (50-100 meter from highest tide)

(7) Spring surroundings (≥ 200 meter perimeter)

(8) Natural reserves (biodiversity of flora and fauna, originity/undisturbed, local specific)

(9) Marine reserves (biodiversity and ecosystem uniqueness)

(10) Mangrove forest (130 times the difference between highest and lowest tides)

(11) National parks, great forest parks, natural tourism parks (fixed vegetation, biodiversity, good access for tourism)

(12) Cultural and scientific reserves (historical heritage, archaeological sites, national monuments, geological forms diversity)

(13) Disaster fragile areas (potentially or frequent disaster areas, e.g. volcanic eruptions, earthquakes, land sliding)

Assignment and Control on Protected Areas:

(1) Protected areas are assigned by *Perumda* (provincial and district/municipality) and implemented in an integrated and inter-sectoral manners.

(2) All exploitations are prohibited in the protected areas, except those meeting the function of the protected areas.

(3) All existing activities in the protected areas are subject to EIA (according to the Government Regulation No. 29/1986).

(4) Minerals, ground water, and other resource exploitation are permit table, but must be rehabilitated to revital the function of the protected areas.

2.3.6 Government Regulation No. 69/1996 (Implementation of Rights, Obligation, and Procedure of People's Participation in Spatial Management)

Outline

People's Rights: (Article 2)

(1) To participate in planning, utilization and control process.

(2) To be clearly informed regarding spatial plan and detail plan.

(3) To obtain benefits and added-benefits as a result of spatial planning.

(4) To get sufficient compensation from condition change as a result of spatial planning.

Implementation of People's Right: (Article 3)

Government is obliged to publish spatial plan at accessible public places.

People's obligation: (Article 6)

(1) To participate in spatial quality maintenance.

(2) To obey spatial plan.

People's Participation in Spatial Planning: (Article 8)

(1) To give inputs in directing spatial development.

(2) To identify potencies and obstacles in development.

(3) To give inputs in establishing spatial plan.

(4) To give information, opinions and suggestions.

(5) To convey disagreement on spatial plan.

(6) To co-operate in research and development.

(7) To provide expertise.

Forms of Participation: (Article 9 and 10)

(1) Opinions and considerations on spatial utilization policies.

(2) Technical assistance and management of spatial plan.

Procedures of Participation:

Inputs, considerations, opinions, responses, or disagreements with regard to spatial planning, utilization, and control are conveyed in spoken or written to the incharge minister (for National Spatial Plan), to the Governor (for Provincial Spatial Plan), and to the Mayor/Bupati (for District/Municipality Spatial Plan).

2.3.7 Government Regulation No. 47/1997 (National Spatial Planning)

Outline

Objectives:

To achieve sustainability of natural resources utilization for the nation prosperity, inter spatial and inter sectoral balance, and nation integrity.

Scopes:

Utilization of national areas up to 100 meter below and 1.000 meter up of the earth surface and up to the outer limit of the exclusive economic zone.

Structures:

(1) Protected areas (see Presidential Letter No. 32/1990)

(2) Exploitation areas:

  (a) Production forest area (limited, fixed, converted forest areas.

  (b) Community forest

(c) Agriculture area (lowlands, uplands, estate, animal domestication, fisheries)

(d) Mining area (strategic, vital, others)

(e) Industrial areas

(f) Tourism area

(g) Settlement areas

(3) Specific areas (Jabotabek, Gerbang Kertasusilo, Mebidan, etc.)

Revision:

At least 5 year after enactment.

2.3.8 Government Regulation No. 82/2001 (Water Quality Management and Pollution Control)

Outline

<Water Quality Management>

Authority: (Article 5)

(1) (Central) government is authorized to manage international and inter-provincial water quality.

(2) Provincial government is authorized to manage inter-districts/cities water quality.

(3) District/municipality government is authorized to manage water quality within its administrative boundaries.

Water Quality Classification and Criteria: (Article 8 & 9)

Water quality is classified into 4 grades:

(1) First grade: base water for drinking water and other use requiring similar criteria.

(2) Second grade: water for infrastructures/facilities for water recreation, fresh water fishing, animal husbandry, irrigation and other use requiring similar criteria.

(3) Third grade: fresh water fishing, animal husbandry, irrigation and other use requiring similar criteria.

Water Quality Monitoring: (Article 13)

Water quality monitoring for water sources within a district/municipality, inter-districts/municipalities, and inter-provincial/international is conducted by the district/city government, provincial government, and central government respectively.

Water quality monitoring is conducted at least once every 6 (six) months.

<Water Contamination Control>

Authority: (Article 18)

Water contamination control for water sources within a district/municipality, inter-districts/municipalities, and inter-provincial/international is conducted by the district/city government, provincial government, and central government respectively.

Central government, provincial government, and district/city government are authorized within their jurisdiction to:

(1) Decide contamination capacity (at least once every 5 year).

(2) Inventory and identify sources of contamination.

(3) Decide waste water criteria for application on soil.

(4) Decide criteria for waste water to be dumped to water or water sources.

(5) Monitor water quality at its source.

(6) Monitor other factors affecting water quality.

Waste Water Disposal Retribution: (Article 24)

Every one dumping waste water to waste water infrastructures provided by the district/city government is subject to pay retribution.

<People's Rights and Obligations>

People's Rights: (Article 30)

(1) Every one has equal right to good quality of water.

(2) Every one has equal right to obtain information on water quality status, management, and contamination control.

(3) Every one has the right to participate in water quality management and contamination control.

People's Obligations: (Article 31 & 32)

(1) Every one is obliged to sustain water quality at it sources.

(2) Every one is obliged to take control on water contamination at it sources.

(3) Every one having activities is obliged to provide accurate information regarding water quality management and contamination control.

3. WATSAL AND ITS RELATED PROGRAMS

3.1 Introduction

Water Resources Sector Adjustment Loan (WATSAL) was approved by the World Bank in 1999 for the balance of payments assistance to support a structural adjustment program of policy, institutional, regulatory, legal, and organizational reforms in the management of the water resources and irrigation sector. Summary of the loan is shown below:

Table K3.1.1 Loan Summary of WATSAL

(As of August 1st, 2003)

Basic Information	
Project Status	Active
Region	East Asia And Pacific
Country/Area	Indonesia
Major Sector (Sector) (%)	Water sanitation and flood protection (Water supply) (46%)
	Law and justice and public administration (Central government administration) (35%)
	Agriculture fishing and forestry (Irrigation & drainage) (19%)
Environmental Category	B (Limited environmental assessment is required.)
Project ID	P064118
Bank Team Lead (Last Name, First)	Alaerts, Guy J.
Approval Date	05/18/1999
Closing Date	12/31/2003
Borrower	GOI
Implementing Agency	BAPPENAS
Financial	
Main Loan/Credit Number	44690
IBRD Commitment	USD 300 million
IDA Commitment	0
IBRD + IDA Commitment	USD 300 million
Grant Amount	0
Total Project Cost	USD 300 million
Product Line	IBRD/IDA
Lending Instrument	Sector Adjustment Loan

Source: World Bank

The loan has been extended from the viewpoints of macroeconomic adjustment aspect and sector management aspect.

From the Viewpoint of Macroeconomic Adjustment:

Indonesia was suffering from the economic crisis in 1997 triggered by the currency crises in Thailand. The direct causes of crisis in Indonesia were the rapid increase in

short-term private external debt in recent years as well as long-standing shortcomings in Indonesia's banking system. At the same time, Indonesia faced the worst drought in the 20th century, a collapse in regional demands, and the lowest international oil prices. According to the World Bank's report, "What made Indonesia's crisis so much worse than other East Asian countries were critically weak institutions and endemic corruption, at a time of high political uncertainty, as the Soeharto era was drawing to a close."

From the Viewpoint of Sector Management

The management of water resource in Indonesia has problems that severely constrain country's economic development and food security, which in turn cause serious damage on public health and its aquatic environment. Major problems include growing water shortages, limited inter-sectoral cooperation, water pollution, environmental degradation, and declining physical and fiscal sustainability of existing irrigation infrastructure facilities. Such problems arise from: (a) the combined impacts of population growth, urbanization and industrialization, (b) an ineffective sector administration guided by outdated sector policy paradigms, management institutions and data systems which cannot solve problems effectively and comprehensively. The World Bank recognized, "The challenges posed by these problems need to be addressed by comprehensive policies, integrated cross-sector strategies, improved institutions, and fiscally and environmentally sustainable programs."

Objectives of the Program

The Water Sector Adjustment Program (WATSAP) has been started with WATSAL. WATSAP has following four major objectives:

(1) Improve the national institutional framework for water resources development and management

(1.1) Establish a national water resources management coordination framework

(1.2) Adoption of a national policy for water resources management

(1.3) Involvement of private sector in development and stakeholders in basin management policy and decision-making

(1.4) Improve national water resources information and decision support systems

(1.5) Improve national hydrological and water quality data collection and management system

(2) Improve the organizational and financial framework for river basin management

(2.1) Improve provincial regulatory management of river basins and aquifers

(2.2) Develop sustainable corporate framework for management of strategic river basins

(2.3) Introduce secure, equitable and efficient water allocation

(3) Improve regional water quality management regulatory institutions and implementation

(3.1) Establish an effective and enforceable national regulatory framework for water pollution control

(3.2) Integrated water quality management implemented in six highly developed river basins (Bengawan-Solo, Brantas, Citarum, Jeneberang, Jratunseluna and Serayu-Bogowonto)

(4) Improve Irrigation management policy, institutions and regulations

(4.1) Improve irrigation governance, transparency, and accountability through farmer empowerment and management transfer

(4.2) Improve regional government irrigation services

(4.3) Ensure fiscal sustainability and efficiency of O&M and rehabilitation of irrigation schemes

3.2 Programs Already Implemented

Followings are major programs already implemented for the water resources sector adjustment in order to fulfill the conditions of the loan disbursement.

Program Implemented by May 1999 in the First Tranche Agenda

- Presidential Instruction Number 3/1999 on Irrigation Management Policy Reform
- Presidential Decree Number 9/1999 on River Basin Management and Utilization Policy Coordination Team

Program Implemented by December 2001 in the Second Tranche Agenda

- Government Regulation Number 77/2001 on Irrigation
- Government Regulation Number 82/2001 on Water Quality Management and Water Contamination Control
- Presidential Decree Number 123/2001 on Water Resources Management Coordination Team (including policy principles of national water resources management)

- Ministerial Letter of the Coordinating Minister for Economic, Finance and Industry Number 34/M. EKUIN/07/2000 on Establishment of Task Force Team for Irrigation Management Policy Reform
- Ministerial Letter of the Coordinating Minister for Economic Number 14/M.EKON/12/2001 on National Policy Direction of Water Resources
- Ministerial Letter of the Coordinating Minister for Economic Number 15/M.EKON/12/2001 on the Establishment of Secretariat for Water Resources Management Coordinating Team (as the changing of the Ministerial Letter of the Coordinating Minister for Economic Number 34/M. EKUIN/07/2000)
- The Agreement of related departments on Water Resources Data and Information System and Networking
- Ministerial Letter of the Minister of Settlement and Regional Infrastructures Number 509/KPTS/M/2001 on Hydrology Management
- Ministerial Letter of the Minister of Settlement and Regional Infrastructures Number 427/KPTS/M/2001 on Technical Guidelines for the establishment of regional regulation on Hydrology Management
- Ministerial Letter of the Minister of Home Affairs Number 50/2001 on the Guideline for the Establishment and Empowerment of Water Users Associations
- Ministerial Letter of the Minister of Settlement and Regional Infrastructures Number 529/KPTS/M/2001 on the Guideline for the irrigation management turnover to the WUAs
- Letter of the Director General of Water Resources of the Ministry of Settlement and Regional Infrastructures Number 90/KPTS/D/2001 on the establishment of Water Resources Data and Information Unit under the Directorate General of Water Resources
- Provincial Regulation/Governor Letter on the establishment of financial arrangement and Hydrology Unit and the establishment of provincial hydrology unit in 8 provinces

<u>Program Implemented as of December 2002 in the Third Tranche Agenda</u>

- Ministerial Decree of the Coordinating Minister of Economics Number 13/M.EKON/3/2002 on Structural and Membership Change of the Secretariat of Water Resources Management Coordination Team
- Ministerial Decree of the Coordinating Minister of Economics Number 39/M.EKON/09/2002 on Second Change of the Ministerial Decree of the Coordinating Minister of Economics Number KEP-15/M.EKON/12/2001 on Establishment of Secretariat of Water Resources Management Coordination Team

- Governor Decree on the Guideline of Establishment of the Water Resources Management Coordination Team at Provincial, River Basin, and District/City level (in 8 Provinces)
- Establishment of WUA Federations in 8 provinces. The establishment of WUA Federations at secondary blocks has been completed in all over Indonesia, particularly in West Java, Banten, Central Java, East Java, Yogyakarta, North Sumatra, West Sumatra and South Sumatra.

3.3 Present Status of WATSAL

The first tranche of US$ 50 million was released on June 21, 1999, when the loan agreement was singed. It was planned that the second tranche of US$ 100 million be released in December 1999 on the fulfilment of all agenda items as the conditionality of second tranche, that were listed in the Government of Indonesia's Letter of Sector Policy and Policy Matrix. Those items, however, were not completed and the second tranche release was considerably delayed to be released in December 2001. As a result, the closing date for WATSAL (originally third quarter of 2000) was postponed first to December 31, 2001, again to June 30, 2003, and finally to December 31, 2003, when the final third tranche of US$ 150 million will be released by the World Bank.

Government of Indonesia has been slow to meet the detailed conditionality mandated by WATSAL. There are several reasons of the delay including:

- The complicated and cumbersome provisions of the restructuring have to be developed and implemented by a reluctant water sector bureaucracy that is fearful of losing its traditional authority and status;
- Decentralization, without adequate capacity-building and guiding directives, serve to retard governance due to the confusion it generates;
- Over-lapping responsibilities, unclear division of responsibilities between government agencies, fuzzy reporting and accountability lines between various administrative tiers of government, and issuance of parallel regulations by a number of authorities;
- Lack of coordination between government agencies, unreliable data and diagnosis are also the obstacles on the road to institutional reform; and
- New laws and corresponding regulations are not fully known to people due to lack of communication flow. It is further complicated by the lack of ownership felt towards the process as it is believed the restructuring is being carried out at the behest of the World Bank and other external entities with limited national control.

3.4 Balai PSDA

In accordance with one of the objectives of WATSAL, "Improve provincial regulatory management of river basins and aquifers" (Objective 2.1), establishment of Water Resources Management Units (Balai PSDA) has been promoted.

Historically speaking, setting-up of management corporations in a few strategic basins was discussed in an International Water Seminar held in Indonesia in 1992, which focused on the water resources management policy options. It was recognized that not only is there a need to develop and maintain river utilization structure, but also to establish water resources management affecting all basin activities. As a result, Balai PSDA was established in 1996, based on which pilot river basin management programs have proceeded in Java, supported by the World Bank.

The Decree by Ministry of Home Affairs No. 179/1996 (Organization Guideline and Job System of Balai PSDA) stipulates that a Balai PSDA undertakes basic hydrological data collection, water quality sampling, river infrastructure maintenance and the operation of water allocation and abstraction in compliance with the determination of the Governor. It is planned that Balai PSDA and River Basin Water Coordination Committee (PPTPA) will be established in each of the 90 legally defined River Basin Territories in Indonesia. Refer to sub-section **1.3.2 Water Resources Management Unit (Balai PSDA) for Musi River Basin** for detailed description of its business.

Progress in provincial river basin institution-building had been slow and ineffective due to 1) national policy defectiveness, 2) staffing difficulties related to the disincentives of assignment to a "non-construction" entity, and low grade levels for key positions, and 3) lack of staff and financial resources of provincial governments, according to the World Bank's report. Thus, the World Bank insists as the conditionality, "Implementing the concept of integrated water resources management will require much greater clarity of provincial government's water resources management responsibilities and the organizational and financial provisions to implement them."

3.5 Related Programs

There are programs for the implementation of the concrete improvement proposed in WATSAP. Java Irrigation Improvement & Water Management Project (JIWMP) is a World Bank Loan project, undertaken since 1999, to pilot the reforms raised in WATSAP. Indonesia Water Resources and Irrigation Reform Implementation Program (IWIRIP) is presently undertaken and scheduled for completion by the end of 2003. Water Resources and Irrigation Sector Management Program (WISMP) is under preparation as a program after IWIRIP for the realization of WATSAP. Participatory Irrigation Sector Program (PISP) is an ADB loan program scheduled for implementation in seven years from 2004 for eight provinces with a total of one million hectare area.

3.5.1 Indonesia Water Resources and Irrigation Reform Implementation Program (IWIRIP)

The Government of Netherlands has provided a Grant of US$9.7 million for FY 2001-2003 piloting of water resources and irrigation sector reforms based on the WATSAL program and the changing sector administration (authorities, planning, programming and budgeting) required by UU22/99 and UU25/99.

The objective of the Program is to assist Indonesia in (i) improving irrigation performance by the implementation of new national and provincial policies and related

regulations on irrigation, and the establishment of related institutions; and (ii) improving the organizational framework for integrated river basin management at the provincial and local levels.

The Program consists of the following Parts, each of which includes the following activities:

(1) Part A: River Basin Water Resources Planning

- Establishment of basin management plans for the Ciliwung/Cisadane river basin and the Jratunseluna river basin, and carrying out of preparatory activities for the administration of said plans, through the provision of technical assistance.

- Provision of training in river basin planning and management to staff of the Planning Unit of the Water Resources Department in each of the provinces of Central Java and West Java and to the staff of the Planning Unit of the DGWR, *KIMPRASWIL*.

- Strengthening the Planning Unit of Water Resources Department in each of the provinces of Central Java and West Java and the Planning Unit of the DGWR, *KIMPRASWIL*, through the provision of goods and technical assistance.

- Provision of training in river basin planning and management to provincial staff in the provinces of Banten, East Java, East Nusa Tenggara, North Sumatra, South Sulawesi, South Sumatra and West Sumatra.

(2) Part B: River Basin Water Resources Management

- Establishment of Balai PSDAs, PTPAs and PPTPAs in the provinces of East Nusa Tenggara, South Sulawesi, South Sumatra and West Sumatra, through the provision of technical assistance.

- Strengthening of Balai PSDAs, PTPAs and PPTPAs, and Hydrological Units of the Provincial Water Resources Departments in the provinces of East Nusa Tenggara, Lampung, North Sumatra, South Sulawesi, South Sumatra and West Sumatra, through the provision of goods and technical assistance.

- Carrying out of repairs and minor rehabilitation works of rivers and river infrastructure by the Balai PSDA in the provinces of East Nusa Tenggara, Lampung, North Sumatra, South Sulawesi, South Sumatra and West Sumatra.

- Carrying out of studies relating to basin water resources management.

(3) Part C: Irrigation Management Reform Implementation

- Empowerment of Water User Associations (WUA) through the establishment of WUAFs in the provinces of Banten, Central Java, Central Sulawesi, D.I. Ache, D.I. Yogyakarta, East Jave, East Nusa Tenggara, Lampung, North Sumatra, South Sulawesi, South Sumatra, West Java and West Sumatra, and the provision of technical assistance by Community Organizers and the provision of training.

- Establishment of demand-based matching grant funds at the Kabupaten level (Kabupaten Irrigation Improvement Fund), including financing procedures, for purposes of irrigation investments by WUAFs in the same provinces as listed in Item 1., Part C above, through the provision of technical assistance.

- Carrying out of repairs and minor rehabilitation works of irrigation systems by WUAFs, with the support of the relevant Kabupaten Dinas PUP, in the same provinces as listed in Item 1., Part C above.

- Strengthening WUAFs and local governments to stimulate gender-responsive irrigation and water management project design, through the provision of technical assistance.

- Strengthening the Dinas PUP in the Participating Provinces in the provision of overall quality management, and in the implementation of the new policies and regulations relating to the Indonesia's national water resources sector reform program, through the provision of technical assistance.

- Strengthening the provincial and Kabupaten BAPPEDAs in the Participating Provinces in providing empowerment to WUAFs for its institution and capacity building, and in the implementation of the new policies and regulations relating to the Indonesia's national water resources sector reform program, through the provision of technical assistance.

(4) Part D: Quality Assurance

Strengthening technical implementation quality assurance of Kabupaten Dinas PUPs in the same provinces as listed in Item 1., Part C above, through the provision of training to the WUA members, staff of the provincial and Kabupaten Dinas PUPs and the relevant staff of KIMPRASWIL, and the provision of technical assistance to WUAFs, and provincial and Kabupaten Dinas PUPs.

(5) Part E: Preparation of a National Water Resources Management Program

Carrying out of studies and preparation of project designs for the Indonesia's proposed National Water Resources Management Program, in accordance with

the Indonesia's national water resources sector reform program under the Indonesia's Water Sector Adjustment Loan.

The termination of the Grant of Government of Netherlands is originally May 2003, and presently is requested for extension to December 2003. Actual implementation of the activities under this Program in the Musi River Basin includes, capacity building of members of the Planning Unit, Dinas PUP, strengthening of Balai PSDA.

3.5.2 Water Resources and Irrigation Sector Management Programs (WISMP)

*This section is based on World Bank "Appraisal Document." 2003.

(1) Background

Indonesia Water Resources and Irrigation Management Program (WISMP) is proposed to be undertaken using the Adjustable Program Loan (APL) lending instrument of the World Bank from FY 2004 to FY2014, with administering a Government of Netherlands grant. The program aims to consolidate the new decentralized water resources sector and community irrigation management institutions established by the WATSAL reforms as well as IWIRIP. This is to be realized over a period of ten years by undertaking a capacity building process in five Java and seven off-Java Provinces including South Sumatra Province to achieve improved sector governance and planning, sector agency management upgrading and fiscal sustainability.

(2) Outline of the Program

The program will be implemented with three phases as follows:

Phase I (WISMP 1) will last 4 years and assist GOI and regional governments to consolidate the institution reforms in the 5 Java Provinces and their 45 Kabupatens under Java Irrigation Improvement & Water Management Project (JIWMP), and further implement the sector reform begun in 7 off-Java Provinces and in their 25 Kabupatens started under IWIRIP. All selected Provinces and Kabupatens are those that have already been involved in the two pilot JIWMP and IWIRIP projects, so as to ensure continuity with the earlier institution building.

In ***Phase II*** (WISMP 2), the design of program activities will be adjusted to incorporate the experience of the first phase. First, the programs initiated by WISMP 1 in 12 Provinces will be continued, and completed where appropriate. Second, WISMP 2 would expand the activities to 30 additional Kabupatens and three Provinces, along with increasing the scope and complexity of planning, programming and budgeting for the investment components in selected basins.

Phase III (WISMP 3) will further improve program designs to the point that they can be considered robust yet sufficiently flexible to respond to local

conditions, expand the activities and institutionalize its innovations as a sustainable ways of operation within the country. During this phase, the more complex and demanding parts of the programs started under the Phase I and II would be completed.

(3) Program Objectives

The Program's purpose is to implement the sector reforms in approximately half of the country. Because of the weak capacity ad lack of governance experience at local government level, and among the farmer-irrigators, it is expected that such program will require approximately 10 years. With the parallel support of ADB and JBIC, it is expected that the whole country can be covered in this time span. Program's objectives are:

(a) *Sustainable and equitable management of surface water resources and their utilization infrastructure* by:

  (i) transparent sector governance institutions, and

  (ii) more accountable and better performing sector agencies.

(b) *Increased irrigation farm household incomes and improved regional food security* as result of raising the overall productivity irrigated agriculture and reducing it vulnerability to natural and economic shocks through:

  (i) sustainable participatory irrigation management for more reliable and equitable water provision, and

  (ii) better agricultural and marketing support services for members of irrigation water users associations.

(c) *More cost-effective and fiscally management of sector agencies*.

(4) Project Development Objectives of Phase I (WISMP 1)

(a) Water allocation, water quality and water conservation improved in Project basins, and river infrastructure better maintained, through strengthened capacity for planning and management; and investments.

(b) Sector governance enhanced, and sector fiscal sustainability strengthened, nationally, and Project basins, through setting up Water Resources Councils; ensuring stakeholders involvement; unbundling of operational tasks, and Private Sector Participation; and improved cost recovery.

(c) Increased agricultural productivity and improved performance of irrigation, based on participatory irrigation management, through setting up and strengthening WUAFs; strengthening restructured Dinas PUP of local government; financing rehabilitation and improvement of existing irrigation schemes; and facilitating access to agricultural support services and micro-credit.

(5) Project Components of Phase I (WISMP 1)

Phase I or WISMP 1 consists of three components as follows:

Table K3.5.1 Project Component of WISMP 1

Component	Indicative Costs (US$M)	% of Total	Financed By World Bank (US$M)	% of Financed by World Bank
A. BASIN WATER RESOURCES MANAGEMENT				
A.1. Sector Governance & Basin Planning	15.01	13.0	10.96	13.0
A.2. Management Capacity of Basin Agencies	11.09	9.6	8.09	9.6
A.3. Fiscal and Cost Recovery Policies	2.12	1.8	1.40	1.7
A.4. Basin Water Management and River Infrastructure Improvement	30.46	26.4	21.60	25.7
A.5. National Capacity Building Networks	1.70	1.5	1.29	1.5
B. PARTICIPATORY IRRIGATION MANAGEMENT				
B.1. Water User Associations Capacity	8.83	7.6	6.45	7.7
B.2. Kabupaten Irrigation Department Capacity	5.49	4.8	4.01	4.8
B.3. Irrigation Infrastructure Improvement	28.61	24.8	21.33	25.4
B.4. Irrigated Agriculture Improvement	2.94	2.5	2.10	2.5
C. PROJECT MANAGEMENT	8.86	7.7	6.32	7.5
Total Project Costs	115.11	99.6	83.55	99.5
Front-end fee	0.45	0.4	0.45	0.5
Total Financing Required	115.56	100.0	84.00	100.0

Note: Rounding may lead to small discrepancies between figures within.
Source: World Bank, *"Project Appraisal Document,"* 2003

(6) Responsibilities and Involvement

Various kinds of agencies are involved in the project components of WISM from the Central level to Provincial and Kabupaten levels as well as civil societies, and they have responsibilities to the implementation. Such responsibilities are summarized below:

Table K3.5.2 Responsibilities and Involvement of Agencies in Components

Agency	Responsibility	Involvement in Components
Central Level		
BAPPENAS	Policy coordination; Program coordination	Cost recovery policy; application of Water Resources Reform guidelines for Provincial and Kabupaten legislation; impact monitoring
KIMPRASWIL (DGWR)	National support, quality assurance, MIS, Hydrology, monitoring and oversight of technical aspects of water resources and irrigation components	All, except community irrigation (WUAF/WUA) governance, irrigated agriculture support, and water quality aspects
Ministry of Home Affairs	National support, quality assurance, monitoring and oversight of irrigation and rural governance components, and of local budgets and cost recovery	WUA/WUAF establishment and capacity building; institutional strengthening of local governments and financial/fiscal procedures, community organizer training
Ministry of Agriculture	National guidance for agricultural extension	Coordination of agricultural extension services
Ministry of Environment	Oversight of National Water Quality Monitoring Network; effluent discharge fees and other financial incentives for pollution control	River basin management capacity, National Water Quality Monitoring Network
Provincial Level		
Eligible Provincial Governments	Provincial and basin governance; Balai PSDA capacity, fiscal sustainability of River Infrastructure Maintenance; basin management & planning; and Water Use Rights	Provincial aspects of governance & planning capacity; river basin management capacity; Provincial aspects of fiscal & cost recovery policy implementation; and investments in river basin infrastructure improvement
Kabupaten Level		
Eligible Kabupaten Governments	Irrigation governance, Kabupaten Dinas PUP upgrading; irrigation financing and irrigated agriculture support	WUA capacity building; irrigation agency capacity building; investments in irrigation infrastructure improvement through Dinas PUP and WUAFs; local aspects of fiscal & cost recovery policy implementation; and irrigated agriculture support
Civil Society Level		
Civil Society Organizations	Participation in National, Provincial and Basin Water Resources Councils; assisting and organizing WUAFs/WUAs; Impact monitoring	Governance & Planning capacity; WUA capacity building; and irrigated agriculture support; execute Independent Monitoring & Evaluation

Source: World Bank, *"Project Appraisal Document,"* 2003

4. FINANCIAL STATUS IN VARIOUS ORGANIZATIONS RELATED TO WATER MANEGEMENT

4.1 Fiscal Decentralization

For many years, financing of water resources development and management had been undertaken by the Central Government through DIP (Project Budgeting Authorization), which were covered by domestic revenue and/or donor and development bank loan. In accordance with the Regional Government Law No.22 and the Fiscal Balance Law No.25 of 1999, fiscal decentralization has been implemented. The Law No.25 stipulates how to distribute the revenue from natural resources between the central and regional governments and how to realize the fiscal balances of the regional governments by financial transfer from the central government. The sources of regional government revenue consist of original income, decentralization fund, regional borrowing, and other revenue. The decentralization fund consists of land & building tax/land right & building acquisition tax, allocation from natural resources revenue, General Allocation Fund (DAU) for general purposes, and Specific Allocation Fund (DAK) for specific purposes. **Table K4.1.1** shows the revenue sharing rates from natural resources stipulated in the Law No.25.

Table K4.1.1 Law Revenue Sharing Rates (%)

Kinds of revenue	Central	Province	District/ Municipality as producer	District/ Municipality as non-producer	Total
Land and building tax	10	16.2	64.8	9	100
Land right and building acquisition tax	20	16	64		100
Forestry: Fee for forest concession rights	20	16	64		100
Forestry: Forest resource provision charge	20	16	32	32	100
Mining: Fixed fee	20	16	64		100
Mining: Exploration and exploitation fee	20	16	32	32	100
Fishery	20	80			100
Petroleum	85	3	6	6	100
Gas	70	6	12	12	100

The revenue from natural resources largely varies from one region to another depending on occurrences of natural resources and it creates imbalances in revenue among regions. General Allocation Fund (DAU) and Specific Allocation Fund (DAK) are the financial transfer from the central government to the regional government to correct the imbalances. General Allocation Fund can be utilized for both current and development expenditures according to priorities of regions. Specific Allocation Fund is distributed to regional governments to correct regional imbalance of development such as infrastructure, education, health services, environment, poverty and underdevelopment, according to the condition of the regions. The rates of the both funds are as shown below:

Table K4.1.2 Rates of General and Specific Allocation Funds (%)

Kinds of revenue	Central	Province	District/ Municipality	Total
General Allocation Fund (DAU)	75	2.5	22.5	100
Specific Allocation Fund (DAK)	60	40		100

4.2 Development Expenditure

Expenditures of the government are generally divided into two kinds: one is current expenditure (or routine expenditure) and another is the development expenditure (or investment expenditure). The current expenditure covers salaries, cost of equipment and materials, travel expenses, loan instalment, etc. and the development expenditure is spent for projects implementation. Source of the development expenditure consists of both local budget (APBD) and the central government funds (APBN). APBN can be further divided into pure central government funds, loans, grants, etc.

4.2.1 South Sumatra Province

Total expenditure of South Sumatra Province in FY2001 was Rp.1,275 billion (approx. US$124 million) consisting of the current expenditure of Rp.356 billion (US$34.7 million) and the development expenditure of Rp.919 billion (US$89.5 million) as shown in **Table K4.2.1**.

Table K4.2.1 Actual Expenditure of South Sumatra Province

	1997/98		1998/99		1999/00		2000 *1		2001		2002 *2	
	Rp.b.	%	Rp.b.	%	Rp.b.	%	Rp.b.	%	Rp.b.	%	Rp.b.	%
I. Current expenditure (APBD)	**123.8**	**17**	**163.7**	**28**	**130.5**	**11**	**142.7**	**17**	**356.0**	**28**	**497.6**	**25**
II. Development expenditure	**621.7**	**83**	**415.6**	**72**	**1,095.7**	**89**	**675.1**	**83**	**918.8**	**72**	**1,457.9**	**75**
from APBD	112.9	15	101.8	18	143.8	12	139.1	17	213.9	17	261.8	13
from APBN	508.8	68	313.8	54	951.9	78	536.0	66	704.9	55	1,196.1	61
III. Total expenditure	**745.5**	**100**	**579.3**	**100**	**1,226.2**	**100**	**817.8**	**100**	**1,274.9**	**100**	**1,955.5**	**100**
Total from APBD	236.7	32	265.5	46	274.3	22	281.8	34	569.9	45	759.4	39
Total from APBN	508.8	68	313.8	54	951.9	78	536.0	66	704.9	55	1,196.1	61

Note: *1 Due to change of fiscal year period, the fiscal year 2000 is 9 months from April-December 2000.
*2 The figures in 2002 are still budget (not realization).

After the regional autonomy and government decentralization, the current expenditure of the Province has increased significantly. The current expenditure in FY2001 has more than doubled from those in the past few years on a nominal price basis.

The development expenditure allocated from the central government funds (APBN) was Rp.705 billion or 77% of total development expenditure, while that from the local budget (APBD) was Rp.214 billion or 23%. The development expenditure from APBD has also increased significantly in FY2001 comparing with those in FY2000 and before.

4.2.2 Water Resources Service (*Dinas PU Pengairan*), South Sumatra Province

Actual expenditure of Water Resources Service (*Dinas PU Pengairan*), South Sumatra Province in FY2001 was Rp.89.4 billion (approx. US$8.7 million), which accounted for approximately 10% of the development expenditure of the Province. Out of this, Rp.11.7 billion was allocated from APBD and Rp.77.7 billion was from APBN. Since APBN is allocated for relatively large-scale projects, the actual expenditure varies from year to year depending on the progress of the project implementation.

However, that in FY2002 has changed significantly. The expenditure of the Service in FY2002 was Rp.38.0 billion (US$4.2 million), which is less than a half of that in FY2001. Especially the expenditure from APBN decreased significantly due to completion of large-scale projects like Komering Irrigation Project.

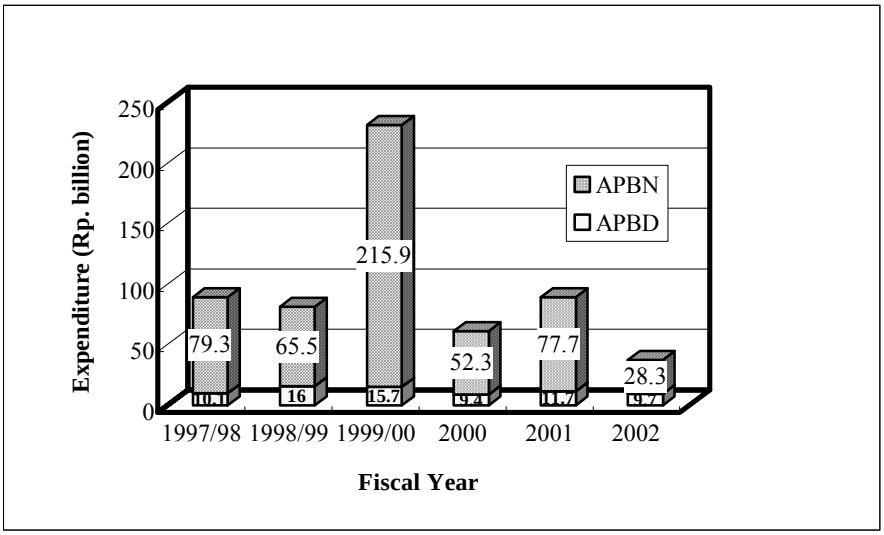


Figure 4.2.1 Expenditure for Water Resources & Irrigation in South Sumatra Province

Table K4.2.2 shows the actual expenditure in FY2002 and budget for FY2003 for Water Resources Service of South Sumatra Province by sub sector. Out of the total expenditure of Rp.38.0 billion, expenditure for irrigation and swamp development projects amounted to Rp.29.4 billion or 77% of the total development budget, while those for water resources and flood control projects amounted to Rp.0.3 billion and Rp.8.3 billion respectively. The table clearly indicates that the province is trying to break away from dependence on loans as stated in the National Development Program (*PROPENAS)*.

Table K4.2.2 Development Expenditure of Water Resources Service (Rp.million)

Expenditure	Source	Actual Expenditure 2002	Budget 2003
I. Local Government Budget (*APBD*)		**9,704**	**14,397**
1. Irrigation & Swamp Development	APBD	3,656	4,386
2. Water Resources Development	APBD	296	323
3. Flood Control	APBD	5,753	9,689
II. Central Government Budget (*APBN*)		**28,303**	**48,875**
1. Flood Control	APBN	2,549	15,137
2.1 Irrigation and Swamp Development	APBN	25,608	33,709
3.1 Irrigation and Swamp Development	Loan	-	-
4.1 Irrigation and Swamp Development	Grant	147	28
III.Total Development Expenditure		**38,008**	**63,272**

4.2.3 Water Resources Management Unit for Musi River Basin (*Musi Balai PSDA*)

Budget of Water Resources Management Unit for Musi River Basin (*Musi Balai PSDA*) consists of APBD, APBN, and grant. Since Musi Balai PSDA is one of the institutions belong to Water Resources Service of South Sumatra Province, a part of APBD budget of the Service is utilized for the institute. Major part of the expenditure is utilized for equipment, O&M of hydrological station, training, investigation of river, irrigation, and water use, which is covered by budget from APBN and grant. Actual expenditure of Musi Balai PSDA in FY2002 and budget for FY2003 are shown in **Table K4.2.3**.

Table K4.2.3 Expenditure of Musi Balai PSDA (Rp. million)

Expenditure	Actual Expenditure 2002	Budget 2003
1. Local Government Budget (*APBD*)	From Water Resources Service	
2. Central Government Budget (*APBN*)	**1,456**	**1,284**
2-1. from APBN	828	537
2-2. from Grant	628	747

Actual expenditure of the Unit was Rp.1,456 million including both APBN and grant in FY2002. The budget for FY2003 is Rp.1,284 million, which is about 12% smaller than the actual expenditure in FY2002.

4.2.4 Forestry Service (*Dinas Kehutanan*), South Sumatra Province

Table K4.2.4 shows actual expenditure of Forestry Service (*Dinas Kehutanan*) in South Sumatra Province by source. Total expenditure of the Service was Rp.10.6 billion consists of the routine expenditure of Rp.6.8 billion and the development expenditure of Rp.3.8 billion. Source of the development expenditure comes from APBD, forest resources provision (PSDH), reforestation fund and interest (DR/BDR), and APBN. Allocation from APBD is the largest at Rp.2.5 billion or 24% of the total expenditure of the Service, while dependence on the Central Government Funds (APBN) is relatively small at Rp.309 million or 3% of the total expenditure.

Table K4.2.4 Actual Expenditure of Forestry Service - South Sumatra in FY2001

Budgeting Source	Realization (Rp. million)	%
1. Routine Expenditure (APBD)	6,828	64
2. Development Expenditure	3,832	36
(1) Local Government Funds (APBD)	2,533	24
(2) Forest Resource Provision (PSDH)	346	3
(3) Reforestation Funds and Interest (DR/BDR)	644	6
(4) Central Government Funds (APBN)	309	3
3. Total (1+2)	10,660	100

Source: Statistik Kehutanan Propinsi Sumatera Selatan 2001

4.2.5 Other Sectors Relating to Water Management, South Sumatra Province

Annex K4.2.1 shows actual expenditure of other major sectors relating to water resources management in South Sumatra Province.

Expenditure for agriculture, forestry and fishery sector was Rp.41 billion in FY2001. Allocation from APBN constantly accounted for about 70% of the sector's expenditure.

Expenditure for regional development and transmigration sector varies from year to year depending on implementation of transmigration. Expenditure of the sector was Rp.31.8 billion in FY2001. Large portion of the expenditure has been constantly allocated from APBN.

Expenditure for environment and land planning sector was relatively small at Rp.3.7 billion in FY2001.

Expenditure for housing and settlement was also small at Rp.5.4 billion in FY2001 and all the portion of the expenditure was allocated from APBN.

4.3 Development Budget of District/Municipality

Actual revenue and expenditure of districts and municipality have been collected in order to grasp the scales of development expenditures and the sectors relating to water management.

4.3.1 Palembang Municipality

Total expenditure of Palembang Municipality was Rp.454 billion, which consists of Rp.353 billion of the current expenditure and Rp.101 billion of the development expenditure in 2002. Since FY2001 both revenue and expenditure increased significantly due to the fiscal decentralization. Development expenditure for water resources and irrigation was Rp.2.7 billion, which accounted for 2.7% of total development expenditure in 2002, while that for housing and settlement is relatively large at Rp12 billion or 12% of the development expenditure. Per capita development expenditure was Rp.68,000, which is rather small comparing with other districts in

2001. It is probable because social infrastructure of Palembang City has already been built up to certain degree comparing with other districts.

Table K4.3.1 Actual Revenue and Expenditure of Palembang (Rp. billion)

Item	1998/1999	1999/2000	2000	2001	2002
I. Revenue	118.3	154.6	150.7	416.5	453.7
II. Expenditure	112.3	149.4	147.9	396.8	453.7
1. Current Expenditure	85.1	116.4	112.1	292.4	352.9
2. Development Expenditure	**27.2**	**32.9**	**35.8**	**104.3**	**100.8**
- Agriculture, forestry, and fishery	0.7	1.5	1.0	0.5	0.4
- Water resources & irrigation	***0.0***	***2.4***	***0.0***	***35.0***	***2.7***
- Regional development & transmigration	2.7	0.6	0.6	1.1	1.2
- Environment & land planning	3.4	3.0	2.7	3.8	3.8
- Housing & settlement	1.5	1.6	4.0	9.7	12.1
- Other sectors	18.9	23.7	27.4	54.3	80.6
III. Balance	6.0	5.2	2.8	19.7	0.0

Remark: Due to change of fiscal year period, the fiscal year 2000 is 9 months from April to December 2000

4.3.2 Kab. Ogan Komering Ulu

Total expenditure of Kab. Ogan Komering Ulu (OKU) was Rp.356 billion, which consists of Rp.277 billion of the current expenditure and Rp.79 billion of the development expenditure. Both revenue and expenditure of the district also increased significantly due to the fiscal decentralization since 2001. Development expenditure for water resources and irrigation was Rp.2.7 billion, which accounted for 3.4% of the total development expenditure in 2002. Per capita development expenditure was Rp.67,000, which is also rather small comparing with other districts in 2002.

Table K4.3.2 Actual Revenue and Expenditure of OKU (Rp. billion)

Item	1998/1999	1999/2000	2000	2001	2002
I. Revenue	108.6	128.3	123.1	339.3	355.8
II. Expenditure	107.0	126.7	118.1	316.9	355.8
1. Current Expenditure	67.0	91.0	86.2	237.7	276.7
2. Development Expenditure	**40.0**	**35.7**	**31.9**	**79.2**	**79.1**
- Agriculture, forestry, and fishery	2.7	5.2	3.0	4.3	0.4
- Water resources & irrigation	***0.3***	***0.6***	***0.4***	***1.9***	***2.7***
- Regional development & transmigration	8.6	0.1	5.2	0.6	1.2
- Environment & land planning	1.1	0.7	0.1	1.2	3.8
- Housing & settlement	1.1	1.6	1.5	3.9	12.1
- Other sectors	26.1	27.4	21.7	67.3	58.9
III. Balance	1.6	1.5	5.0	22.4	0.0

Remark: Due to change of fiscal year period, the fiscal year 2000 is 9 months from April to December 2000

4.3.3 Kab. Ogan Komering Ilir

Total expenditure of Kab. Ogan Komering Ilir (OKI) was Rp.336 billion, which consists of Rp.194 billion of the current expenditure and Rp.142 billion of the

development expenditure. Since FY2001 both revenue and expenditure increased significantly due to the fiscal decentralization. Development expenditure for water resources and irrigation was relatively large at Rp.8.7 billion, which accounted for 6.1% of total development expenditure in 2002. Per capita development expenditure was Rp.142,000 in 2002.

Table K4.3.3 Actual Revenue and Expenditure of OKI (Rp. billion)

Item	1998/1999	1999/2000	2000	2001	2002
I. Revenue	75.5	105.9	113.5	316.7	350.7
II. Expenditure	67.9	98.6	103.1	213.4	336.4
1. Current Expenditure	46.2	67.0	72.6	106.7	194.2
2. Development Expenditure	**21.7**	**31.6**	**30.5**	**106.7**	**142.2**
- Agriculture, forestry, and fishery	1.3	2.1	1.5	3.0	4.6
- Water resources & irrigation	***1.3***	***1.0***	***0.9***	***4.0***	***8.9***
- Regional development & transmigration	1.5	0.1	0.0	4.4	8.4
- Environment & land planning	0.3	0.7	0.2	0.2	1.0
- Housing & settlement	0.4	5.1	3.9	0.0	0.5
- Other sectors	16.9	22.7	24.1	95.1	118.8
III. Balance	7.6	7.3	10.3	103.3	14.3

Remark: Due to change of fiscal year period, the fiscal year 2000 is 9 months from April to December 2000

4.3.4 Kab. Muaraenimu

Total expenditure of Kab. Muaraenim was Rp.248 billion, which consists of Rp.115 billion of the current expenditure and Rp.134 billion of the development expenditure. As with the other districts, both revenue and expenditure increased significantly due to the fiscal decentralization since FY 2001. Development expenditure for water resources and irrigation was Rp.3.6 billion, which accounted for 2.7% of total development expenditure in 2002. Per capita development expenditure was Rp.182,000 in 2002.

Table K4.3.4 Actual Revenue and Expenditure of Muaraenim (Rp. billion)

Item	1998/1999	1999/2000	2000	2001	2002
I. Revenue	107.8	134.2	145.3	324.0	273.2
II. Expenditure	88.7	97.6	112.8	269.0	248.2
1. Current Expenditure	61.3	74.4	76.9	159.8	114.5
2. Development Expenditure	**27.4**	**23.2**	**35.9**	**109.1**	**133.7**
- Agriculture, forestry, and fishery	2.0	2.3	2.4	4.6	3.6
- Water resources & irrigation	***1.1***	***0.7***	***1.4***	***2.4***	***3.6***
- Regional development & transmigration	1.6	1.2	3.1	1.5	1.2
- Environment & land planning	0.9	1.3	0.9	0.3	3.8
- Housing & settlement	0.3	1.1	1.2	2.3	12.1
- Other sectors	21.5	16.6	26.8	98.0	100.9
III. Balance	19.1	36.5	32.5	55.0	25.0

Remark: Due to change of fiscal year period, the fiscal year 2000 is 9 months from April to December 2000

4.3.5 Kab. Lahat

Total expenditure of Kab. Lahat was Rp.144 billion, which consists of Rp.95 billion of the current expenditure and Rp.49 billion of the development expenditure. In the FY 2001, both revenue and expenditure increased more than double from the years before. However, it dropped by 39% in both revenue and expenditure in FY2000. Development expenditure for water resources and irrigation was Rp.3.6 billion, which accounted for 7.3% of total development expenditure in 2002. Per capita development expenditure was Rp.72,000, which is rather small comparing with other districts in 2002.

Table K4.3.5 Actual Revenue and Expenditure of Lahat (Rp. billion)

Item	1998/1999	1999/2000	2000	2001	2002
I. Revenue	95.1	102.1	93.2	238.6	144.2
II. Expenditure	89.4	101.6	92.5	238.5	144.3
1. Current Expenditure	51.5	72.7	70.2	174.1	95.2
2. Development Expenditure	**37.9**	**28.9**	**22.3**	**64.4**	**49.1**
- Agriculture, forestry, and fishery	1.3	2.0	1.7	6.3	4.0
- Water resources & irrigation	***0.6***	***1.6***	***1.3***	***3.9***	***3.6***
- Regional development & transmigration	9.8	1.2	0.0	0.0	0.0
- Environment & land planning	1.4	1.7	0.8	0.5	0.2
- Housing & settlement	0.3	3.0	3.9	0.8	0.4
- Other sectors	24.6	19.4	14.6	52.9	40.8
III. Balance	5.7	0.5	0.7	0.1	-0.1

Remark: Due to change of fiscal year period, the fiscal year 2000 is 9 months from April to December 2000

4.3.6 Kab. Musirawas

Total expenditure of Kab. Musirawas was Rp.287 billion, which consists of Rp.188 billion of the current expenditure and Rp.99 billion of the development expenditure. As with the other districts, both revenue and expenditure increased significantly due to the fiscal decentralization since FY 2001. Development expenditure for water resources and irrigation was Rp.2.7 billion, which accounted for 2.7% of total development expenditure in 2002. Per capita development expenditure was Rp.151,000 in 2002.

Table K4.3.6 Actual Revenue and Expenditure of Musirawas (Rp. billion)

Item	1998/1999	1999/2000	2000	2001	2002
I. Revenue	78.4	99.4	93.4	298.5	286.8
II. Expenditure	76.5	93.0	82.7	219.8	286.8
1. Current Expenditure	49.5	66.2	59.8	153.0	187.8
2. Development Expenditure	**27.0**	**26.8**	**22.9**	**66.8**	**99.0**
- Agriculture, forestry, and fishery	0.7	1.4	1.4	5.2	0.4
- Water resources & irrigation	***0.3***	***0.0***	***0.0***	***3.3***	***2.7***
- Regional development & transmigration	1.3	3.6	4.7	4.9	1.2
- Environment & land planning	1.0	2.1	0.6	0.9	3.8
- Housing & settlement	0.1	0.3	0.0	3.0	12.1
- Other sectors	23.5	19.4	16.2	49.4	78.8
III. Balance	1.8	6.4	10.7	78.7	0.0

Remark: Due to change of fiscal year period, the fiscal year 2000 is 9 months from April to December 2000

4.3.7 Kab. Musibanyuasin

Total expenditure of Kab. Musibanyuasin was Rp.655 billion, which consists of Rp.303 billion of the current expenditure and Rp.352 billion of the development expenditure. Both the expenditure increased more than four times after fiscal decentralization. It is probably because large part of the cost for transmigration has been entrusted from the central government to the district. Development expenditure for water resources and irrigation was Rp.10.8 billion, which accounted for 3.1% of total development expenditure in 2002. Per capita development expenditure was Rp.276,000, which is extremely large comparing with other districts in 2002.

Table K4.3.7 Actual Revenue and Expenditure of Musibanyuasin (Rp. billion)

Item	1998/1999	1999/2000	2000	2001	2002
I. Revenue	96.5	131.9	116.2	470.5	655.3
II. Expenditure	88.1	126.5	113.1	467.4	655.3
1. Current Expenditure	58.0	81.7	79.6	239.3	303.1
2. Development Expenditure	**30.1**	**44.8**	**33.5**	**228.1**	**352.2**
- Agriculture, forestry, and fishery	2.5	3.2	1.8	6.6	12.9
- Water resources & irrigation	***0.6***	***2.2***	**1.7**	***9.0***	***10.8***
- Regional development & transmigration	4.7	8.7	6.7	0.0	80.2
- Environment & land planning	1.7	4.6	2.3	8.2	27.1
- Housing & settlement	0.4	0.0	0.0	0.0	12.1
- Other sectors	20.2	26.1	21.0	204.3	209.1
III. Balance	8.4	5.4	3.1	3.1	0.0

Remark: Due to change of fiscal year period, the fiscal year 2000 is 9 months from April to December 2000

4.3.8 Procedure of Implementation of Large-scale Projects

The development expenditure of the municipality and districts in the past seems small but it is because the construction works of relatively large-scale infrastructures have been implemented by the central government funds (APBN). When a large facility construction is necessary, the responsible department of district/municipality prepares a project proposal. Regent/Mayor submits the proposal directly to BAPPENAS and Ministry of Settlement and Regional Infrastructure in the central government. If the proposal is accepted by BAPPENAS and the Ministry, the central government funds (APBN) will be allocated through DIP for implementation of the proposed project.

After the regional autonomy and financial decentralization, it will gradually be necessary to implement such projects by the local government fund (APBD). The constructed infrastructures are transferred to under control of district/ municipality. The operation and maintenance cost of the facilities are responsibility of district/municipality after the regional autonomy and fiscal decentralization. The operation and maintenance cost is covered by the current budget.

5. INSTITUTIONAL STRENGTHENING PROGRAMS (MASTER PLAN COMPONENT 6)

5.1 Objective of the Programs

Objectives of "Component 6: Institutional Strengthening" of the Master Plan are to establish and/or enhance necessary organization and institutional mechanism as well as human resources that are important keys to certain and firm implementation of the whole Master Plan. In addition, the institutional reformation programs of the water sector are on the way at this time with assistances from the World Bank and Netherlands, namely WATSAL, IWIRIP, WISMP, etc. Therefore, those reformation programs should be incorporated into the Master Plan.

Among such reformation programs in water sector, New Water Resources Law (Draft) shows the new policy of water resources management while New Government Regulation on Water Resources Management (Draft) stipulates more detailed provisions on systems and procedures for water resources management in the reformed stage as well as ethical codes. It should be examined in detail before the draft of "Institution and Human Resources" plan is formulated, which also incorporates issues identified in the field survey by the JICA Study Team.

5.2 New Governmental Regulation on Water Resources Management (Draft)

*This section is based on the English draft dated October 2002.

- New Governmental Regulation (Draft) stipulates objectives, ethical codes as well as provisions of systems and procedures which are aimed to realize such objectives and ethics. Those provisions are related to:

<u>Water resources policy</u>

- Provincial water resources policy
- Policy guidance of water resources management on river basin

<u>Water resources management</u>

- Inventory of water resources on river basin
- Master plan of water resources management on river basin
- Program & plan of activities of water resources management on river basin
- Establishment of master plan on river basin
- Implementation of water resources management plan on river basin
- Cooperation in the implementation of water resources management

- Monitoring and evaluation of the implementation of conservation, utilization of water resources and control of water damaging power
- Accountability on the implementation of water resources management on river basin
- Supervision on the implementation of water resources management
- Financing of water resources management
- Role of community
- Water resources information system
- Civil servant investigator (PPNS) in the field of water resources

Conservation

- Maintaining sustainability of the function of water seepage and catchment area
- Arrangement of water sources border area
- Conservation of protected forest
- Rehabilitation of forest and land
- Storing water during rainy season
- Water saving
- Prevention of water pollution at water resources and water resources infrastructure
- Improvement of water quality at water sources and water resources infrastructure

Utilization of water resources

- Decision of water source utilization zone
- Decision of water allocation
- Decision of water resources allocation
- Decision of water resources supply priority
- Water resources supply planning
- Implementation of water resources supply planning
- Water usage permission for non basic needs
- Implementation of water resources development
- Water exploitation

Control of water damaging power

- Control of water disaster

Details of such systems and procedures are summarized in the following table.

Procedure & System	Article No.	Execution Body	Activity	Note
Provincial WR Policy	10	Provincial Government	• can decree the policy	
Policy guidance of WRM	15	Service	• propose daft of policy guidance	
	15	WR Council	• recommend to the Governor	PTPA/PPTPA
	15	Governor	• decide and decree	
Inventory of WR	19	Service	• prepare list of inventory through coordination with other related services • report changes of changes to other related services • submit to the Governor to endorse	
	19	Governor	• endorse list of inventory every 5years	
Master Plan of WRM	23	(Not specified)	• review and evaluate every 5 years	
	24	Governor	• establish team to carry out MP • decide MP and decree	MP Team members consist of related Services.
	24	MP Team	• prepare draft MP • carry out PC • submit draft MP to WR Council • submit draft MP	
		WR Council	• discuss draft MP	PTPA/PPTPA
Program & Plan of Activities	25	Service	• prepare and decree • carry our PC	
	25	Community	• can propose program & plan	
Establishment of MP	26	(Not specified)	• carryout PC • announcement • keep objection period • carry out socialization to Community	cf. Article 24
Implementation of WRM	27	Provincial Government/ Private Sector/ Community	• can carry out WRM	
	27	Provincial Government	• appoint WR Council to coordinate WRM	
	27	WR Council	• carry out coordination	PTPA/PPTPA

Procedure & System	Article No.	Execution Body	Activity	Note
Cooperation in Implementation of WRM	29	Provincial Government	• consult WR Council on cooperation plan	
	29	WR Council	• give consultation	PTPA/PPTPA
	29	Provincial Government/ Related District/ Municipality	• make Cooperation Agreement	
Monitoring & Evaluation	30	Service	• carry out monitoring and evaluation	
	30	Provincial Government	• coordinate implementation of monitoring and evaluation	
Accountability	31	Governor	• submit accountability report to regional parliament	
Supervision	32	(Not specified)	• appoint supervisor	
	32	Supervisor	• carry out observation, request information, and check implementation • make report	Selected from Service
	32	WRM agency	• fulfil request by supervisor	PUP
	32	Authorized party	• follow up report	"Authorized party" is not specified.
Financing	35	Service	• propose financing plan	
WRM Service Fee	36	Authorized party	• decide types of fee	"Authorized party" is not specified.
	37	Related Regent/Mayor	• input information for deciding fee tariff	
	37	Provincial WR Council	• give input for deciding fee tariff	PTPA
	37	Governor	• regulate procedures of deciding fee	
	38	Institution appointed	• carry our collection, depositing and book keeping of fee • submit accountability report to users through WR Council (PTPA)	" Institution appointed" is not specified.
	38	Governor	• appoint Institution for fee	
	38	WRM Service	• receive collected fee for WRM	PUP
	39	Community	• can decide and collect fee for own needs if they carry out WRM	
Financing from Grant, Loan and Bonds	40	WR Council	• receive information on grant, loan and bonds	PTPA/PPTPA

Procedure & System	Article No.	Execution Body	Activity	Note
Role of Community	42	Community	• can participate in all stages of WRM • give input on plan of WRM • participate in PC • declare objection to MP and Plan of Activities • carry out part of construction • carry out maintenance of infrastructure • give suggestion, complaint, report and supervision to the authorized party	
	42	Provincial Government	• give opportunity of participation to Community	
	42	Authorized party	• supply and distribute information to Community • facilitate and process input form Community, and submit result to Community • prepare and carry out PC • manage complaints from Community	"Authorized party" is not specified.
	42	(Not specified)	• review draft MP if it is rejected in PC	cf. Article 24
WR Information System	45	Provincial WR Data and Info Unit	• collect and process data and info • supply data and info to National Unit • select and keep data • present and distribute info	Establish in accordance with need and development of WRM activities.
	45	WR Data and Info. Unit at WR area	• collect and process data and info • supply data and info to all levels • select and keep data • present and distribute info	Operation & Data Management Section of Balai PSDA
	45	Provincial Government	• establish Provincial WR Data and Info Unit • establish WR Data and Info. Unit at WR area	
	46	Service	• manage WR data and info	
	47	Provincial government agencies	• decide regulation and policy • prepare and decide plan • give information reference • collect and analyze data and info	Provincial level

Procedure & System	Article No.	Execution Body	Activity	Note
	47	WR Council	• propose policy to provincial agencies	PTPA
	47	WRM agency at WR area	• decide operational regulation and policy • prepare and decide plan • collect and analyze data and info	Balai PSDA
	48	Provincial WR Data and Info Unit/ WR Data and Info. Unit at WR area/ Data managing institution	• provide WR data and info for Community by request	Disclosure system
	48	Provincial Government	• decide procedures for request and supply of info	
Civil Servant Investigator (PPNS)	49	Provincial Government	• appoint PPNS	Task of PPNS is not specified.
Maintaining Sustainability of the Function of Water Seepage and Catchment Area	50	Provincial Government	• decide and manage protected zone • encourage and carry out empowerment of Community • conduct program of conservation • decide and supervise implementation of regulation	
	51	Provincial Government	• maintain existence of water collection areas and	
Arrangement of WS Border Area	57	Provincial Government	• determine border land	
	57	WR Council	• recommend for decision of border land	PTPA/PPTPA
	58	Provincial Government	• maintain function of border land	
Conservation of Protected Forest	59	Provincial Government	• carry out conservation • empower Community to participate in maintain conservation	
Rehabilitation of Forest and Land	61	Provincial Government	• carry out rehabilitation of forest and critical land	
Storing Water during Rainy Season	62	Provincial Government	• provide rain water storing facilities for Community	

Procedure & System	Article No.	Execution Body	Activity	Note
Water Saving	63	Provincial Government	• decide mechanism for water saving • implement water saving	
Prevention of Water Pollution at WR and WR Infrastructure	65	Everybody	• is forbidden to throw away solid wastes • is forbidden to discharge liquid waste exceeding quality standard limit	Ethical codes
	65	Authorized official	• permit discharge waste water	"Authorized official" is not specified.
	65	Related agency	• give technical recommendation to Authorized official	"Related agency" is not specified.
	65	Provincial Government	• arrange implementation of water pollution prevention	
	66	Provincial Government	• can collect water pollution cost • supervise implementation of water pollution prevention	
	66	Responsible person	• pay recovery cost and compensation and or correctional actions	Polluter-Pays Principle
	66	WR area managing agency	• carry out supervision and direct involvement in action on pollution	Balai PSDA
Improvement of Water Quality at WR and WR Infrastructure	67	(Not specified)	• carry out improvement of water quality	Technical code
	67	Managing agency	• give compensation for disturbance of water allocation due to cleaning	"Managing agency" is not specified.
Decision of Water Source Utilization Zone	70	(Not specified)	• make draft water source utilization zone • carryout PC • decide water source utilization zone	
	70	Governor	• appoint technical agency	

Procedure & System	Article No.	Execution Body	Activity	Note
	70	Technical agency	• study and measure water sources hydrological parameters • develop inventory of utilization • analyze environmental impact and conflict of utilization and legal compliance • formulate draft water resources utilization	PUP
Decision of Water Allocation	72	(Not specified)	• prepare allocation proposal • carry out PC • legalize • evaluate water allocation periodically	
	72	Governor	• appoint technical agency	
	72	Technical agency	• collect data for decision of water allocation • analyze data • prepare allocation proposal • submit proposal to WR Council	PUP
	72	WR Council	• make recommendation	PTPA
Decision of WR Supply Priority	73	Technical agency	• prepare proposal of priority • submit proposal to Provincial WR Council	PUP
	73	Provincial WR Council	• make recommendation	PTPA
	73	(Not specified)	• carry out PC • decide priority for inputs for WR Supply Plan • review priority every 5years	
WR Supply Planning	74	Technical agency	• prepare concept of WR supply plan • submit concept to related WR Council	PUP
	74	WR Council	• make recommendation	PTPA
	74	Provincial Government	• carry out PC • decide WR supply plan	
Implementation of WR Supply	75	WR managing agency of WR area	• implement WR supply	Balai PSDA
	75	Authorized party	• can adjust supply of WR if WR cannot carried out by considering input from Provincial WR Council	PUP
	75	Provincial WR Council	• give input for WR supply adjustment	PTPA

Procedure & System	Article No.	Execution Body	Activity	Note
	76	(Not specified)	• carry out monitoring and evaluation	
Use of WR with Permit	80	Water User	• need permit for water usage other than daily basic needs	
Application & Issuance of Water Usage Permit	82	Governor	• receive application for permit • give approve or refusal to application within 90 days from receipt • give reasons in case that application is refused • submit application to WR Council if its permission can disturb balance of WR supply • regulate further procedures and requirements for permission	cf. Article 80 (2)
	82	WR Council	• decide whether to give agreement or not with permission which can disturb balance of WR supply	PTPA
	83	WR managing agency at WR area	• supply water resources according to what is mentioned in the permit • maintain water resources and its infrastructure to maintain its function • carry out empowerment of users of water resources	Balai PSDA
Implementation of WR Development	89	(Not specified)	• carry out PC if implementation of WR development has important impact on general public • review the plan for WR development if it is refused in PC	
	90	Provincial Government	• implement WR development	
Water Exploitation	104	Provincial Government	• prepare exploitation plan	
	104	BUMN/BUMD	• implement exploitation plan	
	104	Business entity	• can implement through tender process	
	106	Provincial Government	• issue permission for exploitation	
	109	Governor	• determine allocation of fee from water exploitation	

Procedure & System	Article No.	Execution Body	Activity	Note
	109	WR Council	• consider allocation of fee from water exploitation	PTPA
	110	Provincial Government	• carryout supervision, monitoring and evaluation of performance	
	110	WR Council	• give consideration on evaluation of performance	PTPA
Control of Water Disaster	112	Provincial Government	• decree control plan	
	113	Provincial Government	• determine hazardous area and early warning system	
	114	Provincial Government	• control utilization of hazardous area by involving Community	
	115	Coordinating agency for overcoming disaster	• coordinate actions to overcome disaster/damages	"Coordinating agency" is not specified.
	115	Provincial Government	• socialize procedures for overcoming disaster/damages	

(Abbreviation)
WR: Water Resources WRM: Water Resources Management MP: Master Plan
PC: Public Consultation

(Note)
Community is an individual regardless of gender, group, or a community's self-supporting institution located at a certain region.

5.3 Institutional Development Programs

5.3.1 Introduction of Incentive Mechanism (6-1)

One of the most significant issues on institution is law enforcement. It may not be so difficult to find regulations to cope with problems raised concerning water resources management, including illegal logging, waste dumping and so on. These regulations, however, just exist in the statute book and they are not applied to the problems actually raised. Since regulations cannot apply themselves to problems, a person in charge has to apply them. The basic issue is that a person in charge does not have an incentive to apply regulations.

Incentives should be as follows:

- *Benefit is expected in a short period.* It is not easy for a person to behave from a long-range perspective. It is preferable that the action is directly connected to the benefit.

- *Benefit and also cost can be either pecuniary or psychological.* Sometimes a person seems to do good things without expecting tangible benefits. Even in that case, he/she expects honour at the bottom of his/her heart. It is more preferable that he/she gets both money and honour at once.

- *Benefit is larger than the cost paid.* When a person does something, he/she has to pay cost for it. Being a person is rational enough (in a short-range perspective), he/she never pays cost if it is larger than expected benefit. "Commitment" is a kind of variation of this characteristic. Supposing a person is forced to bear a certain amount of cost beforehand, he/she has to do something to gain benefit overcoming the cost already borne. For example, if a person declares a plan of activities to public, he/she has to implement it in order not to be condemned.

- *Criteria for gaining benefit are clear.* A person cannot do any thing if he/she cannot decide whether he/she gets benefit or not with that thing. In addition, the task of a person in charge should be clarified. If his/her task is clear, a person in charge can do it without lots of hesitation especially for government officials who are afraid of failure in his/her career.

- *Benefit and also cost are expected without exception.* The same benefit should be expected in the same case to anybody. In other words, anybody should be treated impartially. In addition, punishment should be surely expected if he/she fails to observe rules.

As a component of the Master Plan, the following program is proposed to introduce incentives to personnel management of government employees.

Program 6-1-1: Personnel Management with Incentive Mechanism

In order to introduce incentive mechanism into the jobs of employees, the following personnel system should be established:

- Job of each employee is clearly defined.
- Each employee sets his/her job target by the consultation with the supervisor and also agrees the criteria with which the achievement is evaluated.
- Each employee reports the achievement of his/her job target periodically.
- Achievement of each employee is evaluated periodically with the criteria by the supervisor.
- If the evaluation result is not acceptable to the employee, he/she can claim the review of the evaluation to the superior of the evaluator. The claim of the review must not give any negative effect to the future evaluation.
- Promotion and demotion of the employee are made based on the job evaluation.

Principles Supporting Incentive Mechanism

Institutional development should be designed to establish systems and procedures to support the incentive mechanisms, considering the following principles:

- *Transparency.* If the behaviour of a person in charge is known to people, he/she cannot do wrong things. If a person in charge does wrong things, his/her supervisor has to punish him/her, considering the public opinion. On the other hand, if a person in charge does good things, his/her supervisor has to give promotion to him/her.
- *Participation.* It guarantees that the public opinion affects the decision of a parson in charge as well as his/her supervisor.
- *Disclosure.* It secures the transparency of the activities of a person in charge. People should be able to access government information easily in terms of cost and convenience.

From the viewpoint of such principles, new Government Regulation on Water Resources Management has been elaborately drafted very much. For example, the provision of Water Resources Information System can work as a disclosure system, frequent employment of Public Consultation promotes participation, and accountability reports by the Governor enhance transparency.

As a component of the Master Plan, the following programs are also proposed for the institutional development.

5.3.2 Promotion of Transparency with Public Relations (6-2)

Program 6-2-1: Annual Report on Water Resources Management

Annual report gives the total illustration of activities on water resources management in the Province to the people. Dinas PU Pengairan prepares the draft and sends to PTPA for discussion. The Governor publishes with a reasonable cost to the people. The annual report contains:

- Five year review and evaluation of master plan. See Article 23 of the new Government Regulation (Draft).
- Results of monitoring and evaluation (Article 30)
- Accountability report by the Governor (Article 31)
- Follow up of the requests by Supervisor (Article 32)
- Financing report on grant, loan and bond issuing (Article 40)
- Results of public consultation (Article 42)
- Results of disclosure on water resources management (Article 48)
- Activities of Civil Servant Investigator (PPNS) (Article 49)

- Realized budget on water resources management
- Issued decree on water resources management

Program 6-2-2: Publishing Picture Booklet on Water Resources Management

Information on water resources management is explained in plain words with graphics so that those who are young or with low education can understand and published with free of charge. Such picture booklets include:

- Master plan of water resources management
- Environmental conservation
- Water supply and saving
- Water disaster and protection

These picture booklets should be revised periodically.

Program 6-2-3: Official Web Site of Water Resources Management

Official web site contains information on water resources management. Dinas PU Pengairan maintains the web site periodically. Data and information are provided by Water Resources Data and Information Unit of Balai PSDA and other related offices with the consultation of PTPA. Dinas PU Pengairan decides the data and information to be released in the official web site with the consultation of PTPA. Such data and information include:

- Data and information stored by Water Resources Data and Information Unit
- Explanation on water resources management
- Summary of accountability report by the Governor
- Summary of annual report on water resources management

5.3.3 Promotion of Participation with Public Consultation (6-3)

New Government Regulation (Draft) requires public consultation at:

- Drafting master plan on water resources management (Article 24 and 26)
- Preparing program and plan of activities (Article 25)
- Deciding water source utilization zone (Article 70)
- Deciding water allocation (Article 72)
- Deciding water resources supply priority (Article 73)
- Deciding water resources supply plan (Article 74)
- Implementing water resources development (Article 89)

Since the new Government Regulation does not specifies, it is proposed that public consultation be required also at *determining area susceptible to disaster*, considering the cooperation of the community is important for overcoming water disaster.

Program 6-3-1: Making Guideline of Public Consultation for Water Resources Management

In order that public consultation (PC) is carried out effectively, Dinas PU Pengairan should make a guideline including the following contents:

- Execution body who has responsibility for carrying out PCs
- Subjects on which PCs are carried out
- Procedures on the selection of the participants
- Procedures on the notification to the participants
- Procedures on the acceptance of opinions from the participants
- Procedures on the publication of the results from PCs

It is proposed that the guideline of PCs be published to people and released in the official web site.

5.3.4 Establishment of Disclosure System (6-4)

Program 6-4-1: Establishment of Disclosure System for Water Resources Management

The new Government Regulation (Draft) stipulates the establishment of Water Resources Data and Information Unit at river basin level (Article 45). This Unit not only collect and process data and information but also have to provide them to anybody upon request in the form that he/she can retrieve and copy them (Article 48). It is suitable for the disclosure system of water resources management.

In order to establish an effective disclosure system, the followings should be carried out:

- The Unit is established in Balai PSDA with enhancing Operation & Data Management Section.
- Collected data and information are stored in a data base for the sake of data process and retrieval.
- Screened data and information are provided in the official web site on water resources management for the people's convenience.
- Decision on data/information provision is made within a certain period. In case that data/information is refused to provide, specified reason for the refusal is informed of in writing. The results of data/information provision are reported in the accountability report by the Governor.

5.4 Organizational Enhancement (6-5)

5.4.1 Balai PSDA

According to New Government Regulation (Draft), functions of Balai PSDA, as a water resources management and technical implementation body at the river basin, would include:

- Collecting, processing, storing and distributing data and information as the functions of Water Resources Data and Information Unit at river basin (Article 45)
- Deciding operational regulation, policy, and plan on the management of water information system (Article 47)
- Supervising and involving directly action on water pollution (Article 66)
- Implementing water resources supply (Article 75)
- Maintaining water resources and its infrastructure (Article 83)
- Carrying out capacity building of water resources users (Article 83)

With the consideration of such Articles, the followings are proposed.

Program 6-5-1: Establishment of Water Resources Data and Information Unit in Balai PSDA

It is strongly recommended that the Water Resources Data and Information Unit be set up by enhancing the Operation & Data Management Section in order to establish disclosure system on water resources management. See Program 6 for the detail of disclosure system. The Unit's functions are:

- Supplier of data and information for Water Resources Data and Information Unit at District/Town, provincial, and national levels and simultaneously as selector and keeper of data,
- Presenter and distributor of information

According to new Government Regulation, Request for water resources information for non-commercial interest can be charged with limited cost, and that for commercial interest can be charged with cost for information collecting, multiplication and process of information for the party's purpose. The Provincial Government should decide procedures for request and supply of water resources information.

Program 6-5-2: Enhancement of the Function of Finance Section in Balai PSDA

As several types of money are expected to be paid to the Balai PSDA, manpower and accounting skill of Finance Section should be expanded. In addition, appropriate computer system for accounting should be prepared. Expected money includes:

- Water resources management fee

- Data and information supply fee
- Water pollution cost
- Water exploitation fee

5.4.2 PTPA/PPTPA

Water resources councils, or coordinating agency are to be established at the Provincial level and river basin level. New Government Regulation (Draft) gives the following roles to PTPA/PPTP:

- Recommend draft of policy guidance on water resources management to the Governor (Article 15)
- Discuss draft of master plan of river basin water resources management (Article 24)
- Carry out coordination in the implementation of master plan (Article 27)
- Give consultation for the cooperation in the implementation of master plan (Article 29)
- Give input for deciding fee tariff (PTPA only) (Article 37)
- Receiving information on grant, loan and bond issuing (Article 40)
- Propose policy on water resources information system to provincial agencies (PTPA only) (Article 47)
- Make recommendation for the decision of border land (Article 57)
- Make recommendation for the decision of water allocation (PTPA only) (Article 72)
- Make recommendation for the decision of water resources supply priority (PTPA only) (Article 73)
- Make recommendation for the decision of water resources supply plan (PTPA only) (Article 74)
- Give input for water resources supply adjustment (PTPA only) (Article 75)
- Decide whether to give agreement or not with permission which can disturb balance of water resources supply (PTPA only) (Article 82)
- Consider allocation of fee from water exploitation (PTPA only) (Article 109)
- Give consideration on evaluation of performance (PTPA only) (Article 110)

The letter of the Governor of South Sumatra Province was issued to establish PTPA/PPTPA in April 2003 (No. 226/KPTS/PU-AIR/2003) The percentage of members from non-governmental organizations is presently about 10%, which will be increased to 50% or so when they will be restructured in the future.

The Program concerning PTPA/PPTPA should be as follows:

Program 6-5-3: Activation of PTPA/PPTPA

According to the Governor's Letter, PTPA/PPTPA should report regularly (every three month) or incidentally upon request to the Governor and the Minister of KIMPRASWIL through the Director General of Water Resource. These reports also should be disclosed with using the Official Web Site (See Program 6-2-3).

The structure of water resources management organizations at river basin is illustrated in the following figure.

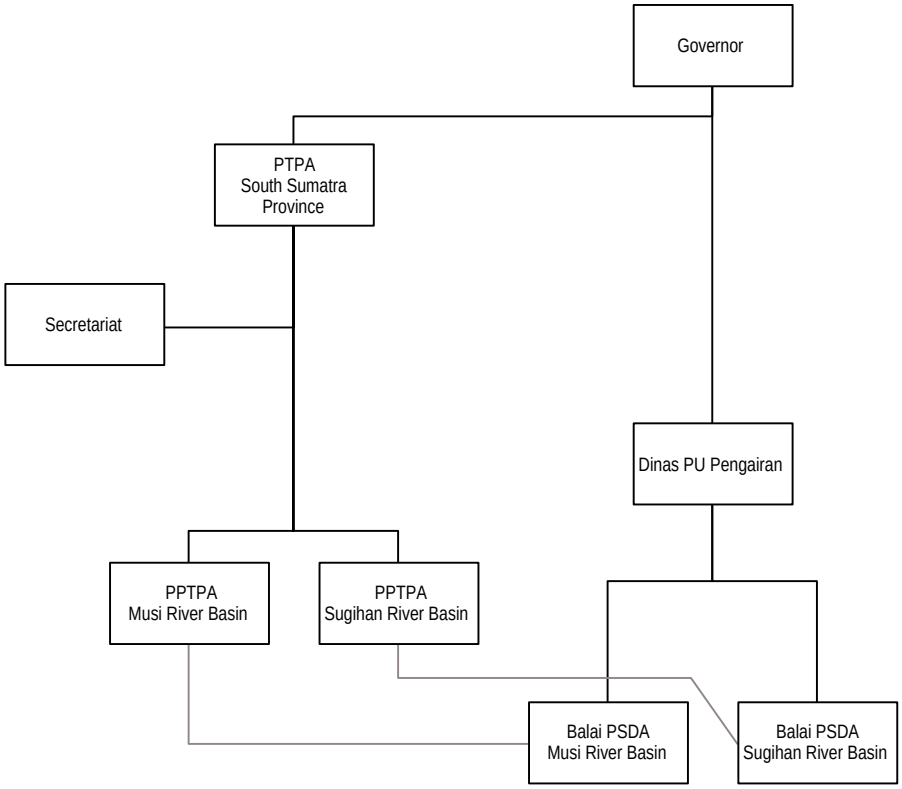


Figure K5.4.1 Structure of Water Resources Management Authorities

5.4.3 Water Users Association (WUA)

According to Government Regulation No.77/2001 (Irrigation), which is issued after the Irrigation Management Policy Reform (PKPI) in 1999, a Water Users Association (WUA) is a decision-making unit and main actor in irrigation management in its definite area. WUA bears obligation and responsibility in operation and maintenance (O&M) of irrigation system, coordinating with other water users when necessary. Budget for irrigation management is provided by member's fee as well as provision of funds from Central and Regional Governments.

As a result of the Irrigation Management Policy Reform, about 700 WUAs are established in 2000. Only 10 or so among them are evaluated as working well in 2002. All of good WUAs are those in pilot project areas which are supported by IWIRIP. On the other hand, it is reported that some WUA was working well at the beginning of establishment but stopped later. Due to low budget for facility construction from the government, the quality of the channel gates was not so preferable. WUA stopped working since it could not repair because the gates got damaged so frequently that WUA could not afford repairing cost with the result that it could not collect service fee from the members. Therefore, it is proposed as a component of Master Plan that:

Program 6-5-4: Increase in Revenue of WUA by Increase in Income of Members by Enhancing Extension Activities

Extension activities include:

- Introduction of new variety with higher production
- Training of farmers on cropping pattern and techniques
- Training of officials of the management committee in WUA
- Introduction of micro credit system by which farmers can borrow money with limited interest

5.4.4 Coordination among Related Organizations

Program 6-5-5: Establishment of Coordinating Network for Daily Works

Since PTPA/PPTPA are higher level organization for coordination on water resources management, it is required more practical level organization for coordinating daily and routine work in water management such as information collection/distribution, preparation and implementation of daily action plans among related organizations. This network is established in the official web site as a *virtual* organization and also has an off-line quarterly meeting. Balai PSDA manages and maintains the virtual organization and off-line meetings. Only the members of the network can access the web site with password. Members are:

- Balai PSDA (Dinas PU Pengairan)
- Sub-service of Swamp, River and Water Resource Use (Dinas PU Pengairan)
- Sub-service of Spatial Plan and Programming (Dinas PU Pengairan)
- Sub-service of Irrigation Development & Utilization (Dinasu PU Pengairan)
- Strategic Planning Division of BAPPEDA
- Sub-service of Crop Plantation and Horticulture (Service of Agriculture)
- Sub-service of Agricultural Facility & Infrastructure (Service of Agriculture)

- Sub-service of Program (Service of Ocean and Fishery)
- Sub-service of Geology and Mineral Resources (Service of Mining & Energy)
- Program Guiding section of BAPEDALDA
- Sub-service of Forest Protection (Service of Forestry)
- PDAM
- Meteorological and Geographical Agency (BMG)
- BAPPEDA of related District/Municipality
- PU Pengrairan of related District/Municipality
- Cipta Karya of related District/Municipality
- Mining Service of related District/Municipality
- Forestry Service of related District/Municipality
- BAPEDALDA of related District/Municipality
- Industry & Trade Service of related District/Municipality
- Transportation & Communication Service of related District/Municipality
- Tourism Service of related District/Municipality

5.5 Human Resources Development Programs (6-6)

Human resources development programs are tools for the realization of and/or assistance to the institutional development and organizational enhancement mentioned above. Training programs should be developed with the consideration of:

- Needs of the trainee's present and future job
- Trainee's present skills and enthusiasm (Enthusiasm is evaluated by the achievement of his/her past job.)
- Schedule and progress of institutional development and organizational enhancement

Programs are basically divided into two categories, those for government employees and those for non-government people including farmers and informal leaders.

5.5.1 Training Programs for Government Employees

Program 6-6-1: Training for Operating Techniques for Government Employees of Balai PSDA

The following capabilities should be developed for the related employees:

- Business accounting

- GIS data management and operation
- Data sampling and chemical analysis
- Hydrological data analysis
- Operation and maintenance of water resources facilities
- Training skill for irrigation management and irrigation operation (Government officials are obliged to train WUA personnel)

Program 6-6-2: Training for Management and Planning for Related Government Employees

The following capabilities should be developed for the related employees:

- Effective planning and implementation of water resources management
- Personnel management
- Project management
- Public relations and public consultation
- Administration of web server system

5.5.2 Training Programs for Non-Government People

Program 6-6-3: Training for Operation & Maintenance of Irrigation System

The following capabilities should be developed for the management committee of WUA:

- Business administration
- Business accounting
- Cropping pattern
- Gate operation

Program 6-6-4: Joint Training with NGOs to Informal Leaders and Selected People

The following trainings are planned and implemented in collaboration with related NGOs in order to develop capability of participation:

- Presentation and discussion skill
- Basics on water resources management
- Planning and implementation procedures of water resources management

5.6 Action Plan for the Proposed Programs

5.6.1 Objectives and Relations of Proposed Programs

The key to the certain and firm implementation of water resources management is the incentive of government employees in charge of water resources management. Nothing can be changed with any elaborated plans if they do not have incentives on their jobs. Thus, proposed programs should be structured to support and enhance their incentives on water resources management.

- *Incentive mechanism* should be introduced in the personnel management with personnel evaluation system (Program 6-1-1). At the same time supervisors must be acquaint with know-how on personnel management by incentives (Program 6-6-2). Wrong application of incentive mechanism would deteriorate employees' moral all the more.

- *Transparency* supports the incentive mechanism by exposing their behaviour to the people (Programs 6-2-1 and 6-2-2). If government information is released on the official web site in the Internet (Program 6-2-3), they are exposed to the people in the world, including taxpayers of donor countries. Government officials have to keep in mind that their performance is always watched around the world. On the other hand, releasing government information arouses the people and promotes their participation.

- It should be noted that Official Web Site of Water Resources Management (Program 6-2-3) can bear multiple functions such as a low cost infrastructure of disclosure system (Program 6-4-1), data and information collection/supply by Water Resources Data and Information Unit (Program 6-5-1), and coordinating network for related agencies for daily jobs (Program 6-5-5).

- *Participatory* procedure guarantees incentive mechanism. The people can participate in decision-making process by public consultation, which checks government activities. In order to secure proper procedures, government employees have to observe a public consultation guideline for water resources management (Program 6-3-1). At the same time, people have to be provided with enough government information for proper decision-making by transparency (Programs 6-2-1, 6-2-2 and 6-2-3) and should acquire good skills for presentation and discussion of their needs and demands for effective participation (Program 6-6-4 for general people and also with 6-6-3 for farmers).

- *Disclosure* system guarantees transparency of government activities (Program 6-4-1). It should be operated with low cost and convenient for distant people. Otherwise, it does not work substantially. The official web site in the Internet (Program 6-2-3) provides proper infrastructure for disclosure system. Water Resources Data and Information Unit (Program 6-5-1) will be a centre for this system according to the new Government Regulation (Article 48).

- *Organizational enhancement* supports disclosure system with Water Resources Data and Information Unit (Program 6-5-1), and indirectly with coordinating network for

related agencies for daily jobs (Program 6-5-5). Establishment of PTPA/PPTPA (Program 6-5-3) is an instrument of promoting transparency. Enhancement of WUAs promotes farmers participation to decision-making.

- Organization enhancement is in turn supported by *human resources development* such as capacity building program for Balai PSDA (Program 6-6-1 and 6-5-2) and capacity building on management and planning for related agencies (Program 6-6-2).

Structure of proposed programs is illustrated below. The new Law and Government Regulation on Water Resources Management (Draft) will be the foundation of water resources management.

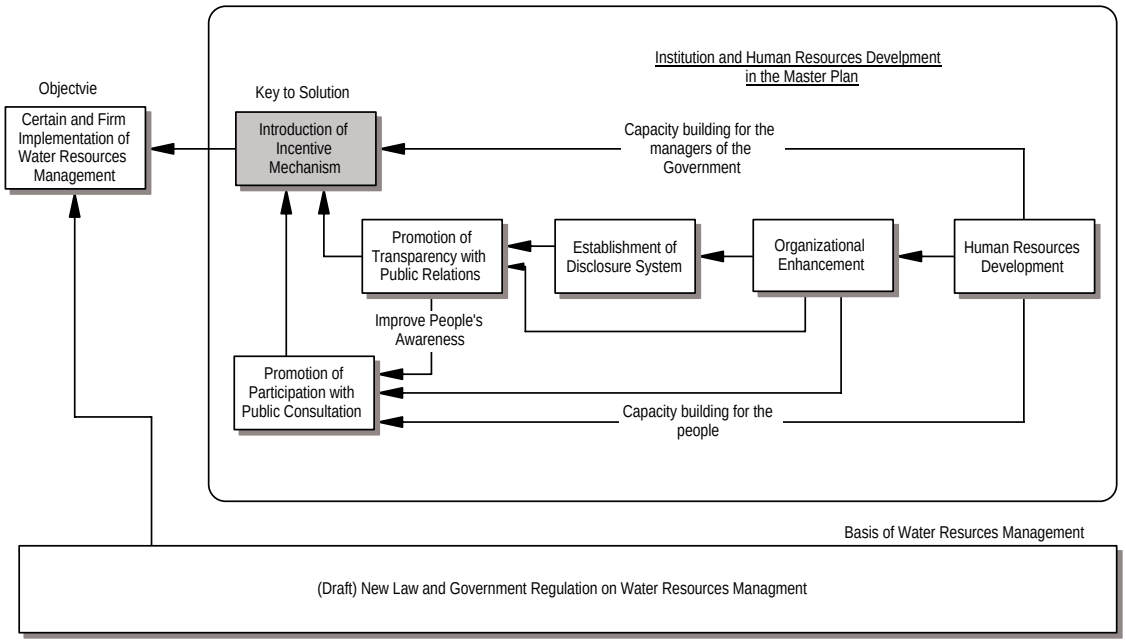


Figure K5.6.1 Structure of Proposed Programs

5.6.2 Implementation Authorities and Schedule

Implementation timing of a program is decided by its length of preparation time and relations with other programs. Generally, programs containing capacity building should start earlier since it takes comparably long time to finish human training. In addition, programs usually have preparatory period, test period and full operation period. Implementation timing is divided into *urgent*, which is prerequisite of other program, *next step*, which is implemented after the urgent program is implemented, and *third step*, which should be decided considering the operating conditions of the next step program.

An implementing authority of a program is decided by regulations or decrees. Usually, it is Dinas PU Pengairan or Balai PSDA Musi if it is not decreed otherwise. In addition, even if a regulation stipulates other higher authority for the responsibility, namely Governor or so, Dinas PU Pengairan has to present an initiative of the series of activities.

Urgent Programs

Program 6-2-3: Official Web Site of Water Resources Management

The Official Web Site is a main infrastructure of disclosure and transparency. It takes two month for installation and training and almost one year for test drive. Dinas PU Pengairan establishes and maintains it.

Program 6-5-1: Establishment of Water Resources Data and Information Unit in Balai PSDA

Program 6-5-3: Activation of PTPA/PPTPA

These programs should be implemented the sooner the better. When the new Government Regulation is issued, it should be implemented as soon as possible since the regulation requires them.

Program 6-6-1: Training for Operating Techniques for Government Employees of Balai PSDA

Since Balai PSDA has been already established, this program should be implemented before it will start full operation.

Program 6-6-2: Training for Management and Planning for Related Government Employees

This program should be started as soon as possible because it is a pre requisite of Program 6-1-1. They need the Governor's initiative because they are the drastic change of government system. Since it is very difficult to apply to all the Provincial employees, new system is applied to Dinas PU Pengairan as a pilot program. They may need year for preparation and at least one year test drive. Follow up training is necessary for supervisors after the implementation.

Program 6-6-3: Training for Operation & Maintenance of Irrigation System

This program is a prerequisite of the implementation of Irrigation Development Program (Component 1: Water Use Management).

Program 6-6-4: Joint Training with NGOs to Informal Leaders and Selected People

This program is a prerequisite of the implementation of Community Drainage Management Program (Component 2: Floodplain Management).

Next Step Programs

Program 6-1-1: Personnel Management with Incentive Mechanism

Although this program is a key solution of issues on the water management (see **Figure K5.5.1 Structure of Proposed Programs**), it can be implemented effectively after the implementation of Program 6-6-2.

Program 6-3-1: Making Guideline of Public Consultation for Water Resources Management

Program 6-4-1: Establishment of Disclosure System for Water Resources Management

Program 6-5-2: Enhancement of the Function of Finance Section in Balai PSDA

These programs will be required to start when the new Government Regulation is issued.

Program 6-5-5: Establishment of Coordinating Network for Daily Works

This program can be implemented effectively after the Official Web Site for Water Resources Management is established.

Third Step Programs

Program 6-2-1: Annual Report on Water Management

Program 6-2-2: Publishing Picture Booklet on Water Resources Management

Program 6-5-4: Increase in Revenue of WUA by Increase in Income of Members by Enhancing Extension Activities

These programs should be implemented after the second step programs are implemented successfully. It is preferable that they be implemented in the second year. All of them

Program Implementation Schedule

Timing of implementation is summarized as follows:

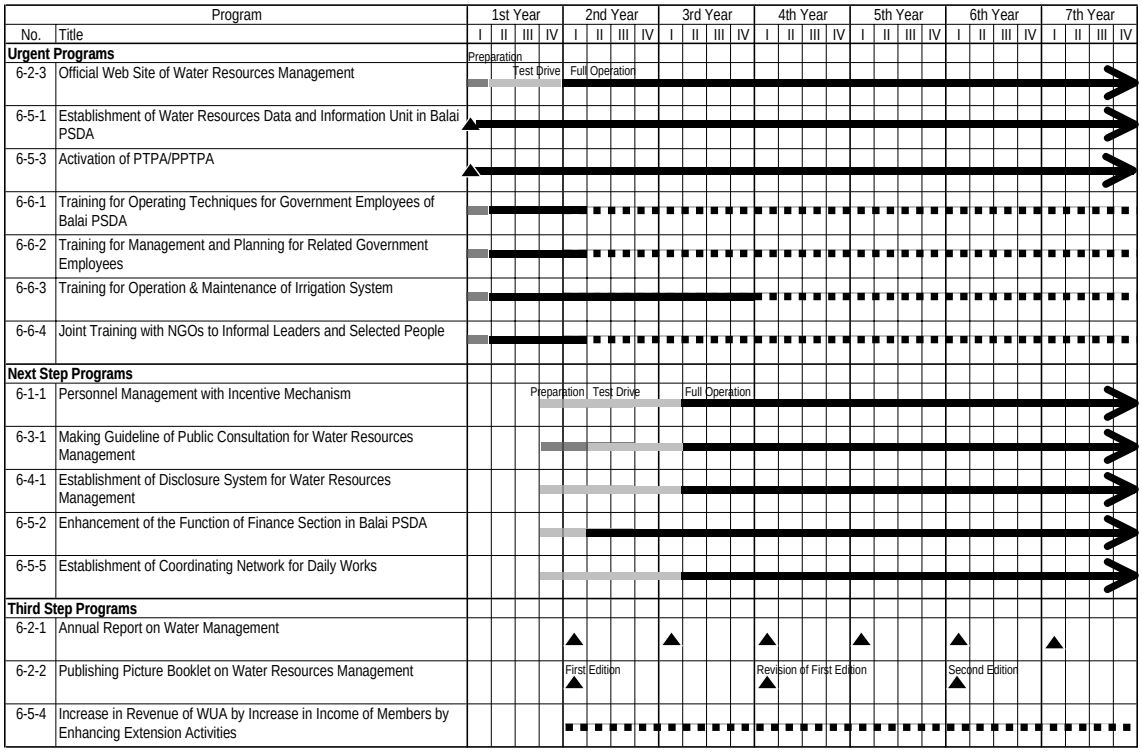


Figure K5.6.2 Program Implementation Schedule

6. PRIORITY PROGRAMS

6.1 Selection Method

Priority programs are selected with the following three criteria for institutional strengthening:

- Their implementation is required by regulations;
- Their implementation is a prerequisite of other programs; or
- They are ready to be implemented.

These criteria are decided, taking into consideration that institutional strengthening is a basis of program implementation in other Master Plan components.

Evaluation s made by attributing 5 points to high priority programs, 3 points to middle priority programs and 1 point to low priority programs concerning each criterion, and these scores were summed up for each program. If the total score exceeds 10 points, the program is selected as a priority program. This means that a program is selected if it has high priority with at least two criteria and that it is not selected if it has only middle priority with all the three criteria.

6.2 Results of Priority Evaluation

Proposed programs have been evaluated as follows:

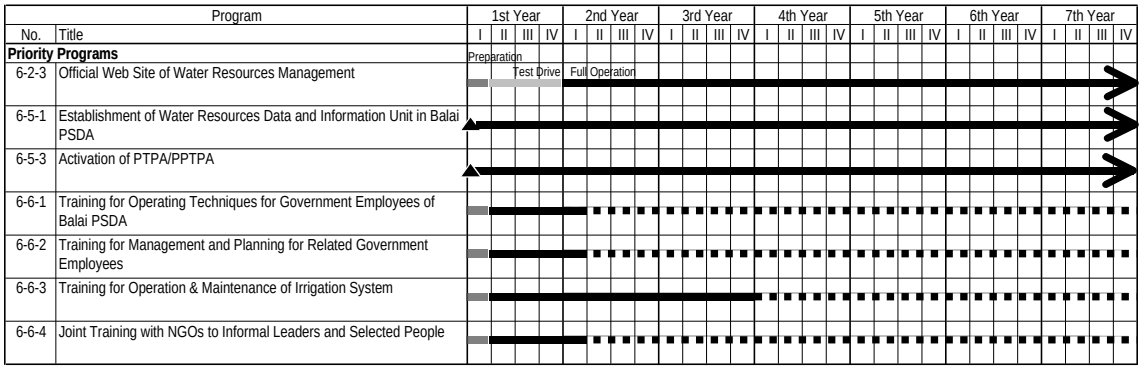
No.	Program Title	Required by Regulation	Prerequisite of Others	Ready to Be Imple-mented	Total
6-1	**Introduction of Incentive Mechanism**				
6-1-1	Personnel Management with Incentive Mechanism	1	5	1	7
6-2	**Promotion of Transparency with Public Relations**				
6-2-1	Annual Report on Water Resources Management	3	1	3	7
6-2-2	Publishing Picture Booklet on Water Resources Management	1	1	3	7
6-2-3	*Official Web Site of Water Resources Management*	*1*	*5*	*5*	*11*
6-3	**Promotion of Participation with Public Consultation**				
6-3-1	Making Guideline of Public Consultation for Water Resources Management	1	1	3	5
6-4	**Establishment of Disclosure System**				

No.	Program Title	Required by Regulation	Prerequisite of Others	Ready to Be Implemented	Total
6-4-1	Establishment of Disclosure System for Water Resources Management in Balai PSDA	3	3	3	9
6-5	**Organizational Enhancement**				
6-5-1	*Establishment of Water Resources Data and Information Unit in Balai PSDA*	*3*	*5*	*3*	*11*
6-5-2	Enhancement of the Function of Finance Section in Balai PSDA	3	3	3	9
6-5-3	*Activation of PTPA/PPTPA*	*5*	*5*	*5*	*15*
6-5-4	Increase in Revenue of WUA by Increase in Income of Members by Enhancing Extension Activities	1	3	3	7
6-5-5	Establishment of Coordinating Network for Daily Works	1	5	3	9
6-6	**Human Resources Development**				
6-6-1	*Training for Operating Techniques for Government Employees of Balai PSDA*	*3*	*5*	*5*	*13*
6-6-2	*Training for Management and Planning for Related Government Employees*	*3*	*5*	*5*	*13*
6-6-3	*Training for Operation & Maintenance of Irrigation System*	*1*	*5*	*5*	*11*
6-6-4	*Joint Training with NGOs to Informal Leaders and Selected People*	*1*	*5*	*5*	*11*

(Note) Score 5: High Priority; Score 3: Middle Priority; Score 1: Low Priority
Italics: Priority Program with Total Score >10.

6.3 Implementation Schedule

Implementation Schedule of priority programs is shown below:



6.4 Cost Estimate

Cost for priority programs are estimated as follows:

6.4.1 Program 6-2-3: Official Web Site of Water Resources Management

1) First year (Rp. '000)

Item	Number	Month/Time	Unit Price	Amount
1. Salary for Personnel				
System administrator	1	12	1,500	18,000
Web page design/maintenance engineer	2	12	1,000	24,000
Network maintenance engineer	2	12	1,000	24,000
2. Equipment				
Server computer	2	1	35,000	70,000
Network equipment	1	1	5,000	5,000
3. Web server program	2	1	20,000	40,000
4. System installation/customizing				
System engineer	2	2	2,000	8,000
5. Training				
System administrator	1	2	1,000	2,000
Web page design/maintenance engineer	2	2	1,000	4,000
Network maintenance engineer	2	2	1,000	4,000
6. Maintenance and repair	1	1	6,000	6,000
TOTAL				205,000

2) Years after (Rp. '000)

Item	Number	Month/Time	Unit Price	Amount
1. Salary for Personnel				
System administrator	1	12	1,500	18,000
Web page design/maintenance engineer	2	12	1,000	24,000
Network maintenance engineer	2	12	1,000	24,000
2. Maintenance and repair	1	1	6,000	6,000
TOTAL				72,000

6.4.2 Program 6-5-1: Establishment of Water Resources Data and Information Unit in Balai PSDA

No additional cost will be accrued for the establishment since the routine expenditure is re-allocated.

6.4.3 Program 6-5-3: Activation of PTPA/PPTPA

No significant amount of additional cost will be accrued for the establishment.

6.4.4 Program 6-6-1: Training for Operating Techniques for Government Employees of Balai PSDA

1) Preparation of training course
   6 persons x 0.5 month x 3,000,000 Rp./month = Rp.9,000,000-
2) On-site training
   6 persons x 1 month x 2 times x 3,000,000 Rp./month = Rp.36,000,000-

Total: Rp.45,000,000-

6.4.5 Program 6-6-2: Training for Management and Planning for Related Government Employees

1) Preparation of training course
   5 persons x 1 month x 3,000,000 Rp./month = Rp.15,000,000-
2) On-site training
   5 persons x 1 month x 2 times x 3,000,000 Rp./month = Rp.30,000,000-

Total: Rp.45,000,000-

6.4.6 Program 6-6-3: Training for Operation & Maintenance of Irrigation System

1) Preparation of training course
   1 person x 1 month x 1,500,000 Rp./month = Rp.1,500,000-
2) On-site training
   8 persons x 30 months x 15 days/month x 200,000 Rp./day = Rp.720,000,000-
   (including consumptions, transport and accommodations)

Total: Rp.721,500,000-

6.4.7 Program 6-6-4: Joint Training with NGOs to Informal Leaders and Selected People

1) Preparation of training course
   2 persons x 1 month x 1,500,000 Rp./month = Rp.3,000,000-
2) On-site training
   4 persons x 3 days x 11 times x 200,000 Rp./day = Rp.26,400,000-
   (for trainers: including consumptions, transport and accommodations)
   30 persons x 3 days x 11 times x 100,000 Rp./day = Rp.99,000,000-
   (for trainees: including consumptions and compensation)

Total: Rp.128,400,000-

7. ECONOMIC EFFECT AND FINANCING SOURCES FOR PRIORITY PROGRAMS

7.1 Financing Program Costs

In this subsection, economic effects of the priority programs are discussed on preliminary basis and possibility of implementation of the programs is analyzed by comparing the costs of the priority programs and normal development budget of the respective executing agencies. If the normal budget cannot cover the cost for implementation of the programs, other ways of financing will also be considered.

7.1.1 Water Use Management (Component 1)

(1) Sustainable Irrigation and Swamp Development (Program 1-2)

(a) Economic Effect

The program does not directly produce any economic effect but implementation of the program may bring about the following indirect economic effects:

- Irrigation water can be utilized efficiently by educating farmers through the meetings,
- If irrigation and swamp development projects are implemented based on results of the Pre F/S, they will contribute to national food security and food self-reliance in both national and provincial levels, and
- Stabilization of rural farmers' livelihood and prevention of influx of rural population into urban areas

(b) Financial Evaluation

After the regional autonomy and financial decentralization, it will gradually be necessary to implement necessary programs by the local government fund (APBD). Development expenditure of Water Resources Service (*Dinas PU Pengairan*) of South Sumatra Province was Rp.38 billion in FY2002. Out of this, allocation from APBD was Rp.9.7 billion.

The total cost of this program is estimated at Rp.104.8 billion for 9 years implementation. Annual required costs of the program vary from year to year but they amounts to more than 10 billion in several years. The costs cannot be fully covered by APBD portion of the development expenditure of Water Resources Service, South Sumatra Province. Therefore, input of APBN is needed for the implementation of the program.

Table K7.1.1 Comparison of Program Cost and Development Expenditure (Program 1-2)

Executing agency	Period (year)	Program Cost (Rp. m)			Dev.Expend. in 2002 (Rp.m)		Ratio of annual cost
		Total	Annual	O&M	Total	(APBD)	
Water Resources Service, South Sumatra Prov. and DGWR	9	104,835	0 - 27,300	-	38,008	9,704	more than 100% in several years

(2) Rainwater Utilization in Tidal Swamp Area (Program 1-3)

(a) Economic Effect

Implementation of the program may bring about but not limited to the following economic effects:

- Cost to buy fresh water can be saved,
- Cost to treat sewage disposal can be saved,
- Sanitary condition of the objective area will be improved,
- Danger of waterborne infectious disease will be mitigated and medical cost may be saved, and
- Living environment and quality of life will be improved

(b) Financial Evaluation

Implementation of the program needs vast amount of investment. The total cost of this program is estimated at Rp.198.7 billion for 10 years implementation. Annual required cost of the program is Rp.19.87 billion or 4% of the total development expenditure (APBD only) of South Sumatra Province, and MUBA and OKI Regencies.

Table K7.1.2 Comparison of Program Cost and Development Expenditure (Program 1-3)

Executing agency	Period (year)	Program Cost (Rp. m)			Dev.Expend. in 2001 (Rp.m)		Ratio of annual cost
		Total	Annual	O&M	Total	(APBD)	
South Sumatra Prov.,	10	198,700	19,870	-	918,800	213,900	4%
MUBA Regency					228,100	228,100	
OKI Regency					106,700	106,700	
Total					1,253,600	548,700	

In order to produce the incentive of the beneficial people to maintain the facilities properly, ownership feeling of the program is indispensable. Bearing of a part of the cost by the beneficial people will be necessary with an appropriate credit system.

(3) Aquaculture Water Management (Program 1-4)

(a) Economic Effect

The program itself does not directly produce any economic effect. However, if agriculture areas are gathered by reallocation or exchange of

farm lots based on this program, the following economic effects may be expected:

- Production increase in both aquaculture and paddy cultivation is expected by proper water management (both quality and volume),
- Water supply management works can be simplified and manpower may be reduced,
- Stabilization of rural farmers' livelihood and prevention of influx of rural population into urban areas
- Social conflict can be avoided

(b) Financial Evaluation

The total cost of this program is estimated at Rp.73 million for 2 years implementation. Annual required cost of the program is approximately Rp.37 million or 0.4% of APBD portion of the development expenditure of Water Resources Service, South Sumatra Province. The program needs annual O & M cost of Rp.6 million and that should be covered by the budget of the beneficial regencies. The costs will not be a burden on the finance of both the Service and the regencies. From the financial viewpoint, implementation of the program is possible with financial arrangement of the development budget.

Table K7.1.3 Comparison of Program Cost and Development Expenditure (Program 1-4)

Executing agency	Period (year)	Program Cost (Rp. m)			Dev. Expend. in 2002 (Rp.m)		Ratio of annual cost
		Total	Annual	O&M	Total	(APBD)	
Water Resources Service, South Sumatra Prov.	2	73	37	6	38,008	9,704	0.4%

(4) Modeling of Water Use Management (Program 1-6)

(a) Economic Effect

The program does not directly produce any economic effect but the modeling of water use management will be the basis for sustainable water management, equitable and balanced water use, and conservation of environment.

(b) Financial Evaluation

The total cost of this program is estimated at Rp.13.55 billion for 2 years implementation. Annual required cost of the program is approximately Rp.6.77 billion or 70% of APBD portion of the development expenditure of Water Resources Service, South Sumatra Province. The cost for the program is too large to allocate only from the APBD source. Other source

of finance will be needed to implement the program such as APBN, foreign grant aid, soft loan, etc.

Table K7.1.4 Comparison of Program Cost and Development Expenditure (Program 1-6)

Executing agency	Period (year)	Program Cost (Rp. m)			Dev.Expend. in 2002 (Rp.m)		Ratio of annual cost
		Total	Annual	O&M	Total	(APBD)	
Water Resources Service, South Sumatra Prov.	2	13,545	6,773	12	38,008	9,704	70%

The program needs annual O & M cost of Rp.12 million but it will not be a burden on the finance of the Service.

7.1.2 Floodplain Management (Component 2)

(1) Zoning and Land Use Control Program (Program 2-1)

(a) Economic Effect

Implementation of the program may bring about but not limited to the following economic effects:

- Flood condition in the downstream reaches will not be worsen by preventing wanton developments in the floodplain of the mid- and upstream reaches,
- Current agricultural practice in midstream, swamp, and tidal swamp areas can be maintained by conserving the current water conditions,
- Effective investment can be made by zoning the land use,
- Various kind of pollution can be mitigated by separating housing, industrial, commercial, and agricultural areas by zoning, and
- Natural environment and landscape may be conserved in some areas and people can enjoy the environment.

(b) Financial Evaluation

The total cost of this program is estimated at Rp.78 million for 2 years implementation. The annual required fund for implementation of the program is approximately Rp.39 million or 0.4% of APBD portion of the development expenditure of the Service. Therefore, the cost will not be a burden on the finance of the department.

Table K7.1.5 Comparison of Program Cost and Development Expenditure (Program 2-1)

Executing agency	Period (year)	Program Cost (Rp. m)			Dev.Expend. in 2002 (Rp.m)		Ratio (Ann. cost/APBD)
		Total	Annual	O&M	Total	(APBD)	
Water Resources Service, South Sumatra Prov.	2	78	39	0	38,008	9,704	0.4%

From the financial viewpoint, implementation of the program is possible with financial arrangement of the development budget of the department.

7.1.3 Watershed Rehabilitation and Conservation (Component 3)

(1) Application of Agroforestry on Land with Major Constraints (Program 3-1)

(a) Economic Effect

Implementation of the program may bring about but not limited to the following economic effects:

- Aggradations will be mitigated by reducing soil erosion in farmers' plantation areas. This may reduce the cost to maintain waterways in the Musi River and its tributaries,
- Flood condition of the downstream areas may be improved by reduction of both runoff and sedimentation,
- Environment of the forest area will be improved by avoiding short cycle of tree cutting,
- Improvement of self-sufficiency and nutrition level of rural farmers, and
- Stabilization of rural farmers' livelihood and prevention of influx of rural population into urban areas

(b) Financial Evaluation

Development expenditure of Forestry Service (*Dinas Kehutanan*) of South Sumatra Province was Rp.3.8 billion in FY2001. Out of this, allocation from non-APBN sources is Rp.3.5 billion.

Table K7.1.6 Comparison of Program Cost and Development Expenditure (Program 3-1)

Executing Agency	Period (year)	Program Cost (Rp. m)			Dev. Expend. in 2001 (Rp.m)		Ratio (Ann. cost/APBD)
		Total	Annual	O&M	Total	(non-APBN)	
Forestry Service, South Sumatra Prov. and other	6	45,511	539 - 28,389	0	3,832	3,523	15 - 800%

The total cost of this program is estimated at Rp.45.5 billion for 6 years implementation. Annual required costs of the program vary from Rp.539 million to Rp.28,389 million, which account for 15% to 800% of the development expenditure of non-APBN sources of the Service (*Dinas Kehutanan*). Since the required costs is quite large, financial contribution by beneficial districts and sub-districts will be necessary. Furthermore, in order to produce the incentive of the beneficial farmers to maintain agroforestry properly, ownership feeling of the program is indispensable.

Bearing of a part of the cost by the farmers will be necessary with an appropriate farm credit system.

(2) Strengthening of Agriculture/Estate/Forestry Extension (Program 3-3)

(a) Economic Effect

Implementation of the program may bring about but not limited to the following economic effects:

- Aggradations will be mitigated by reducing soil erosion in farmers' plantation areas. This may reduce the cost to maintain waterways in the Musi River and its tributaries,
- Flood condition of the downstream areas may be improved by reduction of both runoff and sedimentation,
- Environment of the forest area will be improved by avoiding short cycle of tree cutting,
- Improvement of self-sufficiency and nutrition level of rural farmers, and
- Stabilization of rural farmers' livelihood and prevention of influx of rural population into urban areas

(b) Financial Evaluation

The total cost of this program is estimated at Rp.6,663 million for 5 years implementation. Annual required cost of the program is approximately Rp.1,333 million or 37% of the development expenditure of non-APBN budget of the Service (*Dinas Kehutanan Sumsel*). Input of APBN is needed and it will be better to be divided by related agencies and local governments.

Table K7.1.7 Comparison of Program Cost and Development Expenditure (Program 3-3)

Executing agency	Period (year)	Program Cost (Rp. m)			Dev.Expend. in 2001 (Rp.m)		Ratio (Ann. cost/APBD)
		Total	Annual	O&M	Total	(except APBN)	
Forestry Service, South Sumatra Prov. and other	5	6,663	1,333		3,832	3,523	37%

(3) Reforestation of Production Forest/Forest Estate (Program 3-4)

(a) Economic Effect

Implementation of this program is expected to bring about but not limited to the following effects:

- Aggradations will be mitigated by reducing soil erosion in production forest and forest estate areas. This may reduce the cost to maintain waterways in the Musi River and its tributaries,
- Flood condition of the downstream areas may be improved by reduction of both runoff and sedimentation,
- Sustainable forest production will be expected by proper management of the production forest and operation of the forest companies will be stabilized, and
- Environment of the forest area will be improved by continuous reforestation,

(b) Financial Evaluation

The total cost of this program is estimated at Rp.88 million for 3 years implementation. Annual required cost of the program is approximately Rp.29 million or 0.8% of the development expenditure of non-APBN budget of the Service (*Dinas Kehutanan Sumsel*). Therefore, the cost will not be a burden on the finance of the Service.

Table K7.1.8 Comparison of Program Cost and Development Expenditure (Program 3-4)

Executing Agency	Period (year)	Program Cost (Rp. m)			Dev.Expend. in 2001 (Rp.m)		Ratio (Ann. cost/APBD)
		Total	Annual	O&M	Total	(APBD)	
Forestry Service, South Sumatra Prov. and other	3	88	29		3,832	3,523	0.8%

From the financial viewpoint, implementation of the program is possible with financial arrangement of the development budget of the Service.

(4) Inner- and Inter-basin Coordination (Program 3-6)

(a) Economic Effect

The program does not directly produce any economic effect but the inner- and inter-basin coordination will be the basis for comprehensive resource management.

(b) Financial Evaluation

No significant amount of additional cost will be accrued for establishment of PPTPA for both provincial and district levels.

(5) Rehabilitation of Existing Protected Forests (Program 3-7)

(a) Economic Effect

Implementation of this program is expected to bring about but not limited to the following effects:

- Aggradations will be mitigated by reducing soil erosion in protected forest areas. This may reduce the cost to maintain waterways in the Musi River and its tributaries,
- Flood condition of the downstream areas may be improved by reduction of both runoff and sedimentation, and
- Environment of the forest area will be improved by the rehabilitation, and there will be a possibility to develop eco-tourism in the areas.

(b) Financial Evaluation

The total cost of this program is estimated at Rp.13.5 billion for 7 years implementation. Annual required costs of the program vary from Rp.0.3 billion to Rp.7.9 billion. Development budget for environment and land planning of the Province was Rp.2.8 billion consisted of Rp.1.3 billion from APBD and Rp.1.5 billion from APBN in 2002. The development budget of the Forestry Service of the Province was Rp.3.8 billion. Even if the cost for the program is allocated from both the sectors, the cost for the program will be too large. Other source of finance will be needed to implement the program such as APBN, foreign grant aid, soft loan, etc.

7.1.4 Urban Water Environment Improvement (Component 4)

(1) Community Drainage Management (Program 4-1)

(a) Economic Effect

Implementation of the program is expected to bring about but not limited to the following economic effects:

- Flood damages to houses and household properties can be mitigated by smoother water flow and shorter inundation,
- Waterborne diseases of the children in flood prone areas, which was stated by many residents in the areas, can be mitigated and medical cost can be saved,
- Better drainage and cleaner living environment may avoid inconvenience of people's livelihood and ease people's mental stress caused by habitual inundation,

- Better drainage and shorter inundation may reduce the cost of emergency measures taken by local government for flood fighting and assisting affected people, and
- Community activity with residents participation may give incentive for people to keep the rivers and drainages clean and it may reduce river O&M cost of the local government.

(b) Financial Evaluation

Development expenditure of Palembang Municipality was Rp.100 billion in 2002.

Table K7.1.9 Comparison of Program Cost and Development Expenditure (Program 4-1)

Executing agency	Period (year)	Program Cost (Rp. m)			Dev.Expend. in 2002 (Rp.m)		Ratio of annual cost
		Total	Annual	O&M	Total	(Water resources)	
Palembang Municipality	2	440	220		100,800	2,700	8%

The total cost of this program is estimated at Rp.440 million for 2 years implementation. The annual required fund is approximately Rp.220 million or 8% of the Municipality's development expenditure for water resources sector. Therefore, the cost will not be a burden on the finance of the Municipality.

From the financial viewpoint, implementation of the program is possible with financial arrangement of the development budget of the municipality.

(2) Trunk Drainage Channel Rehabilitation (Program 4-3)

(a) Economic Effect

Implementation of the program is expected to bring about but not limited to the following economic effects:

- Flood damages to houses and household properties can be mitigated by smoother water flow and shorter inundation,
- Waterborne diseases of the children in flood prone areas, which was stated by many residents in the areas, can be mitigated and medical cost can be saved,
- Better drainage and cleaner living environment may avoid inconvenience of people's livelihood and ease people's mental stress caused by habitual inundation, and
- Better drainage and shorter inundation may reduce the cost of emergency measures taken by local government for flood fighting and assisting affected people.

(b) Financial Evaluation

The total cost of this program is estimated at Rp.33.5 billion for 10 years implementation. The annual required fund for implementation of the program is approximately Rp.3,350 million or 124% of the Municipality's development expenditure for water resources sector. Though it is slightly larger than regular expenditure of the Municipality for water resources sector, it is still 3% of the total development expenditure of the Municipality. Other source of finance is preferable to implement the program such as APBN, foreign grant aid, soft loan, etc.

Table K7.1.10 Comparison of Program Cost and Development Expenditure (Program 4-3)

Executing agency	Period (year)	Program Cost (Rp. m)			Dev.Expend. in 2002 (Rp.m)		Ratio of annual cost
		Total	Annual	O&M	Total	(APBD)	
Palembang Municipality	10	33,495	3,350		100,800	2,700	124%

7.1.5 Monitoring Network Establishment (Component 5)

(1) Hydrological Monitoring System Establishment (Program 5-1)

(a) Economic Effect

The program does not directly produce any economic effect but the monitoring and its database will be the basis for planning of efficient water resources management.

(b) Financial Evaluation

The total cost of this program is estimated at Rp.2.55 billion for three years implementation. Annual required costs of the program vary from Rp.0.8 billion to Rp.1.2 billion, which account for 30% to 46% of APBD portion of the development expenditure of Water Resources Service, South Sumatra Province (*Dinas PU Pengairan Sumsel*). The cost for the program is too large to allocate only from the APBD source. Other source of finance will be needed to implement the program such as APBN, foreign grant aid, soft loan, etc.

Table K7.1.11 Comparison of Program Cost and Development Expenditure (Program 5-1)

Executing agency	Period (year)	Program Cost (Rp. m)			Dev.Expend. in 2002 (Rp.m)		Ratio of annual cost
		Total	Annual	O&M	Total	(APBD)	
Musi Balai PSDA under DPUP-Sumsel	3	2,548	805 - 1,246	98	38,008	9,704	30% - 46%

The program needs annual O & M cost of Rp.98 million but it will not be a burden on the finance of the Service.

(2) Water Quality Monitoring System Establishment (Program 5-2)

(a) Economic Effect

The program does not directly produce any economic effect but the monitoring and its database will be the basis for water quality conservation.

(b) Financial Evaluation

The total cost of this program is estimated at Rp.6.08 billion for two years implementation. The annual required fund for implementation of the program is approximately Rp.3.04 billion or 31% of APBD portion of the development expenditure of Water Resources Service, South Sumatra Province (*Dinas PU Pengairan Sumsel*). The cost for the program is too large to allocate only from the APBD source. Other source of finance will be needed to implement the program such as APBN, foreign grant aid, soft loan, etc.

Table K7.1.12 Comparison of Program Cost and Development Expenditure (Program 5-2)

Executing agency	Period (year)	Program Cost (Rp. m)			Dev.Expend. in 2002 (Rp.m)		Ratio of annual cost
		Total	Annual	O&M	Total	(APBD)	
Musi Balai PSDA under DPUP-Sumsel	2	6,084	3,042	291	38,008	9,704	31%

Annual O & M cost of Rp.291 million shall be covered by financial arrangement of the development budget of the Service.

(3) Hydrological Database Establishment (Program 5-4)

(a) Economic Effect

The program does not directly produce any economic effect but the monitoring and its database will be the basis for efficient water resources management.

(b) Financial Evaluation

The total cost of this program is estimated at Rp.403 million for two years implementation. The annual required funds for implementation of the program are Rp.100 million and Rp.303 million for the first and the second years respectively. They account for 1% and 3% of APBD portion of the development expenditure of Water Resources Service, South Sumatra Province (*Dinas PU Pengairan Sumsel*). Additional APBN input is preferable to implement the program.

Table K7.1.13 Comparison of Program Cost and Development Expenditure (Program 5-4)

Executing agency	Period (year)	Program Cost (Rp. m)			Dev.Expend. in 2002 (Rp.m)		Ratio of annual cost
		Total	Annual	O&M	Total	(APBD)	
Musi Balai PSDA under DPUP-Sumsel	2	403	100 - 303	125	38,008	9,704	1% - 3%

Annual O & M cost of Rp.125 million shall be covered by financial arrangement of the development budget of the Service.

7.1.6 Institutional Strengthening (Component 6)

(1) Official Web Site of Water Resources Management (Program 6-2-3)

(a) Economic Effect

Implementation of the program is expected to bring about but not limited to the following economic effects:

- To reduce communication cost among the related agencies and accelerate the speed of communication,
- Savings in water use by public awareness,
- Effective cost allocation by transparent water resources management,
- Effective water use for agriculture, fishery, forestry, tourism, and other economic activities by updated information through internet, and
- Savings in time and costs to collect water resources information by individuals and institutions

(b) Financial Evaluation

The initial investment cost of the program is estimated at Rp.205 million or 2% of APBD portion of the development expenditure of Water Resources Service, South Sumatra Province. Annual O & M cost is estimated at Rp.72 million, which can be covered by re-allocation of the routine expenditures. Therefore, the costs will not be a burden on the finance of the Service (*Dinas PU Pengairan*).

Table K7.1.14 Comparison of Program Cost and Development Expenditure (Program 6-2-3)

Executing agency	Period (year)	Program Cost (Rp. m)		Dev. Expend. in 2002 (Rp.m)		Ratio of annual cost
		Initial	O&M	Total	(APBD)	
Water Resources Service, South Sumatra Prov.	1	205	72	38,008	9,704	2%

From the financial viewpoint, implementation of the program is possible with financial arrangement of the development budget of the Service.

(2) Establishment of Water Resources Data and Information Unit in Balai PSDA (Program 6-5-1)

(a) Economic Effect

The program does not directly produce any economic effect but distribution of data and information on water resources will be the basis for planning of efficient water use and flood mitigation. The program is also expected to bring about but not limited to the following economic effects:

- Effective water use for agriculture, fishery, forestry, tourism, and other economic activities by updated information,
- Savings in time and costs to collect water resources information by individuals and institutions, and
- There will be a possibility to generate revenue by supplying valuable data and information on water resources to individuals and institutions

(b) Financial Evaluation

No additional cost will be accrued for the establishment since the routine expenditure is re-allocated.

(3) Establishment of PTPA/PPTPA (Program 6-5-3)

(a) Economic Effect

The program does not directly produce any economic effect. However, the establishment of PTPA/PPTPA will contribute to balanced water management and water use with reflecting opinions of various stakeholders. As a result, the program may be conductive to the balanced economic development of the area.

(b) Financial Evaluation

No additional cost will be accrued for the establishment since the routine expenditure is re-allocated.

(4) Training for Operating Techniques for Government Employees of Balai PSDA (Program 6-6-1)

(a) Economic Effect

The program does not directly produce any economic effect. However, the improvement of capability of Musi Balai PSDA's staff will contribute to efficient water use and management, and it will be conductive to the

development of all the types of economic activities that utilize water resources of the Musi River.

(b) Financial Evaluation

The total cost of this program is estimated at Rp.45 million for 1-year implementation. The cost is 0.5% of APBD portion of the development expenditure of Water Resources Service, South Sumatra Province. Therefore, the costs will not be a burden on the finance of the Service (*Dinas PU Pengairan*).

Table K7.1.15 Comparison of Program Cost and Development Expenditure (Program 6-6-1)

Executing agency	Period (year)	Program Cost (Rp. m)		Dev. Expend. in 2002 (Rp.m)		Ratio of annual cost
		Initial	O&M	Total	(APBD)	
Water Resources Service, South Sumatra Prov.	1	45	-	38,008	9,704	0.5%

From the financial viewpoint, implementation of the program is possible with financial arrangement of the development budget of the Service.

(5) Training for Management and Planning for Related Government Employees (Program 6-6-2)

(a) Economic Effect

The program does not directly produce any economic effect but the improvement of capability of related government employees will contribute to efficient water use and management, and it will be conductive to the development of all the types of economic activities that utilize water resources of the Musi River.

(b) Financial Evaluation

The total cost of this program is estimated at Rp.45 million for 1-year implementation. The cost is 0.5% of APBD portion of the development expenditure of Water Resources Service, South Sumatra Province. Therefore, the costs will not be a burden on the finance of the Service (*Dinas PU Pengairan*).

Table K7.1.16 Comparison of Program Cost and Development Expenditure (Program 6-6-2)

Executing agency	Period (year)	Program Cost (Rp. m)		Dev. Expend. in 2002 (Rp.m)		Ratio of annual cost
		Initial	O&M	Total	(APBD)	
Water Resources Service, South Sumatra Prov.and other	1	45	-	38,008	9,704	0.5%

From the financial viewpoint, implementation of the program is possible with financial arrangement of the development budget of the Service.

(6) Training for Operation & Maintenance of Irrigation System (Program 6-6-3)

(a) Economic Effect

The program does not directly produce any economic effect. However, the improvement of capability of members of management committee of WUAs will contribute to efficient operation and maintenance of irrigation system, and it will be conductive to the production increase of agricultural sector.

(b) Financial Evaluation

The total cost of this program is estimated at Rp.711 million for 3 years implementation. Annual required cost of the program is approximately Rp.242 million or 2.5% of APBD portion of the development expenditure of Water Resources Service, South Sumatra Province. Therefore, the costs will not be a burden on the finance of the Service (*Dinas PU Pengairan*).

Table K7.1.17 Comparison of Program Cost and Development Expenditure (Program 6-6-3)

Executing agency	Period (year)	Program Cost (Rp. m)			Dev.Expend. in 2002 (Rp.m)		Ratio of annual cost
		Total	Annual	O&M	Total	(APBD)	
Water Resources Service, South Sumatra Prov.	3	722	238 - 242	0	38,008	9,704	2.5%

From the financial viewpoint, implementation of the program is possible with financial arrangement of the development budget of the Service.

(7) Joint Training with NGOs to Informal Leaders and Selected People (Program 6-6-4)

(a) Economic Effect

The program does not directly produce any economic effect. However, people's better understanding of water resources management will contribute to efficient water use and disaster prevention and preparedness.

(b) Financial Evaluation

The total cost of this program is estimated at Rp.128 million for 1-year implementation. The cost accounts for 1.3% of APBD portion of the development expenditure of Water Resources Service, South Sumatra Province. Therefore, the costs will not be a burden on the finance of the Service (Dinas PU Pengairan).

Table K7.1.18 Comparison of Program Cost and Development Expenditure (Program 6-6-4)

Executing agency	Period (year)	Program Cost (Rp. m)		Dev. Expend. in 2002 (Rp.m)		Ratio of annual cost
		Initial	O&M	Total	(APBD)	
Water Resources Service, South Sumatra Prov. with NGOs	1	128	0	38,008	9,704	1.3%

From the financial viewpoint, implementation of the program is possible with financial arrangement of the development budget of the Service.

7.2 Water-Related Charges

In accordance with the principle of economic use of water, a water charge system should be formally proposed after most of the institutional strengthening programs are implemented. It would be very difficult to get approval from the users before the Government demonstrates the improvement in their performance of water management and presents obvious benefits to the users. It is very important that the Government should promote public relations about the benefit of water management through various media before introducing a water charge system in order to minimize the number of free riders.

The following are water-related charges usually proposed for the water management in Indonesia.

Raw Water Charge. It is collected from licensed users of economic water use.

Water Tax. It should be collected not only from licensed users but also from non-licensed users in order to conserve the basin environment.

Effluent Charges. There are two types of effluent charges. One is the point-pollutant source charge and the other is the domestic waste water charge as the non-point-pollutant charge. Both should be collected from licensed and non-licensed users in order to prevent the environmental deterioration by water pollution.

See the following table for the details of charges mentioned above.

Table K7.2.1 Water-Related Charges

Charge	Objective	Major Payer	Payee
Raw Water Charge	O&M of waste water resources structures	Licensed water users	Balai PSDA
Water Tax	Watershed management	Every water user	Balai PSDA
Point-Pollutant Source Charge	O&M of treatment facilities for industrial waste water	Industries	District/Municipality Government
Domestic Waste Water Charge	O&M of treatment facilities for domestic waste water	Households and commercial entities	Balai PSDA

8. PRELIMINARIY STUDY ON INSTITUTIONAL ARRANGMENTS FOR THE RIVER BASIN WATER MANAGEMENT

8.1 Objectives of the Preliminary Study

Institutional issues have been discussed in this report so far with the assumption that the main management organization of the Musi River Basin is Balai PSDA Musi, which is a "pure" governmental organization, being strictly controlled by Dinas PU Pengairan or Provincial Government. Recently, more and more developing countries as well as developed ones are trying to introduce private participation into the provision of public services for the purpose of improving efficiency and accountability of the provision. In this chapter, institutional arrangements for the water management of Musi River Basin are examined with very basic viewpoints in order to present some issues of private participation for the further discussions.

8.2 Primer of Institutional Arrangements

There are lots of alternatives for the institutional arrangement which provides public services such as water management. A World Bank report, *Institutional Options for the Provision of Infrastructure* (Discussion Paper #212), categorizes types of institutions from the viewpoint of degree of public and private sector responsibility. Its discussion is simply illustrated as follows:

Table K8.2.1 Types of Institutional Arrangements by Degree of Public and Private Sector Responsibility

Role of Market Incentives	*Range of Responsibility*	*Menu of Institutional Arrangements*
	PUBLIC SECTOR	
Low	XXXXXXXXXX	Government Department
	XXXXXXXXX	Public Enterprise
	XXXXXXX	Service Contracting
	XXXXXX	Management Contracting
	XXXXX	Leasing
	XXXX	Concessions (including BOT/BOO etc.)
	XX	Cooperative/communal arrangements
High	X	Private entrepreneurship*
	PRIVATE SECTOR	

Note: * With majority to total private shareholding

Source: World Bank, Discussion Paper #212, *"Institutional Options for the Provision of Infrastructure,"* 1993.

According to the World Bank report, some of institutional arrangements are summarized below:

Government Department. A government department traditionally assumes full responsibility for infrastructure. It is the typical institutional form for sanitation (usually at the municipal level), major irrigation works, and roads/highways. Decentralization is justified when it contributes to greater efficiency and accountability. Central

administrations should retain the functions of strategic planning and monitoring, setting of technical, environmental and safety standards and coordination of research and training while local governments have full responsibility for planning, promoting, and execution of local matters.

Public Enterprise. This type of organization is ubiquitous for telecommunications, power generation and transmission, railways, ports, domestic water supply and sewage treatment. Although it was originally set up for achieving efficiency and accountability, many countries have begun to reform to achieve them. As a publicly-owned entity, some constraints on the autonomy legitimate, such as rules on employment, wage determination, and procurement. It is often subjected to the same political pressures facing the government administration and is prevented from disconnecting customers for nonpayment or from paying market wages for their stuff.

Service Contracting. Service contracting involves "contracting-out" of specific operations and maintenance activities to the private sector, usually for a period of a few years. With this approach the public provider (government department or public enterprise) sets the performance criteria for the activity, evaluates bidders, supervises the contractor(s), and pays an agreed fee for the services. To achieve greater efficiency gains from contracting-out, contracts should be awarded through competitive tendering.

Management Contracting. Management contracting extends the responsibility of the private sector beyond individual service functions to encompass a broad scope of operations and maintenance, usually for a period of 3-5 years. This form is essentially no different from technical assistance. The contractor obtains at least some of its compensation as a function of the company's performance, and therefore shares some of the commercial risk of the enterprise.

Leasing. In leasing, a private contractor pays the public owner for exclusive rights to operate facilities (without responsibility for major investments), and bears full commercial risks. A lease contract allows an exclusive right (sometimes called a franchise or license) to the stream of revenues from providing a service. Leasing has been used for decades in urban water supply and sewerage in France and Spain, and has also been used elsewhere in power, ports, urban transport, railways, and solid waste collection and disposal. In the case of "landlord ports", for example, the government owns the land and infrastructure, and the private sector owns and operates the superstructure.

Concessions. Concessions contain the responsibility for financing certain specified extensions or replacements to fixed assets in addition to all the features of leasing. They are employed for power plants, water supply and treatment, solid waste disposal and treatment, ports, railways, urban metro systems, toll roads, and telecommunications. The tariff revenue should be sufficient to cover the operational expenses as well as debt service and depreciation on the concession's investments. BOT (Build-Operate-Transfer) or BOO (Build-Own-Operate) is a kind of concession which is setup for an entirely new investment.

8.3 Review on PJT I (Jasa Tirta Public Corporation) of the Brantas River Basin

8.3.1 Outline of Institutional Setup in Comprehensive Management Plan for the Water Resources of the Brantas River Basin

* This Section is based on JICA, *"The Study on Comprehensive Management Plan for the Water Resources of the Brantas River Basin, Final Report,"* 1998.

The Brantas River is the second largest river in the Java Island with its catchment area of about 11,800 km^2. It functions as the most important source of water supply in the East Java Province. As almost all the water of the Brantas River had been utilized in dry season, measures for enhancing water supply in good quality had been required in the middle of 1990s. The objective of the master plan was to strengthen water management system for efficient use of water and appropriate water resources management.

The master plan for the comprehensive water resources management in the Brantas River basin had been formulated in 1998, which recommends the following institutional setup:

- The Ministry of Public Works (at that time) shall be primary responsible for supervising the water resources management in the Brantas River basin while PJT I (Perum Jasa Tirta = Jasa Tirta Public Corporation) shall be responsible for its implementation;
- The Basin Water Resources Management Committee shall be newly established;
- The New PJT I shall be established in 2002 through consolidating PKB (Brantas River Basin Development Project), PGKS (Volcanic Disaster Prevention Project) and PJT; and
- The New PJT I shall be transformed to get more privatized status (Persero) in 2005 subject to introduction of self-supporting financial system.

In connection to the last item, the JICA report also gives attention to difficulties in the privatization of the water sector as follows:

"It is true that water supply has some difficulties special to the sector, i.e. it relates to subsistence of human life. Since it has the first priority in BHN (basic human needs), the Government is requested to supply water even to the poorest group and so on." (Page A12-25, Volume IV, "The Study on Comprehensive Management Plan for the Water Resources of the Brantas River Basin, Final Report," 1998.)

8.3.2 Conditions of PJT I of the Brantas River Basin

* This Section is based on Rusfandi Usman, President Director of PJT I, *"Integrated Water Resource Management: Lessons from Brantas River Basin in Indonesia,"* 2001.

Mr. Rusfandi Usmam, President Director of PJT I, reveals conditions of PJT I of the Brantas River basin in his article as follows (Parenthetic descriptions are comments made by JICA Study Team):

- To manage the basin, many institutions are concerned, and each has their sectoral responsibility. But co-ordination among sectors may be difficult in some situations, because each sector has previously had its own plan, strategies and objectives. (It seems that the river basin management had not been fully integrated into one body i.e. PJT I as of 2001.)
- The investment in new infrastructures, and the operation and maintenance cost are too huge to be covered by the government budget. It is necessary to increase participation of beneficiaries and the private sector in water resources investment and in the cost of operating and maintaining the infrastructures. (Funding of the Brantas River management depended highly on the Government budget. However, contributions were not expected from beneficiaries as of 2001 according to the following description.)
- Contributions from water users are not collected because projects are not authorized to collect these contributions. It is necessary to transfer the operation and maintenance of finished structures to a body that is duly authorized to collect contributions (it should be PJT I). (Mr. Rusfandi Usman did not reveal the reason why the operation and maintenance had not been transferred to an authorized body or PJT I. It can be thought that there were no agreements on the way how the operation and maintenance would be transferred with projects which would be restructured after the transfer.)
- The cost for operation and maintenance activities will be collected by PJT I from the beneficiaries. For the time being, the main source of funds will be from electricity, drinking water and industries. (It means that the Government has to bear the costs if there are no power plants and/or industries that are large enough to bear the costs in the river basin.)
- There is no obligation for farmers to pay water charges, although more than 80 percent of water in the Brantas River is for irrigation purposes. The government now is introducing a pilot project of Irrigation Service Fee in several provinces around Indonesia. The purpose of project is to show the farmers the importance of adequate budget to support the operation and maintenance of irrigation facilities. (There are two points to be mentioned. Firstly, we may have to wait for a long time until farmers will begin to pay irrigation fees. Secondly, it would be very difficult to reach an agreement on the contributions between the Government and beneficiaries other than farmers because the largest part of beneficiaries i.e. farmers do not pay contributions.)

8.4 Some Issues on Institutional Arrangements with Private Participation

Providing that the improvement of efficiency and accountability with introducing private participation, however low its degree is, market incentives are requited to a

certain extent. Since the water management is a public service, market incentives can be realized when the following conditions are fulfilled:

- Creating Competition
- Developing Effective Participation
- Reducing Risks
- Effective Regulation
- Appropriate Pricing
- Investment Planning

Without fulfilling conditions mentioned above, it is very difficult to achieve objectives of the institutional arrangements although the extent of fulfillment depends on the type of institutional arrangement. Each condition is examined considering the situations of Musi River Basin hereinafter.

Creating Competition. Constraints that limits the entry of the market should be removed and additional measures should be employed to encourage new competitors to entry the market such as accessibility of credit line, tax treatment and so on. In most infrastructure sub-sectors, however, the most efficient provision of services can be achieved with a natural monopoly because such activities require huge fixed costs (sunk costs) in the beginning. Thus, institutional arrangements with private participation are not necessarily effective from the viewpoint of efficiency for service provision.

Developing Effective Participation. If services provided are responsive to users' needs and its market is highly imperfect, measures for identifying services are required. In such cases, all interested parties should participate in the process of identification of services. For much of infrastructure, the relevant participants should include not only users but also other groups indirectly affected. As it is discussed before, participatory activities enhance accountability of the institution.

Reducing Risks. As commercial and/or political risks often prevent private entities from the entry into the market in developing countries, the public sector has to offset such risks by offering rewards to them. In such cases, institutional arrangements with private participation do not necessarily reduce the burden of the public sector.

Effective Regulation. A framework of laws pertaining to property rights, liability, conflict resolution, and contracting should be established in order to succeed in the institutional arrangements with private participation. Such framework should be established preferably from the viewpoint of the global standard if foreign entities are expected to enter into the market.

Appropriate Pricing. Pricing (i.e., tariffs or user charges) is a very important factor not only for attracting investments but also for the sustainability of the business or provision of services. Tariff revenues should be sufficient to cover operating costs, debt service,

depreciation, and the administrative costs in order to keep the service provision sustainable as a business entity. Pricing of public services, however, is not necessarily decided at those levels mentioned above with the following reasons. Firstly, public services should be accessible to everybody. Thus, tariff rates are decided at those most of the people can afford them, which are usually lower than those necessary for the business operation, which can be seen in many developing countries. The public sector in turn has to provide subsidies to the business entity. Secondly, public services have external economy. The prices are usually not decided at those which realize efficient allocation of resources even in non-monopolistic markets. In addition, it is very difficult to prevent free riders of the services. As a result, tariff revenues are not enough for the business entity.

Investment Planning. Since markets of public services are imperfect, investment allocation is neither efficient nor responsive to the needs of users, the public sector has to make investment plans for the services. Investment planning especially for infrastructure development requires a long-term forecast of demands and involves variety of stakeholders, which sometimes results in excessive investment in order to satisfy all the existing stakeholders.

As a result, institutional arrangements with private participation would not be necessarily effective for achieving efficiency without some conditions that bring about competitions in the market. Furthermore, they are inevitably involved in political conditions even if they are formally independent from the government (or they are much worse because the political matters are unclear by the name of their independency).