

III Recommendations on Water Resources Management Institutions in the Brantas River Basin

1 Legislative and Regulatory Issues

Having analyzed the current legislative and regulatory framework, the following measures are recommended. The recommendations on organizational issues include consolidation of Perum Jasa Tirta with PKB and PGKS, transformation of its organizational status to PERSERO, establishment of Basin Water Management Committee and demarcation of management responsibility among related agencies. The recommendations on technical aspects include water quality, watershed management, flood control, water supply and water right. Some of the recommendations are beyond PJT mandate. Such issues include IPAIR collection and water service fee determination.

The capacity to implement the managerial and technical recommendations should be strengthened. Requirements for capacity building including staffing and human resources development are described in the other experts of the study.

1.1 Water Resources Management Institutions in the Brantas River Basin

1.1.1 Consolidation of Perum Jasa Tirta with PKB and PGKS

(1) Activities in Areas Outside the Brantas River Basin

PKB is responsible for dredging work in hydropower generation plant in Sampean Baru. While KANWIL PU has more a coordination role, though PKB has its base on the Brantas river basin, it seems somehow to have been playing a role of "general water resources project implementing office for East Java province.

PGKS has many officials working for debris control for Semeru Mountain which is outside the basin. New PJT shall be responsible for water resources management within the Brantas River basin. Therefore new PJT will be involved in Sabo and other works of Mount Semeru within the boundary of the Brantas River basin.

Such activities outside the Brantas River basin but currently assumed by PKB and PGKS can be remained under the supervision of Directorate of Construction Guidance, Central Region. The new PJT shall be allowed to engage in water resources development and management activities outside the basin. In this case, new PJT should engage in such activities as contracted work basis upon request from the Ministry of Public Works.

(2) Change of Jurisdiction for Three Organizations

New jurisdiction for three organizations is required. It is necessary to issue Government Regulation providing jurisdictions for the new organization replacing existing Government Regulation No.5 of 1990 and Minister of Public Works Regulation No. 56 of 1991 by the end of 2001. There is a draft of new Ministry of Public Works Decree on the "Designation of Authorities and Responsibilities of PJT" which is under discussion. This draft Decree could

be a reference for new Government Regulation to be issued.

Government Regulation is required in stipulating the roles of new river basin management organization for the Brantas River basin. Government Regulations were issued for establishment of Perum Jasa Tirta and Perum Otoritas Jatilufur. The new Government Regulation shall describe such issues as the new PJT task and responsibility and working area

PKB and PGKS are no longer INDUK (general project implementation office) after 2001 as proposed in this study. Ministry of Public Works Regulation is required for change of organizational status for PKB and PGKS.

(3) Redefinition of Corporate Mission and Tasks

Government Regulation No.5 of 1990 and Ministry of Public Works Regulation No. 56 of 1991 stipulate PJT objectives and tasks.

Current mission of PJT is "to provide services for the public utilization of water resources and to gain profits based on sound business management principles".

After the integration with PKB and PGKS, new mission and redefined tasks should be set. New mission and tasks shall be contained in the new Government Regulation of the new organization.

1.1.2 Transformation to Persero Status

There are many areas to be changed when Perum becomes Persero. Such required changes include financial/accounting method and employment status change as mandatory or regulatory changes, and non-regulatory but behavioral change of employees. Non-regulatory, organizational change is described in the other parts of the Report – Organization and Management, Financial Plan and Budget Analysis, and Human Resources Development -. Recommendations for action in terms of organizational status change are described below.

(1) Employment Relations

There are 145 government officials working in PJT. Most of them occupy higher positions. In Indonesia, government officials are allowed to work at Perum for maximum four (4) years. Most of the officials now work at PJT more than 4 years. They may continue to work at PJT until 2005.

It is necessary to ask them to choose whether to quit PJT or lose their governmental status and join PERSERO before 2005.

Salary of government officials in principle should be borne by the Perum they work. In case of PJT, it receives some amount of money from the government as PGPS salary (Central government contribution for the salary of government officials at PJT). PJT received 585 million rupiahs from the government as PGPS salary in 1996. PGPS salary is used as a fund for partial salary of government officials.

Provision of PGPS should be stopped before 2005.

Status of government officials will no longer be available after 2005. Working conditions including salary and pension should be examined before it becomes Persero.

Issue of Government Regulation is necessary for transformation from Perum to Persero. The Government Regulation shall describe the following issues: purpose of transformation, implementation process, goal of the Persero, capital, and organization. Regulatory change including financial arrangement does not require a lot of time as seen in such preceding examples as PT Telkom and PT PLN. It took them about 6 months to become Persero.

(2) Financing

As regards financial resources of the new PJT, several options are available for its development activities (construction). The first, the new PJT implements the project utilizing government budget just as present PKB does. Second, the Ministry of Public Works awards the new PJT the project as a contractor. Third, the new PJT is awarded the project from the Ministry of Public Works as a concession. In this case it must be responsible for financing. It has to make a loan arrangement (including two-step loan). Lease contract, management contracting and concession agreement including BOT should be considered in new capital.

1.1.3 Basin Water Resources Management Committee

Provincial level water management committee is currently organized in the East Java Province. Ministry of Public Works Regulation No. 67 / PRT / 1993 on Committee of provincial water management stipulates that water management committee should be established in each province. Following this Regulation, East Java Provincial Government established the Water Management Committee (East Java Governor's Decree No. 59 of 1994). The Committee is organized to assist the Governor in coordinating water management in the province. The committee is chaired by Vice Governor of the East Java. Chief of Provincial Water Resource Service assumes the role of Secretary. As described above, there are many organizations involved in water resources management in the basin. It is thus necessary to have the basin-level water resources management committee in the important river basins like Citarum and Brantas. In the East Java, establishment of provincial water management committee is stipulated by the Governor's Decree No. 59 of 1994. In this Decree, the possibility of establishing basin-level water resources management committee is already mentioned.

It is necessary to draft and issue the Minister's Decree on establishment of water management committee for the Brantas river basin. It is proposed that the new organization (new PJT) should assume the role of secretariat of the committee. The proposed Basin Water Resources Management Committee reports to the Minister of Public Works instead of the Governor. New PJT as a secretariat of the Committee presents various data and information. The Committee members discuss and present their agreements to the MPW as the Committee's proposals.

More detailed study on Basin Water Management Committee is made in "Organization and Management" part of this study.

1.1.4 Demarcation of Responsibility with Related Agencies

As the tasks and responsibilities of the new organization are supposed to expand from the current PJT, demarcation of responsibilities among agencies shall be specified. It is necessary to issue "Joint Ministerial Decree" or "agreement letter" with related agencies in many aspects. Related agencies and their tasks include the following:

- Ministry of Forestry and BRLKT – Land development plan, and land slide and erosion, sediment control
- Provincial Mining Service – Sediment control
- Provincial Industrial Service – Industrial effluents monitoring
- BAPPEDALDA - Water quality in general
- DPU Pengairan -- Water demand coordination, irrigation, flood control

Detailed demarcation plan is described in "Organization and Management" part of the Report.

1.2 Technical Aspects

1.2.1 Water Quality – Provincial Level Pollution Charge System

There are already various environmental including water quality and pollution control legislation. As mentioned earlier, Environmental Law provides global stipulations on environment. East Java Provincial regulation provides stricter effluent standards compared to national standards. Ministry of Public Works and East Java Province as well are concerned over industrial pollution. BAPEDAL is now considering introduction of pollution charge system. Perum Jasa Tirta also studying the possibility of introducing pollution charges in the Brantas River basin.

Since neither Ministry of Environment nor BAPEDAL plan to set national level regulation on pollution charge, the charge system shall be set as provincial regulation reflecting local situation.

1.2.2 Watershed Management including Flood Control

Watershed management issue should be included as an agenda for the proposed Basin Water Management Committee. Perum Jasa Tirta should collaborate in policy formulation and implementation with Ministry of Forestry and Perum Perhutani.

The use of natural retarding basin is proposed as a flood control measure in this study. Land use in such river bank areas as Kali Surabaya and Kali Porong are already regulated by Ministry of Public Works regulation. By this Regulation, Perum Jasa Tirta should provide technical recommendation on the land use in the river bank area. Similar regulation shall be

drafted for the other rivers as well once the pilot flood hazard map is prepared, Perum Jasa Tirta should collaborate in designating the natural retarding basin.

1.2.3 Water Supply and Water Use Right

(1) Review of Water Use Right Ledger

Lack of well-defined water use rights system makes efficient and equitable water use difficult. Once "Brantas River Basin Water Management Committee" is established, it should review the ledger of water use rights holders each year. The PJT should provide technical recommendations on the water use licensing. Necessary information on actual water use both for surface water and ground water should be provided by DPU Pengairan and DISTAMB. The license shall be cancelled or amended in case water use is not in conformity with the license. PJT involvement in water use licensing would be effective in achieving efficient use of water. It is because PJT, together with Caban Dinas, is well informed of actual amount of water taken from rivers.

(2) Priority of Water Allocation

National and regional development strategies can directly influence water allocation and use. In the case of a food self-sufficiency strategy, the government may subsidize intensive use of water to encourage farmers to produce more rice. By providing agricultural water free of charge for rice producers, the government is influencing the demand. In the First Long - Term Development Plan (PJP-I, 1969-1994) period, water resources development and management policy emphasized the increase in rice production and through irrigation and provision of access water for people to meet basic human needs. Contribution to sustainable development of Indonesia and its people through well-distributed water is stressed in water resources management in PJP-II period. Water resources conservation and enhancement of water quality are also stressed. Participation of water users in water resources management through water management committee is required in achieving sustainable development of region.

The following three actions are recommended for achieving fair and efficient water allocation.

(a) River Maintenance Flow

Though "pollution prevention water" (air untuk pengendalian pencemaran) is mentioned In Pola operasi waduk (POLA, Reservoir operation plan), there is no clear indication of river maintenance flow in water allocation rule. River maintenance flow should be included in the list of water allocation priority instead of flushing as stipulated in Law No. 11 of 1974.

(b) Another Regular Water Management Committee Session

Current Reservoir Operation Plan (POLA) mainly presents amount of water to be released by reservoirs. The function of Water Management Committee is focused on discussion of POLA. It is proposed that the Committee should have its another regular meeting in the middle of dry season as an instrument for mid-term review. It should be held for forecasting and preparing for the measures to be taken in the coming season.

(c) **Preparation of Emergency Operation Plan**

The Brantas river basin faced with serious drought in the past. The ad-hoc measures for droughts were taken in the past. Perum Jasa Tirta as the responsible agency for managing the basin, should initiate the preparation of emergency drought plans. The emergency plans should include updating mechanism for urban and rural population change and industrial activities. The plan should be established at the water management committee. It must be observed by all agencies involved in water resources management in the basin.

(d) **Long-Term Water Allocation Priority**

Law No. 11 of 1974 provides priority order of water use. East Java province as well sets priority of water use. Drinking water is the first priority followed by agricultural water use. No priority is defined in long-term and in emergency water shortages. The Water Management Committee shall review current water priority and set forth long-term water use priority.

1.2.4 River Environment

Perum Jasa Tirta has a mandate for managing 40 rivers and their tributaries in the Brantas River basin. Perum Jasa Tirta is not responsible for off-stream influences on these rivers. The influences include agricultural runoff, domestic wastewater and industrial effluents. The Water Quality Expert of this study proposes demarcation of mandate concerning pollution control.

(1) Public Exposure of Non-Compliance with Environmental Regulations

Provincial government has the authority to enforce compliance with environmental regulations. Perum Jasa Tirta along with other offices including Provincial Industrial Service (DPRIND) and BAPEDALDA deliver evidence of non-compliance to the Governor's office.

PROKASIH experience shows that public exposure of organizations not complying with environmental legislation is effective. The exposure of effluent test from many industries proved effective.

(2) Penal Provisions

The 1997 Environmental Law stresses compliance with the stipulations. It includes various penal provisions for negligence and infringement of environmental protection.

Amount of fine stipulated in Law No.11 of 1974 needs re-examination. It stipulates that amount of fine is up to 50,000 rupiahs. Recent Environmental Law (1997) provides that infringement of legal provisions shall be liable to fine up to 150,000,000 (one hundred and fifty million rupiah). Maximum imprisonment is 15(fifteen) years. In this Law another important provision is that it sets the right of community and environmental organizations to bring actions. This provision seems effective since the number of DPU Pengairan or other water resources related officials is limited. Similarly, in addition to Indonesia National Police

Investigators, certain civil government officials in the environmental management field are given special authority as investigators as is provided for in Laws (Article 40 of the Law). These stipulations would be effective for water quality conservation and other water related activities. It is recommended that new PJT shall also take legal actions when they find intentional and serious violation of environmental standards.

2 Private Sector Participation in Water Supply

Corporate management becomes important once Perum Jasa Tirta turns to Persero. It is required to achieve efficient operation. There are three major issues to be taken into consideration in regard to water supply projects.

(1) Choice of Arrangement

One is a choice of institutional arrangement. There is a wide spectrum of options including "service contract", which is the biggest involvement of public sector involvement within the privatization options. This arrangement is successfully utilized in Santiago, Chile" and Concession including BOT, which requires the least involvement of public sector, is successfully run in Buenos Aires, Argentina. At this point, it is difficult to identify which arrangement is the best. Preceding foreign privatization examples on water supply are mostly made by municipal water supply organizations. In case of PJT, its main tasks are provision of raw water and operation and maintenance of river structures. There are preceding private sector participation in infrastructure provisions in toll roads (Jasa Marga) and telecommunications (Telkom) in Indonesia. Though new PJT may be able to learn from such examples, it has to establish its own institutional arrangement enabling provision of raw water on one hand and provision of drinking water on other.

Economic stability and provision of financing facility seem to affect the performance of the project.

(2) Regulatory Mechanisms for Environmental and Equity Considerations

The second issue is to establish regulatory mechanism in privatized operation of water supply. There must be the two concerns when water supply is privatized. The first concern is environmental or resource depletion. Water Supply Company may try to increase its revenue by increasing supply. The company may pursue short-term gain without paying considerations for water resources conservation. This would lead to water resources depletion. The second concern is equity consideration. Water is not only economic goods. It is a source of life as Islamic Law says. Once it is privatized, the Company does not necessarily have a concern for basic human needs. Thus the cost for smaller users may increase.

Similarly, selection of contractor often involves corruption. It is therefore not the best company that wins the contract. It is thus not the citizens who get the most benefit.

It is indispensable to have regulatory systems to oversee compliance with contract. The regulatory agency can be independent organization like in Argentina, or central and municipal governments like in Colombia. Quality of water, water resources including surface and groundwater conservation and tariff structure need particular supervision.

(3) Government Support

Responsibility for provision of infrastructure lies upon the Government. Private sector participation shall be made in a manner to public interest. The Government therefore has to

ensure that requirements of people and private investors' interest do not contradict each other.

The Government shall issue Government Regulation to guide infrastructure provision. It shall present government commitment to private sector participation. It also presents requirements for contract provisions, processes including bidding procedure for private sector participation. Regulatory arrangements enabling inter-departmental (ministerial) collaboration for private sector participation is also required. Related ministries may include MPW, Ministry of Home Affairs for management of domestic water, Ministry of Environment and Ministry of Finance.

3 Water Demand Management

The UN system sponsored The International Conference on Water and the Environment (ICWE) in Dublin, Ireland in 1992¹⁴. In this conference, the following four guiding principles on water were adopted:

- effective management of water requires a holistic approach linking social and economic development;
- participatory approach involving planners, users and policy-makers at all levels;
- women play a central part in the provision, management and safeguarding of water;
- water has an economic value in its all uses and should be recognized as economic goods.

The cheapness of water is not because water provision requires no cost. Many governments have chosen to charge less than costs for water services. This is a governmental subsidy towards water users. The ICWE report acknowledged that failure to recognize water's economic value and the real cost of service has led to wasteful and environmentally damaging uses.

It is true that political consideration for various water users is important. Taking such various factors as matured stage of water resources development and water scarcity and misuse into consideration, it looks effective to support and promote the idea of water as economic goods in achieving efficient and equitable use of water resources in the Brantas river basin.

3.1 Water Pricing

Costs of water supply consists of variable costs of processing and delivering the water to users and of fixed cost of capital operation and maintenance. Variable costs depend on amount of water delivered and mostly borne by the users. Fixed costs are normally borne by governments. There are several pricing methods for water. Such methods include the following¹⁵:

Volumetric: Water is charged based on direct measurement of volume of water consumed. Variation of the volumetric approach include a. indirect calculation based on measurement of minutes of known flow from a reservoir and b. a charge for a given minimal volume to be paid for even if not consumed.

Output: Water is charged on per output basis (for example crop)

Per unit area: Water is charged per area

Tiered pricing: This is a multi-rate volumetric method. Water rates vary as the amount of water consumed exceeds certain threshold values.

¹⁴ Quoted from "The State of Food and Agriculture 1993" of Food Agricultural Organization of the UN

¹⁵ Yacov Tsur and Ariel Dinal, 1995 "Efficiency and Equity Considerations in Pricing and Allocating Irrigation Water" Policy Research Working Paper The World Bank

Two-part tariff: This is to charge a constant marginal price per unit of water used and a fixed annual (admission) charge for the right to use the water.

Betterment levy: Water fees are charged per area, based on the increase in land value accruing from the provision of irrigation

According to the investigations of Bos and Walters (1990), ¹⁶ water charges are levied on per unit area basis in more than 60% of the cases studied, while a combination of per unit area and volumetric basis is taken in less than 15% of the cases.

Comparison of various pricing methods is described below. The two most popular pricing practices are Volumetric pricing and Per area pricing. Comparison of Pricing Methods

| Pricing Scheme | Implementation | Ability to Control Demand |
|----------------|------------------------|---------------------------|
| Volumetric | Complicated | Easy |
| Output | Relatively easy | Relatively easy |
| Per area | Easiest | Hard |
| Tiered | Relatively complicated | Relatively easy |
| Two-part | Relatively complicated | Relatively easy |

The following table summarizes comparison of irrigation water pricing practices of selected countries.¹⁷ Water charges by Output, Tiered and two-part methods are included in "Others". In Asian countries, water charge is levied per unit except in India and Philippines. In India, pricing practices vary throughout the country, depending on geographical locations, the system of irrigation (diversion, pumped) and other conditions. In France and in U.S.A., both Volumetric and Per unit levy is used. In Australia, two water market experiments in transferring irrigation rights are undertaken.

As summarized above, volumetric levy is most effective in controlling demand. It is however difficult to implement volumetric pricing. Output pricing is implemented without measuring water inputs of individual farmers, which is an expensive task in many countries. This pricing method is the second best in terms of ability to control demand. Per are pricing is superior in regard to administrative cost. It can affect water input through its effect on crop choices. Once the crop has been chosen, the water fee has no effect on water demand.

¹⁶ Bos, M G., and W. Walters, 1990, " Water Charges and Irrigation Efficiencies"

¹⁷ Prepared by the JICA Study Team based on Tsur and Dinal (1995) Ibid.

Comparison of Irrigation Pricing Practices

| Country | Basis of water charge | | | |
|---------------------|-----------------------|--------|--------|--------------------------------------|
| | Volume | Area | Others | Remark |
| Indonesia | | Partly | | IPAIR |
| Japan | | | Yes | |
| China | | Yes | Yes | Fall short of actual cost |
| Philippines | | Yes | Yes | Additional water rights fee charged. |
| India | Yes | Yes | Yes | Vary throughout the country |
| U.K. | Yes | | Yes | Divergence in pricing |
| France | Yes | Yes | Yes | Peak and off-peak rates used |
| U.S.A. (California) | Yes | | | |
| Australia | | | Yes | water market is in trial |

The following provides practices of cost recovery from irrigation water users in selected countries.¹⁸ No country achieves full cost recovery. Capital cost is mostly borne by the governments. Operation and maintenance cost is borne by water users in any case. Labor contribution is required for O&M in China. In Indonesia, HIPPA is responsible for O&M of tertiary irrigation channel. Cost recovery practices discussed above is summarized.

¹⁸ Prepared by the JICA Study Team based on Tsur and Dinal (1995) Ibid.

**Summary of Cost Recovery for Water Resources Development
and Management in Selected Countries**

| Country | Cost Recovery | | Remarks |
|------------------------|---------------|------------------------|--|
| | O&M | Capital (construction) | |
| Indonesia | Partly | No | IPAIR partly bears O&M costs of primary and secondary channel. |
| Japan | Partly | Partly | |
| China | Partly | Yes | Paid in output/hectare + labor contribution |
| Philippines | Partly | NA | |
| India | Partly | partly | wide divergence in charging methods |
| U.K. | Partly | Partly | |
| France | Partly | Partly | 50% of cost is subsidized by State. |
| U.S.A. (California) | Partly | Partly | Cost recovery of 40% achieved. Water market is being planned. |
| Australia | Partly | No | |

3.2 Application to the Brantas River Basin

3.2.1 Cost Recovery from Irrigation Water Users

Appropriate water pricing will be an incentive to use water more efficiently. As seen in the "Community and Beneficiaries' Participation Survey" done by the JICA study team, free provision of agriculture water does not promote the full access to water. Rather it reduced efficient and equitable distribution of water as seen in the several irrigation areas. It is thus necessary to charge water service fee to farmers in order to provide water efficiently and equitably.

The practices of cost recovery in the selected countries were studied. The following three issues are provided as recommendations for the Brantas River basin management.

(1) Extension of IPAIR Collection

Though it is not PJT mandate, it is necessary to collect IPAIR in all irrigation areas in the Brantas basin. The amount of IPAIR should be adjusted to recover actual cost for operation and maintenance of irrigation canals by 2001 – ten years after its introduction -. This would reduce financial burden of governments. It would contribute to improvement of farmers' water use as well. This is the beginning of awareness building for farmers concerning cost of water management.

(2) Cost Recovery for Reservoir Operation and Maintenance

Farmers do not pay for reservoir operation and maintenance cost. PJJ is providing agriculture water at operational loss. Farmers should pay for O&M cost of reservoirs as proposed as "beneficiary to pay" principle. It is thus necessary to set water service fee for agricultural water use as well. The fee should be set based on size of land but it should reflect the actual amount of water distributed. Collection of water service fee should start by 2005 since the new organization is supposed to start its operation as Persero. Persero requires appropriate level of operational profit, to be modest.

Article 3, clause 3 of Government Regulation No. 6 of 1981 on "Contribution for operation and maintenance cost for water resources development infrastructure" should be amended. It releases farmers from paying contribution for operation and maintenance cost of water resources development infrastructure only because farmers pay IPEDA (contribution for regional development, now changed to PBB¹⁹).

(3) Cost Recovery for Capital Investment

In this study, it is proposed that at first, farmers should bear the cost for O&M of irrigation channel through payment of IPAIR. Second, cost recovery for O&M costs for reservoir is proposed. To this point, farmers are requested to pay for water related costs just as other water users – PDAM Industry and PLN – pay. As agricultural sector is the largest water user, it makes great contribution if farmers could pay for O&M costs.

When these two proposals are being realized, cost recovery for capital investment should also be proposed for all water users. Ability to pay concept should be considered. In 2020, income level of farmers is expected to improve. Cost allocation method should reflect benefit each water user sector receives. The Economic Evaluation Expert in the Study Team describes cost allocation method and cost calculation for capital investment and O & M costs. The principle of "full cost recovery" shall not be abandoned merely because of implementing difficulty.

3.2.2 Domestic and Industry Water Pricing

(1) Promotion of "Pollution Prevention Pays" Concept

Service cost or operation and maintenance cost required for provision of domestic water and industrial water is the same. "Ability to pay" consideration seems to be reflected in the difference in water service fee between the two. Higher pricing for industrial water has the two negative influences: one is the higher production cost which may lead to decrease in non-oil export for Indonesia, the other is the over use of ground water. Though the retribution for groundwater is higher than surface water, it is more difficult to measure over abstraction compared to surface water. On the other hand, higher cost of water may lead to adoption of "clean technology". This "pollution prevention pays" concept should be prevailed as well as

¹⁹ Law No. 12 of 1985 on Land and Building Tax (PBB)

“Polluters pay principle”.

(2) Domestic Water Fee can be increased

Having made the consideration for the measure to encourage industrial water conservation, domestic water service fee as well may be adjusted. It can be increased. Cheapness of domestic water does not mean domestic water provision needs less cost. Governments including Ministry of Home Affairs and East Java governor choose to charge less than cost of service. When water is subsidized either from government or other water user, there is little incentive to conserve. Expansion of service coverage seems to be attempted however financial constraints make the goals being met difficult. It is thus important that further analysis of domestic water pricing should be made though it is neither completely in the hands of PDAM and nor in the scope of business for Perum Jasa Tirta. With the increased financial resources made available from increased water tariff, PDAM may be able to expand its service coverage.

Table A11-1 Classification of Legislation and Regulation

| No. | English | Bahasa Indonesia |
|-----|---------------------------|---------------------------------|
| 1 | Law | Undang-Undang |
| 2 | Government Regulation | Peraturan Pemerintah |
| 3 | Presidential Decree | Keputusan Presiden |
| 4 | Presidential Instruction | Instruksi Presiden |
| 5 | Ministerial Regulation | Peraturan Menteri |
| 6 | Ministerial Decree | Keputusan Menteri |
| 7 | Joint Ministerial Decree | Surat Keputusan Bersama Menteri |
| 8 | Ministerial Instruction | Instruksi Menteri |
| 9 | Director General's Decree | Keputusan Direktur Jenderal |
| 10 | Provincial Regulation | Peraturan Daerah |
| 11 | Governor's Decree | Keputusan Gubernur |
| 12 | Governor's Instruction | Instruksi Gubernur |

- 1) Law is drafted by the government, discussed and approved in the House of Representatives. If approved, the draft is sent to the President of the Republic for signature. Then, the State Secretariat issues the Law;
- 2) Government Regulation is drafted by the government, discussed and approved in the House of Representatives sent to the President of the Republic for signature. The State Secretariat issues the Government Regulation. The Government Regulation is an operational regulation of the Law;
- 3) Presidential Decree is drafted by the government, approved in the House of Representatives, signed by the President. Cabinet Secretariat issues the Presidential Decree. The Decree is a regulation, which has to be applied immediately;
- 4) Presidential Instruction is drafted by the government, approved in the House of Representatives, then the President signs. Cabinet Secretariat issues the Presidential Instruction;
- 5) The Directorate of the Ministry concerned drafts Ministerial Regulation. The draft has to be discussed with the related ministries and agencies. The Minister approves and signs the Regulation. The Directorate concerned issues the Regulation. It is an operational regulation of Law and Government Regulation applied to the related sector;
- 6) The Directorate of the Ministry concerned drafts Ministerial Decree. It has to be discussed with the related ministries and agencies. The Minister approves and signs the Regulation. The Directorate concerned issues the Decree. It is supposed to provide detailed plan of action with Ministerial Regulation applied for the related sector;
- 7) The Directorates of the Ministry concerned draft joint Ministerial Decree, for example prepared by the Directorate General of Water Resources Development and

the other Directorate. It has to be discussed with the related ministries and agencies. The Minister approves and signs the Regulation. The Directorate concerned issues the Decree. It is supposed to provide detailed plan of action with Ministerial Regulation applied for the related sector;

8) The Directorate of the Ministry concerned drafts Ministerial Instruction. It has to be discussed with the related ministries and agencies. The Minister approves and signs the Instruction. The Directorate concerned issues the Instruction. The Instruction is not technically necessary to regulate, however the rules stipulated in the Instructions have to be observed;

9) Directorate General's Decree is drafted by the Directorate discussed with the related ministries and agencies. The Minister signs the Decree. The Directorate issues the Decree. It provides additional regulations with the Ministerial Regulation and Ministerial Decree;

10) Provincial Regulation is drafted by the Provincial Government discussed and approved in the Provincial level House of Representatives. The Governor signs the Regulation. It is an operational regulation in Province concerned as a follow up of national regulations;

11) The Provincial Government discussed with related agencies drafts Governor's Decree. The Governor signs the Decree. Provincial Secretariat issues the Decree;

12) The Provincial Government, discussed with related agency drafts Governor's Instruction. The Governor signs the Instruction. Provincial Secretariat issues the Instruction.

Table A11-2 List of Basic Water Legislation in East Java Province

Basic Legislation

Law No. 11 of 1974 on Water resources development
Government Regulation No. 22 of 1982 on Water management
Government Regulation No. 23 of 1982 on Irrigation
Government regulation No. 35 of 1991 on River

Perum Jasa Tirta

Government Regulation No. 5 of 1990 on PJT
Ministry of Public Works Regulation No. 56 /PRT/ 1991 on General policy of PJT management
Presidential Decree No. 195 / M of the Year 1990 on the assignment of the Board of Directors of Jasa Tirta Public Corporation
Presidential Decree No. 58 of the Year 1990 on the designation of Jasa Tirta Public Corporation as an agency which can collect and receive the contribution for operation and maintenance of water resources infrastructures
Presidential Decree No. 77/M of the Year 1991 on the assignment of the Board of Supervision of Jasa Tirta Public Corporation
Ministry of Public Works Decree No. 180 / KPTS / 1996 on administrative guidance for state-owned property / state treasure managed by public company Jasa Tirta
Ministry of Public Works Decree No. 181 / KPTS / 1996 on determination of the types and quality of state – owned inventory / state treasure managed by Jasa Tirta

Water Management Committee / Water Allocation/Water Right

Ministry of Public Works Regulation No. 49 of 1990 on Enactment process and requirement process for water licensing
Ministry of Public Works Regulation No. 67 /PRT/ 1993 on Committee of provincial water management
East Java Governor's Decree No. 59 of 1994 on Water management committee
East Java Governor's Regulation No. 11 of 1995 on Permission to use water in East Java Province

Water Quality (Environment)

Law No. 4 of 1982 on Environment
Law No. 23 of 1997 on Environmental Management
Ministry of Public Works Regulation No. 45 / PRT / 1990 on Water quality control of pollution sources
Government Regulation No. 20 of 1990 on Pollution control
East Java Governor's Decree No. 413 of 1987 on Water classification and standardization
East Java Governor's Decree No.136 of 1994 on Effluent Standard for industries in East Java
East Java Governor's Decree No. 35 of 1993 on Committee for controlling and preventing environmental pollution

Water users' association (HIPPA)

Ministry of Home Affairs Regulation of No. 12 of 1992 on establishment of Water Users' Association

Presidential Instruction No. 2 of 1984 on Implementation guidance of P3A management

Water Service Fee

Ministry of Home Affairs Regulation No. 6 of 1992 on Irrigation service fee

Provincial Regulation of East Java No. 7 of 1992 on Irrigation service contribution

Government Regulation No. 6 of 1981 on Contribution for operation and maintenance cost for water resources development infrastructure

Ministry of Public Works Decree No. 534 /KPTS/ 1991 on Basic fee setting for operation and maintenance cost of river facilities

Miscellaneous

Ministry of Public Works Regulation No. 39 / PRT / 1990 on River basin division

Ministry of Public Works Regulation No.48 / PRT / 1990 on Water resources within the river basin

Ministry of Public Works Regulation No. 63 /PRT/ 1993 on River demarcation and river exploitation area

Ministry of Public Works Decree No. 614 /KPTS/ 1991 on delegation of authority to East Java Governor to issue water license in PJT working area

East Java Governor's Decree No. 54 of 1992 on administration and operational cost and tax levied concerning fee collection for operation and maintenance cost of river facilities within PJT working area

Ministry of Public Works Decree No. 70 / PTS /1993 on determination of river boundary line in the working area of Perum Jasa Tirta at rivers: Kali Surabaya, Kali Wonokromo, Kali Kedurus and Kali Porong

Ministry of Public Works Decree No. 98 / KPTS /1993 on organization of dam safety

Government Regulation No. 3 of 1983 on methods of cultivation and supervision for PERJAN, PERUM, and PERSERO

Ministry of Home Affairs Decree No. 179 of 1996 on guidelines of organization and work procedure for water resources management bureau

East Java Governor's Decree No. 93 of 1997 on Kali Mas management pattern

**Table A11-3 Task of Perum Jasa Tirta set in "Government Regulation No. 5 of 1990"
and "Minister of Public Works Regulation No. 56 / PRT/ 1991"**

Mission; Perum Jasa Tirta is an agency which executes the operation and maintenance of water resources infrastructure and trading on water and water resources based on the government policy through provision of river basin management, i.e. comprehensive and integrated development and utilization of water and water resources, referring to regional development and environmental conservation principles and company management principles.

(2) Objective: Perum Jasa Tirta participates in improving national economic condition by implementing national development program on water and water resources.

(3) Main tasks: (Article 6 of Ministerial Regulation No.56 of 91)

a: Operation and maintenance of water resources infrastructure;

b: Dealing in water and water resources;

c: River basin management, i.e. conservation, development and utilization of water and water resources;

d: Rehabilitation of water resources infrastructure

(4) Additional task: (Article 7 of Ministerial Regulation No.56 of 91)

a: PJT carries out additional tasks besides the main tasks as mentioned in Article 6;

b: Additional task which is given to PJT that influences its budget, shall be decided by the Minister of Public Works after having approval of the Minister of Finance;

c: Additional task which does not influence PJT budget is to be assigned by the Minister of Public Works.

(5) Scope of work (Article 8 of Ministerial Regulation No.56 of 91):

a: Provision of raw water for various purposes such as for PDAM, PLN, agricultural use, fisheries, industry, port, flushing and other enterprises which utilize water and energy of water;

b: Tourism which authorities' area is mentioned in Article 9 to utilize water and water resources as well as the surrounding environment;

c: Provision of consulting service and other services to utilize the resources which are available in PJT;

d: Sand mining as stated in the effective Provincial Regulation;

e: Provision of water and potable water and waste water treatment.

(6) Activities (Article 9 of Ministerial Regulation No.56 of 91):

planning, developing, rehabilitation, operation and maintenance, trading, conservation and controlling in relation with the implementation of PJT task mentioned in Article 6

(7) Working area (Article 9 of Ministerial Regulation No.56 of 91):

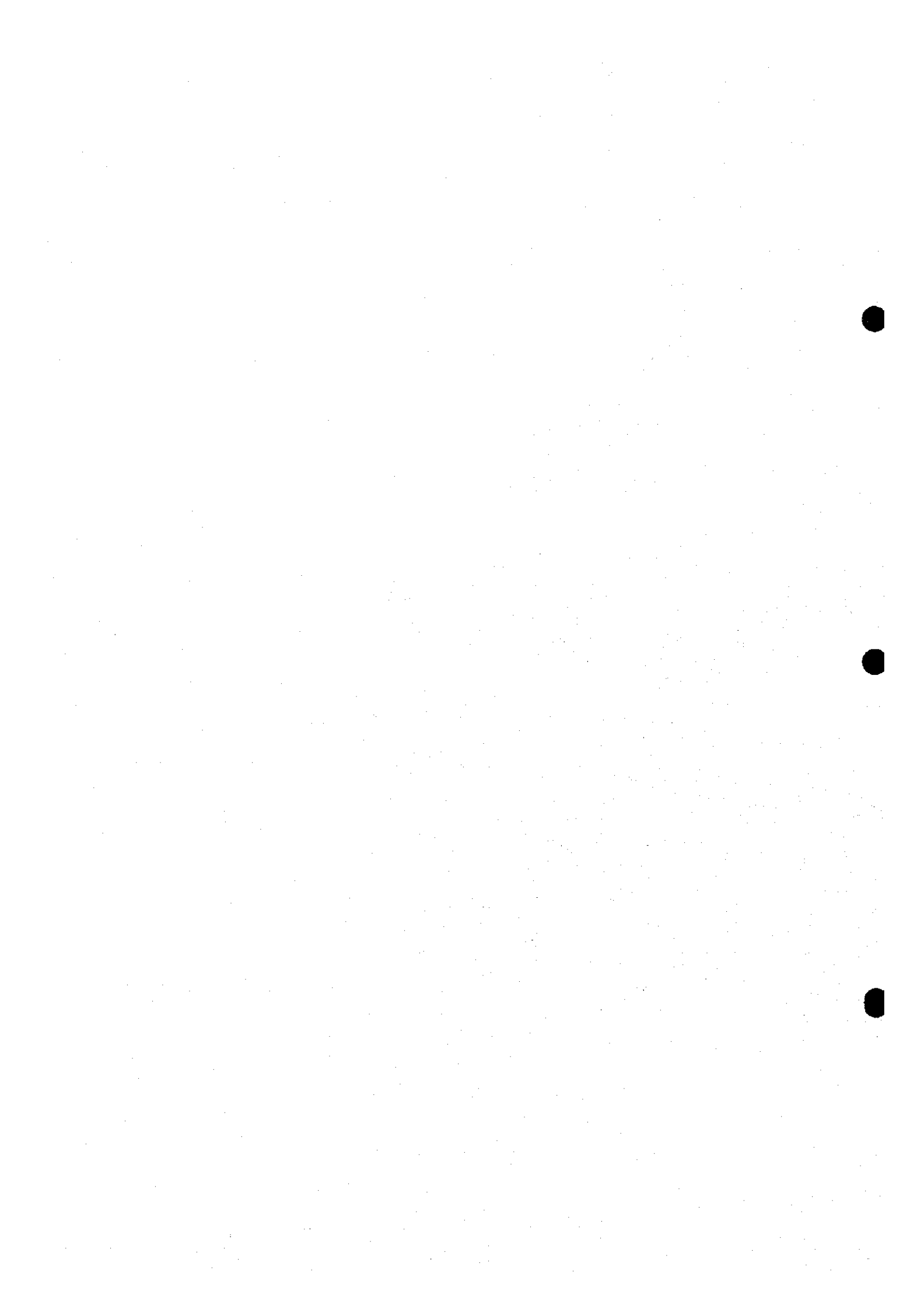
a: PJT performs the activities as stipulated above covering the following rivers;

Kali Brantas, Kali Amprong, Kali Lesti, Kali Metro, Kali Lahor, Kali Putih, Kali Badak, Kali Bambang, Kali Lekso, Kali Ngrowo, Kali Song, Kali Ngasinan, Kali Tawing, Kali Parit Raya, Kali Dawir, Kali Parit Agung, Kali Boding, Kali Tugu, Kali Kedak, Kali Srinjing, Kali Konto, Kali Beng, Kali Widas, Kali Bening, Kali Kunci, Kali Kedung Soko, Kali Ulo, Kali Brangkal, Kali Marmoyo, Kali Watudakon, Kali Sadar, Kali Kambing, Kali Porong, Kali Surabaya, Kali Mas, Kali Wonokromo, Kali Kedurus, Kali Ewoh, Kali Jari and their tributaries including the water resources infrastructure which related in the river basin unit.

b: Dealing in water and water resources in other rivers by PJT is determined by the President, together with the proposal of the Minister (Article 8 of Government Regulation No. 5 of 90)

ANNEX - 12

ORGANIZATION AND MANAGEMENT



ANNEX - 12 ORGANIZATION AND MANAGEMENT

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1 Current Organizations related to W.R.M. in the Brantas River Basin

There are a number of organizations that are involved in the water resources management in the Brantas river basin. Of them, major thirty four (34) organizations are selected and listed in Table A12-1. Main tasks and responsibilities of each organization are described in the same table.

1.1 Categories of Agencies

In Table A12-2, work duties of each agency are depicted in the form of a matrix. The organizations are categorized in this table as shown below and are denoted by alphabet "a" to "h" in the upper column ahead of the name of agencies. Regency (Tingkat II) level Government agencies are considered to be included in the same agency of Provincial (Tingkat I) level.

- | | |
|---------------------------------------|------------------------------|
| a) Ministry level Government agencies | ex.: MPW, BAPEDAL |
| b) Representative office of Ministry | ex.: Kanwil PU |
| c) Government managed Project | ex.: PKB, PIAT |
| d) Provincial level Govt. agencies | ex.: Dinas Pengairan, DPRIND |
| e) Public corporation | ex.: PJT |
| f) Limited corporation | ex.: PT PLN |
| g) Committee / Unit of Government | ex.: PWMC |
| h) Other organizations | ex.: PDAM |

1.2 Function of Agencies

Functions of an agency as an organization are categorized into six as shown below together with their denotations.

- | | |
|------------------------------------|--|
| ●: Supervising/implementing agency | : Agency which supervises implementation of the work duty and sometimes implements it by itself. |
| ★: Supervising agency | : Agency which supervises implementation of the work duty. |
| ◎: Implementing agency | : Agency which implements the work duty. |
| ○: Cooperating Agency | : Agency which implements the work duty not as a leading implementing agency but as a supporting agency. |
| ☆: Coordinating Agency | : Agency which does not implement the work duty but coordinates with other agencies. |
| △: Informed Agency | : Agency which is not involved in implementation |

of the work duty but is kept informed.

The function of an agency changes according to its work duty in a sector. Therefore an agency functions as an implementing agency for one work duty in a sector while the same agency functions as a coordinating agency for a work duty in another sector.

There are two ways of reading the matrix:

(1) Horizontal Reading

By reading the matrix horizontally, it is understood that which agencies are involved in the work duty. For example, by reading horizontally 1.1.2 "Land use inventory survey", it is understood that Kanwil Kehutanan (Representative Office of Ministry of Forestry) is implementing work under the supervision of the Ministry of Forestry with the cooperation of DPKT (Provincial Soil and Land Conservation Service) and BRLKT (Agency of Land Rehabilitation and Soil Conservation) and with coordination of BAPPEDA (Provincial Development Planning Agency). Informed agencies include DGWRD, Kanwil PU, PKB, PGKS and PJT. The Perum Perhutani (Forestry Public Corporation) is implementing the same in its responsible area.

(2) Vertical Reading

By reading the matrix vertically, it is understood that in which work duties the agency is involved. Taking an example in "Flood Management", by reading vertically the column of DGWRD (Directorate General of Water Resources Development), it is understood that DGWRD is supervising and implementing legislation matters. For "Flood control works", DGWRD is supervising the implementation of PKB and PJT. For "Flood damages management", DGWRD is supervising FFWS and reservoir operation rule. In the event of floods, DGWRD receives flood damage reports.

1.3 Current Activities of Agencies in Each W.R.M. Sector

Current works and duties of water resources management related agencies are presented in a matrix of Table A12-2. This matrix is considered to show the current sharing of roles and responsibilities of the water resources management in the Brantas among related agencies.

The Directorate General for Water Resources Development (DGWRD) of Ministry of Public Works (MPW) is mainly responsible for the following:

- to set up policy concept on water resources including planning, management, maintenance and conservation,
- to guide the implementation of water resources policy,
- to guide and set up water balance and water permit recommendation,
- to assist the operation and maintenance of completed water resources infrastructures,
- to assist and implement the management of state-owned property and
- to guide and set up the master plan on water resources.

It assists Ministry of Mining and Energy for ground water development. The organization chart of MPW is depicted in Figure A12-1.

(1) Watershed Management

In the watershed management sector, Directorate General of Reforestation and Land Rehabilitation (DGRLR) of Ministry of Forestry is responsible for policy making and in the whole sector. The Kanwil Kehutanan is responsible for planning and technical guidance for land rehabilitation and soil conservation including long-term (25 years) plan of reforestation. The BRLKT (Sub-division Brantas) is responsible for soil and watershed conservation planning for all lands including the middle-term plan (5 years). In 1994, BRLKT (Sub-division Brantas) was reformed into DPKT whose office was built in each Kabupaten. The BRLKT (Sub-division Brantas) is still existing with a reduced number of staffs. The DPKT succeeding the functions of BRLKT prepares annual plan and implements it. The BRLKT Area VI office has three sub-divisions in East Java Province including Brantas, Sampean and Madura sub-divisions. The activities of DPKT cover the land except for that of Perum Perhutani.

The Perum Perhutani is a state corporation specified in commercial forestry. Within its demarcated area, it covers all the aspects of watershed management including land use management, land slide erosion prevention and sediment control. The PGKS is implementing the debris control in its responsible area including the whole mountain area of Kelud and southeastern side of Mt. Semeru which is located in the catchment area of the Brantas.

(2) Flood Management

The DGWRD of MPW is supervising all the aspects of flood control works. The MHA is supervising flood damage management for implementing rescue service and reporting flood damage. The PJT is solely responsible for FFWS and reservoir operation rule.

The PKB and PJT are doing tasks cooperating together in this sector. Their scope of works and duties extend to flood control works and flood damage management. The Dinas Pengairan is taking care of flood control works in the tributaries in upper stream.

For flood damage management covering rescue service and damage reporting, SATKORLAK PB is coordinating many related agencies and supporting the Governor who gives order and implements the actual countermeasures.

(3) Water Supply Management

The DGWRD makes supervision of all the aspects of this sector including water supply, water resources, water balance and low water management system. The MHA is supervising domestic water supply.

The PJT is responsible for implementing all the aspects of water supply. The Dinas Pengairan, DPERIKAN and DPRIND are also responsible for water supply in their respective areas. The PT PLN and PDAM are users and purchasers of raw water of the Brantas.

The PWMC is coordinating water allocation among water users. Water allocation plans are submitted by PJT for discussion at the meeting, which is passed to the Governor for approval. The Dinas Pengairan currently takes a role of the secretary of PWMC.

As for the water resources development planning, four agencies including PJT, Dinas Pengairan, DISTAMB and PDAM are being involved. Of them, DISTAMB is responsible solely for ground water supply.

Water balance is planned by PJT, discussed at PWMC and submitted to the Governor for approval. The low water management system (LWMS) is being maintained by PJT and PWMC as well. The PKB is responsible for expansion plan of LWMS.

(4) Water Quality Management

There are two ministry level organizations in this sector: MOE and BAPEDAL. Broadly speaking, the MOE is policy making agency while BAPEDAL is an implementing agency by nature. The head of the two agencies is the same person. A number of other agencies are involved in this sector and the demarcation of their roles and responsibility are not necessarily clear.

The MOH is supervising the domestic waste water quality management.

As for river water, Kanwil PU and PJT are doing water quality monitoring. The BAPEDAL is supervising the river water quality management.

As for domestic waste water, Kanwil PU and Dinas Kebersihan are doing water quality management.

As for industrial waste water, DPRIND is doing quality control and monitoring. The MIT is supervising the industrial waste water quality management.

In the water quality management sector, BBLH has been responsible for legislation matters and is coordinating with other related agencies in many aspects. In November 1997, BBLH was reformed into BAPEDALDA based on the newly enacted Environmental Law. Unlike the former BBLH which was a staff-agency, the new BAPEDALDA is a line agency which is assumed to implement quality conservation activities of water, air and soil. In this Study, BBLH is referred to when it relates to the present conditions while BAPEDALDA is referred to when it relates to the future.

(5) River Environment

The DGWRD is supervising recreation in river space while the BAPEDAL is responsible for supervising biota in the river area.

The PJT is doing operation and maintenance and control planning of land use in river area and surroundings. The Kanwil PU is supervising PJT activities. As for biota in the river area, BBLH is doing conservation activity, controlling and planning. The BAPEDAL is supervising BBLH

activities. As for recreation activity in the river space, PJT is doing operation and maintenance, control and planning.

(6) Water Resources Management Masterplan

The master plan for water resources management in the Brantas river basin has been required for a long time but not prepared yet. All the related agencies is required to cooperate with PJT who is assumed to be responsible.

(7) Institution

According to the survey result, Dinas Pengairan is assumed to be responsible for water law, river law and water right. And DGWRD and Kanwil PU are supervising and implementing Dinas Pengairan in this area.

(8) Organization

All the related ministries is assumed to be responsible for establishment and change of management bodies of each agency which are under control of the respective ministries.

Currently there are no agencies responsible for community participation.

(9) Governor's Authority

The Provincial Governor is currently bestowed with wide range of rights of decision in water resources management. Some relevant authority comprises the following:

- (i) to give license of water resources utilization
- (ii) to approve reservoir operation plan (as the chairman of PWMC)
- (iii) to approve flood control manual as the chairman of PWMC
- (iv) to issue the license or rejects the request for waste disposal, can cancel the license for waste disposal.
- (v) to designate the sand mining location, issues and rejects for mining license.
- (vi) to designate the land use in river bank areas, issues and rejects the request for land use in river bank areas, river use areas and river authority areas and cancels the license for land use.
- (vii) to approve the proposal on the tariff (MPW designates the tariff for O&M contribution)

The organization chart of related agencies including MPW, PKB and PGKS is depicted in Figure A12-1 to Figure A12-3.

1.4 Some Problems in Sharing Roles and Responsibilities

In Table A12-2, some problems are observed with respect to sharing roles and responsibilities among the related agencies, which are commented as follows.

(a) Duplication and obscurity of works and duties

By reading the matrix horizontally, some duplications of works and duties can be found. There is some duplication of work-duty between Perum Perhutani and others. But since this public corporation is responsible only for the area of its own, this duplication cannot be a problem to be solved in the present study on water resources management in the Brantas. In this Study, this Perum is treated as a given condition without discussing the pros and cons of its existence.

- As for land development plan, Kanwil Kehutanan (Forestry) and BRLKT are doing the same task.
- As for land slide and erosion prevention management, the duplication of task between Kanwil Kehutanan and BRLKT is observed for the works including regular inspection survey, land slide inventory and land slide prevention plan.
- As for sediment control, there are work-duty duplications among PKB, PJT, Kanwil Kehutanan, BRLKT and DISTAMB.
- As for flood control works, there are duplications among PKB, PJT and Dinas Pengairan.
- As for water resources development plan, both PJT and Dinas Pengairan are responsible and primary responsibility is obscure.
- River water quality monitoring is being implemented by Kanwil PU and PJT.
- Domestic waste water quality monitoring is being done by Kanwil PU and Dinas Kebersihan.
- Industrial waste water quality monitoring is being done by PJT and DPRIND.

(b) Water conservation

In watershed management sector, there is no agency who is responsible for water conservation. The DPKT covers land and soil conservation mainly from the point of view of forestry conservation while PJT, PKB and PGKS cover land use management mainly from the point of view of sediment control. This is the interface of water use management and land use management. The effect of reforestation toward enhancement of river water, for example, cannot be clarified under the current water resources management system in the Brantas.

2 Current Operation and Organization of PJT

2.1 Current Operations

2.1.1 Main Tasks of PJT

The current operations of PJT is being carried out according to the provision of Minister of Public Works Regulation No. 56 / PRT / 1991 in which the main tasks of PJT are stipulated as follows :

- (a) Operation and maintenance of water resources infrastructure,
- (b) Dealings in water and water resources,
- (c) River basin management i.e. conservation, development and utilization of water and water resources, and
- (d) Rehabilitation of water resources infrastructure.

Although stipulated in the Regulation as shown above, construction activities are not being done in routine practices of PJT. Neither conservation works are being done. Thus only (a) and (b) are actually implemented in daily practices of PJT.

2.1.2 Major Operations of PJT in W.R.M. in the Brantas River Basin

Major operations of PJT in water resources management of the Brantas river basin can be derived by reading vertically the column of PJT in the work duty matrix of Table A12-2 and is described as follows.

(a) Watershed management

In watershed management sector, PJT's operation concentrates in the sediment control in the existing reservoirs. The sedimentation is the big problem common to almost all the reservoirs in the Brantas though it is critical in the Sengguruh, Karangates and Wlingi reservoirs. For the details, a chapter of "Watershed Conservation, Sabo and Flood Control" is to be referred.

One of the efforts of PJT in this sector is the purchase of a land lot at the origin of the Brantas river i.e. "Sumber Brantas". After the Dutch administration had ended, potatoes have been cultivated in the area for a long time, which caused the soil erosion at the most upper stream of the Brantas river. The PJT had purchased the land with the purpose to prevent the soil erosion of this area. Being surrounded by forest, the area constitutes a calm green zone where family groups are visiting at week end. The reforestation efforts of PJT have been still continued.

Another efforts in the watershed management sector include the establishment of a slate manufacturing factory at the Wlingi reservoir site. The PJT established the factory under the joint operation with P.T. Java Beton in 1995. The immediate purpose was to

reutilize the enormous volume of the reservoir sediment which was dredged out from the Wlingi reservoir. Currently, the factory manufactures slates for roofing which are being transported for sale to Malang and Surabaya. The financial result is, however, not so good so far due to the long distance of transportation of the products to the market.

Recent efforts of PJT in this sector include the organizing the "Technical Team for Water Conservation" to which PJT is responsible as the secretariat. A decree of the Assistant Governor was issued on December 6, 1997 on the "Cooperation on water resources conservation in upstream Brantas river basin within the working area of Governor Assistant of Region IV Malang". Tasks and activities of member agencies include the following:

- Preparing long-term program for water resources conservation
- Preparing technical plan for each task and responsibility
- Preparing work plan of conservation activity
- Performing conservation activity
- Monitoring and reporting the output

While tasks of PJT are stipulated as follows:

- Preparing water resources conservation master plan together with technical agencies
- Preparing the priority of conservation program together with technical agencies

Regarding the budget, each related agency provides the fund for its own conservation activity and PJT provides additional fund required for performing the conservation works which will be conducted by related agencies according to the criteria and capacity of PJT. Major related agencies participated in the Team are BRLKT sub-division Brantas, PKB, PGKS, BAPPEDA, Perum Perhutani and Related offices of Kabupaten Malang and Kotamadya Malang. This will become an essential involvement of PJT to watershed management activities.

(b) Flood management

The PJT is doing a primary role in flood management sector together with PKB (the Development Executing Office of the Brantas River) under the supervision of DGWRD. For the management of flood control works, PJT together with PKB is functioning as a responsible agent for all the areas except rehabilitation and flood control plans for which PKB is solely responsible. For flood damage management, especially for FFWS (flood forecasting and warning system) and reservoir operation rules of existing reservoirs, PJT is solely responsible.

(c) Water supply management

The PJT is functioning primarily in the river water supply management sector with the cooperation of PKB.

The PJT with the cooperation of PKB is assumed to be responsible for water supply for domestic use, irrigation use, brackish fishery use, industrial use, river maintenance water and hydropower purpose.

For water resources management, PJT is responsible for surface water and DISTAMB (Provincial Mining Service East Java) is responsible for ground water.

For water balance management, PJT is responsible for all the water balance planning including middle term, long term and the current water balance as well.

For low water management system (LWMS), PJT is functioning as a primary agent in every aspects under the supervision of DGWRD and Kanwil PU. The PJT is solely responsible for regular inspections, operations of LWMS, coordination of water allocation and regulation in this sector. The rehabilitation plan and expansion plan are prepared with the cooperation of PKB. The PJT delivers technical recommendations to the Provincial Water Management Committee to which PJT submits water allocation plan at the beginning of dry season and wet season.

(d) Water quality management

The PJT is one of the member of PROKASIH (Clean River Program) and its largest sponsor. The program contributes to improve the water quality of rivers including the Surabaya river through many community participation programs. The PJT together with Kanwil PU and DPRIND (Provincial Industrial Service East Java) is monitoring water quality of rivers and waste water of industries as well. The result of the laboratory analysis is reported to BBLH (Bureau of Environment East Java) from which recommendations are submitted to the Governor as necessary.

(e) River environment

The PJT is solely responsible for management of land use in rivers and their surroundings including operation and maintenance and control plans. It is also responsible for recreation in river space for their O & M and control plans in the recreation zones of Selorejo, Karangates, Wlingi and Bening reservoirs.

(f) Institutional aspects

The PJT prepared a draft of Government Decree which stipulates the roles and responsibilities of PJT more clearly than those currently existing. Its details are introduced in the chapter of "Institution" in this report.

2.1.3 Current Operations of Each Section of PJT

In the preceding sub-section, PJT's current operations are inspected by tasks of water resources management as a whole. Then current operations of each section/group of PJT is studied in this section. A matrix of tasks required for water resources management versus PJT's sections/groups in structural organization is depicted in Table A12-6. This is a trial of allotting tasks of water resources management to each section/group of PJT. This is also an evaluation by sector experts of JICA Study Team toward each unit of PJT organization in attaining their assigned tasks in water resources management. The evaluation was made by three levels of A, B and C. The denotation is : "A" showing that the task is being done well , "B" showing that the task is only partly implemented and "C" showing that the task is not implemented at all.

This matrix does not aim at evaluating performance of each unit but aims at providing an information on manpower distribution in terms of not only quantity but also quality comprising specialty, education level and length of the experience of current job. The task evaluated at level C may show problems for the unit not able to implement the job properly. A lack of proper specialty and/or a shortage of manpower may be the causes. The result of the analysis leads to the human resources development planning in the chapter of "Manpower Development" in this report.

In preparing the above mentioned matrix, the current job descriptions of all the organizations of PJT were collected and are compiled as shown in Tables A14-7 and A14-8. These job descriptions were referred in assigning tasks of water resources management to each section/group of PJT.

2.2 Current Organization

2.2.1 Organization Reform in the Past

Since its establishment in 1991, PJT has changed the organization two times i.e. in 1992 and 1996. The organization structure of PJT including the current one is depicted in Figures A14-4 to A14-6.

In the organization reform in December 1992, Research and Development Bureau, Marketing Division and Law Division are newly established. Main duty and responsibility of the Research and Development Bureau were related to corporate long term planning and regional development plan. Those of the Marketing Division were non-water service marketing, operation coordination, corporate promotion and contracts. Those of the Law division were laws and regulations related to contribution (water tariffs), waste, soil, land and other contract matters.

The organization of PJT was restructured again in March 1996. In this organization reform, the Bureau of Corporation Development was newly established in the Technical Affairs Department. Its main roles are to develop new businesses and to study on new river basin corporation. The Division of Marketing was dissolved and its function was absorbed by each related bureaus. The Sub-division of Tourism was dissolved and the Division of Non-water Service takes care of the

tourism sector. The Law and Public Relation Section was dissolved and its function was absorbed in the Bureau of Human Resources Development and General Affairs.

2.2.2 Current Organization

The current organization structure of PJT is as stipulated in Figure A12-6. Under the President Director, three(3) directors are assumed to be responsible for Technical Affairs, Operation and Administration and Finance. The Internal Supervision Unit is directly responsible for the President Director.

The job description of Directors, Bureaus and Divisions of PJT is shown in Table A12-7. Under the overall control of President Director, all the responsibilities are shared by three Directors: Director for Technical Affairs, Director for Operations and Director for Administration and Finance.

(a) Directorate for Technical Affairs

In the Directorate for Technical Affairs, all the technical matters are handled. They include surveys and investigations including research and feasibility studies, technical guidance for each Division, environmental planning including waste water treatment and water quality. A laboratory in which water quality testing is carried out is installed in Research and Development Bureau. The legal aspects are being dealt in the same Bureau. The FFWS is installed in Programming and Controlling Bureau. Feasibility studies are conducted by the Research and Development Bureau and later handed to the Corporate Development Bureau for its further detailed study aiming at implementation. New businesses are being hatched by the Corporate Development Bureau.

(b) Directorate for Operations

In the Directorate for Operations, all the routine operations are handled. They include O&M activities, water resources management, consulting and construction services and equipment utilization. The daily O&M of river and river structures, monitoring and control of water supply, sand mining and land utilization and water quality are being done by Division of U/S (upper stream) and D/S (down stream) Water Services.

In each Water Service Division, there are three(3) sub-divisions as shown below.

- | | | | |
|------|---------------------|-----------------|---------------------------|
| (i) | Water Division U/S: | Sub-division 1: | Sengguruh, Karangates |
| | | Sub-division 2: | Wlingi, Selorejo, Lodayo |
| | | Sub-division 3: | Tulungagung |
| (ii) | Water Division D/S: | Sub-division 1: | Kediri, Widas |
| | | Sub-division 2: | Lengkong—estuary |
| | | Sub-division 3: | Surabaya river, Mas river |

Construction and consultant services and equipment service are being done by Division of Non Water Service. Tourism services are being handled also by the same division.

(c) Directorate for Administration and Finance

In the Directorate for Administration and Finance, managerial matters related to administration and finance is being handled. The financial reporting, budgeting and accounting are being done by Bureau of Finance. The human resources development and public relations are being dealt by Bureau of Human Resources Development and General Affairs.

(d) Internal Supervision Unit

The Internal Supervision Unit is supervising the overall activities of the corporation.

(e) Quality Management Unit

The Quality Management Unit is responsible for the acquisition of ISO (International Standard Organization) license, which was successfully attained for ISO 9000 (Quality Control) in 1997. Now the next target is TQC (Total Quality Control) and ISO 14000 for environmental conservation standard.

2.3 Some Problems in PJT Organization

Through the scrutinization of job descriptions and the interview with all the chiefs of Bureaus, Divisions and Units of PJT, some organizational problems are observed and pointed out as follows. The current structural organization depicted in Figure A12-6 is to be referred to. The problems to be picked up hereunder are restricted to those of organizational aspects and those of manpower aspects (these are described in the chapter of "Manpower Development" in this report) are not included.

(a) Bureau of Research and Development

Various jobs of different nature are mixed in this bureau. The whole jobs can be broadly broken down into the following seven job groups:

- i) Management planning
- ii) Technical planning
- iii) Research
- iv) Water resources conservation
- v) Water quality conservation
- vi) Public relations
- vii) Legal matters

The jobs of vi) and vii) are to be transferred to Directorate for Administration and Finance. Strengthening is needed for the group of legal matters. The job of i) is already transferred to Bureau of Corporate Development. Due to the heavy load and manpower shortage, no research works nor master plan preparation are being done.

(b) Bureau of Planning and Controlling

The managerial jobs such as “work plan and company budget”, “quarterly work program for each unit” and “evaluation on company operation” are not the job of this Bureau but the job of Corporate Development.

(c) Bureau of Corporate Development

The tasks of the Bureau focus to the development of new business areas.

(d) Division of Water Service(Up Stream and Down Stream)

Besides the primary job of O&M of river infrastructures, “marketing and observation of water service sales to customers” is allotted to this Division. These are not the jobs fitted to engineers.

(e) Division of Non Water Service

This Division cannot be responsible for tourism development without any expert of tourism. Since the tourism has different nature from the conventional PJT’s tasks, it is better handled in the unit in charge of new businesses.

(f) Bureau of Finance

- i) Annual budget is to be prepared in this Bureau in stead of Bureau of Planning and Controlling.
- ii) MIS is to be transferred from Bureau of Research and Development .
- iii) Budget control is not included in job descriptions of any Bureau. This should be done in this Bureau.
- iv) The management accounting is not being done and only financial accounting is being done. The cost allocation system should be firstly established.

(g) Bureau of Human Resources and General Affairs

- i) Jobs of Public Relations, career planning and task analysis (control of number of staff by each task) should be included in this Bureau.
- ii) Staff training and education are not included.

(h) Internal Supervising Unit

Financial auditing seems to be the main interest. Operational (performance) auditing is desired to be added aiming at improvement of operational systems and procedures.

In summing up, the following are the main problems in the organizational aspects of the current PJT:

- i) Lack of experts in the area of legal matters. One staff who was recruited one year ago

is only expert in this area.

- ii) Marketing power is weak. The marketing function is dispersed to each bureau in the current organization. Actually the chief of the Bureau is in charge of marketing at routine level.
- iii) Public Relations function, though its importance is recognized in PJT, is not clearly designated in job descriptions.
- iv) Research and Development are not done due to the lack of manpower despite that the importance is recognized.
- v) MIS building is not much progressing though its necessity is recognized. Management data control is not centralized by computer system yet and is being controlled in each Bureau.

The problems pointed out above will be taken into consideration when the new organization is designed for New PJT and Persero Jasa Tirta.

2.4 Current Problems in Managerial Aspects of PJT

In this sub-section, some problems in managerial aspects of PJT are pointed out. The counter measures toward these problems will be presented in the corresponding sector reports.

2.4.1 Water Charge Formula

The main revenue source of PJT is water charge to be collected from such beneficiaries as PT PLN, PDAM and industries which intakes industrial water from the main stream. Unit water rates are negotiated between PJT and the beneficiaries individually every year. But the formula to compute the unit water rate is not established yet. This situation so far does not bring any harm to the management of PJT because annual revenue exceeds annual expenditure for these years. As shown in the table previously in this section, annual expenditure including O&M cost and personnel cost has been increasing every year while there is no assurance of the increase of water revenue in the future. From the point of view that the water revenue should be reliable and stable for the long term sustainability of PJT management, the formula of water charge should be established as soon as possible. The recommendations are presented in the chapter VI.4 "Water Charge Mechanism" in the Main Report.

2.4.2 Management of Fixed Assets

The PJT is running business by utilizing state assets free of charge. The O&M costs that PJT spent for maintaining the state owned assets is recovered from beneficiaries by collecting water charge. However, the state owned assets are not posted on the balance sheet of PJT. Neither the bookkeeping nor the depreciation of these state owned assets are being done. As a matter of fact, the current book value of them are not known by PJT. Whenever repair works or rehabilitation works are being done, the value of these assets will be changed according to the scale of the works. The proper bookkeeping is absolutely necessary for the full recovery of the cost rendered for delivering the services of PJT. The proper bookkeeping constitutes the base of the formula of water rate computation. There are a few alternative ways of bookkeeping of the

state owned assets which are introduced in the chapter of "Financial Plan and Budget Resources".

2.4.3 Strengthening of Manpower

According to the PJT data, only 15% of the total PJT staff is the graduates of university and/or higher academic level. In terms of the professional field, three engineering fields comprising civil, mechanical and electrical engineering occupies 39% of the total. The age composition of staff is as shown hereunder.

| Range of age | -30 | 31-40 | 41-50 | 50- |
|--------------|-------|-------|-------|------|
| No. of staff | 52 | 154 | 204 | 27 |
| % share | 11.9% | 35.2% | 46.7% | 6.2% |

As shown above, the staff of more than 40 years old occupies more than half of the total. Based on these characteristics of the staff of PJT, the following is to be pointed out.

- (a) Some deviation is observed in the composition of the staff specialty. There are only two environmental engineers and also two informatic experts. Since these are the field which will be required to be strengthened in the near future. The same can be said for legal experts. There are only two experts of legal matters. As the change of management body of PJT is foreseen, this area should be reinforced.
- (b) New entry of staff has been few these years. As seen in the above table, the age composition is not well balanced. Anticipating the situation when aged people retired, new employment should be increased periodically every year following the above mentioned reinforcement of some specialties.
- (c) A task analysis should be conducted to determine the proper number of staff in each Bureau and Division. The existing study carried out by the personnel section of PJT will be the base of this analysis.

2.4.4 Reform of Organization

- (a) A management unit for Public Relations is recommended to be built. The needs of community are required to be grasped and incorporated in the water resources management. This is necessary to promote the participation activities of community. The contact with Kabupaten Government office will become important. For this purpose, an organization responsible for the promotion of public relations is desired to be built in PJT.
- (b) A legal section is to be built being separated in Research and Development Bureau after enhancing the number of legal experts. This is required because the legal matters is

anticipated to increase in the near future.

- (c) A marketing unit is to be built. The contact with beneficiaries will become more and more important in the future. Through an intimate communication with beneficiaries, mutual understanding will be increased. This is one of the prerequisite for PJT to establish the formula of beneficiaries contribution. An exploitation of new business market will be another task of this marketing unit.

2.5 Comparison of PJT and POJ

Major management indices are compared between PJT and POJ (Jatiluhur Authority Public Corporation) as depicted in Table A12-4. Both of the PJT and POJ are identical in the nature of a state corporation responsible for water resources management in each river basin. However, as a matter of facts, physical conditions including number of dams to be managed and length of river streams etc. differ very much between them. Therefore, the comparison is of indicative nature and is for reference sake only.

As observed in the table (all figures in 1995), the business income of POJ is 1.7 times that of PJT. However, as the number of staff of POJ is 6.9 times that of PJT, the profit per employee of POJ is Rp. 2.39 million while that of PJT is Rp. 9.17 billion which is equivalent to 3.8 times that of POJ.

The number of staff of POJ may include those who are working for operating irrigation water supply facilities in the POJ command area. Most of POJ employees have been working for POJ since its construction stage. Some of the employees working at the construction stage were transferred to the contractor company built separately from POJ. Another difference is that POJ operates its own power station in the Juanda reservoir in the Citarum while PLN, not PJT, operates the power station in the Brantas.

As for the volume of water to be developed, POJ exceeds PJT with nearly two times difference. But in terms of the total annual expenditures, POJ exceeds PJT three times. Consequently, the cost per unit of utilized water (Rp. 7 per m³) in the Brantas is less than that in the Citarum (Rp. 12 per m³).

The organizational structure of POJ is as depicted in Figure A12-7. The main framework of the organization is similar to that of PJT i.e. three Directors in charge of Technical Affairs, Operation and Administration and Finance are responsible for the respective area in the whole management under the President Director.

3 Proposals for Organizational Reform of Overall WRM

3.1 General

As reiterated many times in this chapter, so many agencies are being involved in the water resources management in the Brantas. It causes inefficiency due to the duplication of tasks and irresponsibility in the daily management activities. After analyzing the work-duty matrix of Table A12-2, another matrix showing a desirable status of sharing roles and responsibility of WRM in the Brantas was prepared as shown in Table A12-3. In this new matrix, lead agencies are proposed i.e. BRLKT (sub-division Brantas) and DPKT (Dati II level) for watershed management sector and BAPEDALDA for water quality management sector. The details are stated later in this sub-section.

Based on the analysis of current conditions of the water resources management in the Brantas, the basic concept of "one river, one plan and one management" is proposed to be applied for the WRM system as explained in detail in chapter IV of the Main Report. This implies that the Brantas river basin should be comprehensively managed by a sole agency. Judging from the historical background and know-how of locality, PJT is assumed to be the most appropriate management agency of the Brantas. All the tasks required for water resources management should be consistently unified under PJT, the sole responsible agency of the Brantas. For some sectors in which some agencies are more appropriate in WRM in the basin than PJT, then the responsibility to manage the sector shall be delivered from PJT to these agencies.

The following are proposed relating to the water resources management in the Brantas river basin on the basis of the basic concept of "one river, one plan and one management".

3.2 Overall Responsibility for Water Resources Management

It is widely understood that one river basin should be developed under one plan. However, there are many different opinions on how to manage and who should manage the river. In the Brantas river basin, there are two administrative lines at present: one is the line of MPW and another is that of Provincial Government. At present, there are as many as 32 agencies involved in water resources management in the Brantas and no one can say who is the ultimately responsible agency in the Brantas. The obscurity for responsibility sometimes causes duplication of management activities and to the contrary lack of necessary action. In this Study, "one river, one plan and one management" constitutes the most basic principle for the water resources management planning. This principle means that the unified management is necessary covering one whole river basin.

In the Government Regulation No.22 of 1982, it is clearly stipulated that, within the total of 90 rivers in Indonesia, two rivers of the Brantas and the Citarum are to be managed by state corporation. This is inferred to be based on the fact that these two river basins are significantly important from the point of view of the socio-economy in the country. As shown in Table A12-5, the Brantas has the largest population of 14.2 million in the Java Island in 1993 followed by the Bengawan Solo (12.8 million) and the Citarum (12.1 million). In terms of the population density, the Brantas and the Citarum river basins have the largest in the Java Island: 1,006

persons per km² in the Citarum and 935 persons per km² in the Brantas. Regarding the Brantas river basin, the population accounts for 7 % of the whole country population and the GRDP accounts for 9 % of the whole GDP in 1996. This shows nothing but the socio-economic importance of the basin in the country.

In case of Japan, all the 2,800 river systems are classified into the "Grade A river systems" and the "Grade B river systems". The way of river management differs as shown below:

| | River systems | Total length of rivers (km) | Responsible agency | Construction fund source |
|----------------|---------------|-----------------------------|--------------------------|--------------------------|
| Grade A Rivers | 109 | 87,153 | Minister of Construction | National budget |
| Grade B Rivers | 2,691 | 35,717 | Prefectural Governors | Subsidized budget |

The Grade A river systems constitute the important rivers from the point of view of national economy and people's lives in the country and the Grade B river systems constitute other river systems than Grade A. The Ministry of Construction (MOC) is directly responsible for the management of Grade A rivers and the prefecture Government is responsible for Grade B rivers. The water right to utilize river water is licensed by the Minister of Construction for the Grade A rivers and by the Prefectural Governor for the Grade B rivers. The construction of river facilities like dams is carried out by Water Resources Development Corporation (WARDEC) with responsibility delegated from the MOC by national budget in the seven major river systems of Grade A rivers. The construction in the Grade B rivers is carried out by the prefectural governments which receive some funding from Central Government.

The unified management by one agency is desired from the following reasons:

- 1) Tasks and responsibility are clear and it can be clearly understood who should do what, when and how,
- 2) Consistency in planning can be maintained and
- 3) Coordination among the related agencies can be comprehensively systematized.

Referring to the example of Japan, it is proposed in this Study that the administrative line of MPW-PJT should be responsible for water resources management in the Brantas. The coordination between MPW-PJT line and the Provincial Government line will be maintained through the Basin Water Resources Management Committee (BWRMC) which is explained later in this Section.

3.3 Delegation of Responsibility for Implementation

As already reiterated many times, there are as many as 34 agencies related to water resources management in the Brantas. They include Ministry level government agencies, representative offices of Ministry, the government managed projects, provincial government agencies, public

corporation, limited corporation and so on. The duplication of areas of responsibility and/or lack of coverage are being observed in the tasks of water resources management.

When the MPW administrative line is confirmed, the MPW is assumed to be solely responsible for water resources management in the basin. And PJT will be responsible for daily operation under the supervision of MPW. In the areas where PJT is not appropriate to be responsible, it is proposed that the responsibility for administration be delegated from PJT to related agencies.

In the watershed management sector, PJT will delegate the responsibility to BRLKT(Sub-division Malang) and DPKT(District level). The former is in charge of planning including middle and long-terms plans and the latter is in charge of implementation of land rehabilitation and soil conservation works respectively.

In the water quality management sector, PJT will delegate the responsibility for administration of water resources management to BAPEDALDA(Provincial office of BAPEDAL) which was newly established by replacing the previous BBLH in November 1997.

In the area other than the above, PJT will be the lead agency covering the areas of flood management, water supply management and river environment management. The delegation will extend to the field of planning, implementation and periodical reporting. In preparing the sector plan, the agency will obtain technical recommendation and/or data related to the sector from PJT. After implementation by the agency, periodical reporting will be made to PJT by the agency.

The analogy of the delegation of responsibility is observed in the river management system in Japan which is briefed in the previous section. The MOC delegates the responsibility for administration of the Grade B river systems to prefectural governors who accordingly implement tasks of water resources management including construction of river facilities with some funding from the central government as subsidy. In the seven(7) major Grade A river systems, MOC delegates the responsibility for construction of river infrastructures to Water Resources Development Corporation(WARDEC), which will implement its operation and maintenance after the completion of construction.

Related agencies which are currently doing cooperation and/or coordinating works related to water resources management in the Brantas will continue their respective tasks as they are doing for the time being. The rearrangement of the WRM tasks among related agencies under the control of each lead agency will be done when relevant regulation reforms and/or the reallocation of budget and manpower are completed.

3.4 Basin Water Resources Management Committee (BWRMC)

As already acknowledged widely, the Brantas river basin is at the stage moving from "development" to "management". The development of water resources in the Brantas basin is approaching to the final stage and the cost for development is getting higher and higher. The management of water demand including saving measures and investment for raising water use efficiency is getting more and more important. Non-structural measures in stead of structural

measures are to be pursued.

Under these situations, a "fine tuning" is required in water resources management. There exists the Provincial Water Management Committee (PWMC) in the East Java Province. The most peculiar function of this committee is to determine the water allocation in the Brantas for which the meeting is held twice a year i.e. once before the dry season begins and another before the rainy season begins. The interest of the committee extends provincial wide.

It is proposed that a Basin Water Resources Management Committee (BWRMC) be established in the Brantas basin. The framework of this committee will be as follows:

Purpose : To implement the water resources management efficiently and effectively through grasping the local (river basin) needs and/or local information as far as possible.

(a) Main tasks :

- Preparing water allocation plan
- Preparing land utilization plan
- Preparing flood control operation plan
- Tackling natural disaster
- Conducting any activities related to soil and water conservation
- Improving the community awareness and participation in developing, utilizing, protecting and controlling water resources

(b) Member agencies : Bupatihs of Kabupaten in the Basin in addition to member agencies of PWMC

(c) Chairman : Director of DWRUC

(d) Secretary agency : PJT

All the substantial matters related to water resources management in the Brantas presented above will be discussed and determined in the committee including counter measures for drought occasion. The result will be implemented by each responsible agencies after getting approval of MPW(DWRUC). The coordination with PWMC is a must for BWRMC and periodical meeting will be held between these two basin committees.

The BWRMC will have an important role for the promotion of community and beneficiaries participation to water resources management in the Brantas. The periodical meeting will be held by this committee to discuss concrete projects and/or programs of community participation to water resources management. Irrigation farmers, fishery farmers, forest peoples and general community people will be given opportunities to join the meeting where they can express their opinions to water resources management in the Brantas. This will be good opportunity for BWRMC to promote peoples' awareness for beneficiaries pay principle. Training and studies on scarcity of water, efficiency use of water and/or importance of saving water can be effectively

done in this meeting as well.

3.5 Consolidation of PBK, PGKS and PJT

At present, there are two government managed projects in the Brantas i.e. Brantas river Basin Development Project (PKB) and Volcanic Disaster Prevention Project of Mt. Kelud and Mt. Semeru (PGKS). The PKB is mainly responsible for construction and rehabilitation of river infrastructures and PGKS for Sabo works and land prevention works respectively. These two areas of tasks are those stipulated in the Minister (MPW) Regulation No. 56 in 1991 as tasks for which PJT is responsible. Therefore there exists duplication of tasks in this areas among PKB, PGKS and PJT.

One of the primary responsibility of PJT is to supply water for utilization in various purposes in accordance with users' needs in both quantity and quality. In order to achieve this mission, PJT must have the capability to construct and/or rehabilitate river infrastructures and to control land slide in upper reaches in the Basin. The current manpower of PJT is not sufficient to do the tasks in these fields. Considering the situation, it is proposed in the Study to consolidate these three agencies into one organization.

Merits of the consolidation from the point of view of water resources management as a whole comprise :

- a. to raise efficiency of activities related to construction, rehabilitation and operation and maintenance of river infrastructures through integration of techniques and manpower into one agency,
- b. to save manpower committed to water resources management in the Basin,
- c. to utilize machinery and equipment more efficiently,
- d. to enhance the coordination among the agencies in doing their tasks and
- e. to save overhead costs in implementing the tasks.

While merits to PJT from the point of view of an enterprise comprise:

- a. to acquire and preserve the technologies of construction of river infrastructures including dams and reservoirs and so on which currently is not maintained sufficiently in PJT,
- b. to save the training cost of manpower that would be required if an experienced staff were transferred from PKB/PGKS in stead of a non-skilled staff.

In consolidating three agencies, it is to be taken into consideration that PJT cannot afford to hold more manpower than that required for attaining its responsible tasks. This is required from the nature of PJT as a Perum organization which is expected to make profit to some extent besides doing its public service. In this regards, it is recommendable to make a task analysis which aims at determining the appropriate number of staff for each job unit by employing professional consultants.

3.6 Issues of "Balai"

In Indonesia, rights and roles of the central government have been transferred in these years to local governments aiming that local governments should be autonomous. Along with this policy, some rights and responsibility of a provincial government are being transferred to the lower level of regency governments.

Among others, the establishment of a new river basin water resources service (called as new "Balai" which means an institution in Indonesian language) will have a big influence to the water management of the Brantas river basin in the future. The purpose of the establishment lies in the facilitation of the river basin management following the trend of the decentralization. A comparison of the existing and new system of water resources management in the regency (Kabupaten) level is depicted in Figure A12-8.

Under the new system, existing Caban Dinas Pengairan (Water Resources Service at Kabupaten level) which is responsible for water resources management of a river basin as a whole will be reorganized into Dinas PU Pengairan Daerah Tingkat II and will be responsible only for irrigation in the Kabupaten.

Other function than irrigation will be transferred to the new Balai. In the East Java Province, the existing ten (10) KORWIL (Koodinatur Wilayah Pengairan) which is coordinating inter-Kabupaten irrigation matters will be reorganized into nine(9) Balais. In the Brantas river basin, three(3) Balais including Malang, Kediri and Surabaya will be established. Since the area to be managed by PJT is designated to be 40 rivers in total including the Brantas river and others, the rivers to be managed by new Balai will be limited to tributaries other than the above 40 rivers. In addition, the scope of works of Balai is anticipated to be limited to water rescues management of inter-Kabupaten level for the time being.

According to the establishment of new Balai, the roles and responsibility of irrigation water management will be mostly transferred to Kabupaten level under the control of Bupati(Chief of Kabupaten). Currently, a pilot scheme of decentralization is being done since last year in Kabupaten Sidoarjo where the Dinas PU Pengairan Daerah Tingkat II Kabupaten Sidoarjo is already built and functions as a trial.

3.7 Comparison of Alternatives for Overall WRM System

As a summary of the above proposals regarding the water resources management system in the Brantas, a comparison of alternative systems for water resources management system is depicted in Table A12-12. The alternative A shows the current status of water resources management system in the Brantas. The alternative B is a hypothetical one with the administrative line of MHA-Governor-PJT in stead of MPW-PJT line. The alternative C is the system proposed by JICA Study Team. Three alternatives are depicted in schematics at the top of the table and major elements of each water resources management system are explained in the middle. Problems are presented and each alternative are finally evaluated at the bottom of the table.

As shown in the table, all the current problems regarding the water resources management now

the Brantas encountered is expected to be solved by the alternative C. More details of the Alternative C for its realization are stated in chapter 5 "Implementation Program and Action Plan" in this report.

4 Organization Development of PJT

4.1 Organization Development of PJT

Accompanied by the change of roles and responsibility of PJT in water resources management in the Brantas, the organizational development of PJT will be required. The time schedule of organization change of PJT is proposed in this Study as shown below:

- Consolidation with PKB and PGKS : in January 2002
- Transformation to Persero : in January 2005

Assuming the commencement of the present water resources management plan in January 1999, three (3) years are allotted for the preparation for the consolidation. It is also proposed to set up the "Management Development Unit" as a special unit attached to the Board of Directors. All the preparatory works related to the consolidation will be carried out in this unit. After the consolidation in January 2002, the role of this unit will be changed to the preparation of transforming from Perum to Persero.

4.2 Rationale for Organization Development of PJT

4.2.1 Consolidation with PKB and PGKS

The rationale for the consolidation was already stated in previous sub-section 3.4 and is summarized hereunder:

- a. to integrate the technology and skills in the areas of construction, rehabilitation and land prevention works for their efficient and effective utilization and
- b. to facilitate PJT in achieving its role of water supply which needs to construct and/or rehabilitate river infrastructures.

4.2.2 Transformation from Perum Status to Persero Status

(a) Implication of the transformation

There are two managerial aspects for a water resources management body like PJT. These are depicted in the schematics of water resources management in Figure A12-10. (In this figure, PJT's function of water management is pictured under the control of MPW being connected with other relevant agencies. Another function of corporate management is pictured under the control of MOF. The latter function will be added after PJT is transformed to Persero.)

- a. water management
- b. corporate management.

The water management nature requires PJT to be public service oriented and the corporate management nature requires PJT to be profit oriented. Under the current Perum status, PJT is required to fulfill the both. As a matter of natural, the former should go ahead of the latter. The

profit seeking should be pursued only after the public service needs are satisfactorily fulfilled. The public service has a higher priority than the corporate management. This is well recognized in the present Study.

However, the privatization of public services like electricity, telecommunication and road is a global trend. Also in Indonesia, the privatization has been progressing by such state companies as P.T. PLN (electricity), P.T. TELCOM (telecommunication) and Jasa Marga (road). It is true that water supply has some difficulties special to the sector i.e. it relates to subsistence of human life, it has the first priority in BHN (basic human needs), state government is requested to supply water even to the poorest group and so on. However, these difficulties can be overcome if some devices to cope with these including regulatory and supervisory measures are realized.

(b) Major differences between Perum and Persero

A comparison between Perum and Persero status in various aspects of management is summarized in Table A12-11. The change required when transformed from Perum to Persero is simply itemized as follows (institutional changes to be required related to the transformation are described in the chapter of "Institutions" in this report) :

- a. Enterprise status as state-owned corporation is not changed.
- b. Profit oriented management besides public service oriented management is more emphasized in Persero.
- c. The supervising ministry is changed from MPW to MPW and MOF. Accordingly, the tariff rate decision is made not only by MPW but by MPW and MOF.
- d. Main tasks of the company are not changed.
- e. The equity capital is still owned by government. Persero, however, can make public offering and private capital can be introduced for subsidiary company.
- f. Formation of joint ventures and subsidiary companies are allowed in Persero.
- g. The appropriation of profit is changed and Persero becomes more easier to accumulate its profit internally (refer the Table A12-11 for details).

(c) Rationale and merits of the transformation

The rationale for the transformation to Persero from the point of view of the overall water resources management is conceived as follows:

- a. Privatization is the government's general policy for the public service and PJT is requested to be autonomous as a business oriented body.
- b. Facilitation of investment activities may bring the company possible opportunity to expand and bring more profit.
- c. The efficiency in supplying water is able to be raised up through the competition with private sector enterprises.

- d. Activation of the whole company can be expected through profit oriented management direction. This will induce the activation of the related economic sectors in the country.
- e. The increased profit of Persero will bring an increase in tax revenue of the Government though the tax rate itself will be reduced.

(d) Conceived demerits of transforming to Persero

Major demerits to be conceived for transforming to Persero from the point of view of the water resources management are conceived as follows:

- a. Possible deterioration of the quality of the public service rendered by Persero. For this, the appropriate supervision of the Ministry in charge will be indispensable.
- b. Possible financial problems may be induced from failures in business expansion by investments by bank loans. The role of Commissioner is important.

Through investigating merits and demerits of transforming to Persero, it is proposed in this study for PJT to proceed to Persero status. As stated earlier in this section, there are two different aspects of management in PJT i.e. water management nature and corporate management nature. From the water management nature, PJT cannot expect any profit. It can expect only the full cost recovery. It is corporate management that creates profit to PJT. The profit oriented management can raise efficiency and activate the whole organization, which will induce an activation of water management as well.

4.3 Tasks and Organization of New PJT

4.3.1 General

The fundamental management concept of PJT will not be changed even after the change of organization including the consolidation and Persero transformation. The mission and the main tasks of the organization is clearly stipulated in the Minister Regulation No. 56 in 1991 and are arranged as shown below.

- i) Mission
 - a. To provide public service for the benefit of people's life
 - b. To produce profit through business oriented management
- ii) Main tasks
 - a. Water resources management
 - O&M of water resources infrastructure
 - Conservation of water and water resources
 - Development and rehabilitation of water resources

b. Corporate management

- Water sales
- Water related business development

(including tourism, contracting and consulting, equipment leasing, clean water, waste water treatment etc.)

The PJT after the consolidation with PKB and PGKS is temporarily designated as "New PJT" in this Study. And the PJT after transformed to Persero status is temporarily designated as "Persero Jasa Tirta". The future target is to establish a Persero Jasa Tirta and the New PJT is a transitory company on the way to Persero in 2005. Therefore, in this Study, the organization of Persero Jasa Tirta was designed first and some modification was made to it to obtain a picture of New PJT organization.

Broadly speaking, the tasks of New PJT will be those of current ones to which the construction and rehabilitation of river infrastructures (former PKB's tasks) and land prevention works (former PGKS tasks) are added. While, the tasks of Persero Jasa Tirta will be those of New PJT to which the commercial base businesses development are added. The structural organization thereof will be designed to effectively implement all the tasks assigned to each unit of the organization.

Tasks of water resources management required for New PJT and Persero Jasa Tirta are allotted to each Bureau and Division of the organization as depicted and proposed in Table A12-10.

4.3.2 Tasks of New PJT

The job description of New PJT in 2002 is proposed in Table A12-9 which is identical with those of Persero Jasa Tirta in 2005.

The new tasks newly added are former PKB's tasks i.e. construction and former PGKS tasks i.e. rehabilitation of river infrastructures and land prevention works. The tasks related to construction and rehabilitation works are allotted to Sub-Division of Water Resources and the tasks of river improvement is allotted to Sub-Division of River Improvement. The tasks done by PGKS will become the main job of the new Sub-Division of Land Conservation.

4.3.3 Organization of New PJT

It is proposed to make an organizational reform during the period of 1999-2001 i.e. before the start of New PJT. A structural organization depicted in Figure A12-9 is referred for the following explanation. The figure shows the organization proposed for Persero Jasa Tirta in 2005. The organization for New PJT in 2002 is identical to this figure. The number of staff for each organization unit will be naturally changed between the New PJT and the Persero Jasa Tirta.

A new Directorate i.e. Directorate for Business Development is added to the existing three. The expected function of the new Directorate comprises that of corporate planning and deviltment of

new business areas. Three Bureaus including Bureau of Corporate Planning, Bureau of Corporate Management and Bureau of Marketing will share the function.

In Directorate for Technical Affairs, the current tasks of the Bureau of Research and Development will be distributed to various Bureaus according to their original nature. The Bureau of Research and Development will be specified to its primary function of research and study works. The master plan preparation is allotted to Bureau of Technical Planning. The design works will be done by Bureau of Design. The FFWS and monitoring and control of water supply will be the job of Bureau of Monitoring System.

Directorate for Infrastructure will have two new groups of staff strengthened from PKB and PGKS all of whom is allotted to Division of Development. The staff from PKB is divided in two Sub-Divisions and the staff from PGKS is allotted to a new Sub-Division of Land Conservation. Division of O&M is almost the same Division as the current Division of Water Service. Division of Environment is newly built in this Directorate. This Division is responsible for water quality management, watershed management and river environment management. A number of experts in the respective field have to be reinforced in this Division.

Directorate for Administration and Finance shall be reinforced. The tasks which originally are to be done by this Directorate but have been shared to other Bureaus like Bureau of Research and Development, Division of Water Services and Bureau of Planning and Controlling are to be allotted to this Directorate. They include legal matters, public relations, MIS, annual budget and work plan of the company and so on. Experts in various fields including legal affairs, public relations and MIS have to be reinforced.

Three Units comprising Internal Auditing Unit, Quality Management Unit and Management Development Unit are to be attached to the Board of Directors. The responsibility of Quality Management Unit will shift from ISO 9001 to Total Quality Control and ISO 14000 in the future. The Management Development Unit is a temporary organization for all the preparatory works of Persero transformation but other two Units will continue their tasks without any time limit.

4.4 Tasks and Organization of Persero Jasa Tirta

4.4.1 General

The Management Development Unit requires experts in various fields comprising legal aspects, financial aspects and organizational aspects. Among many administrative changes, those in the financial systems will be most complicated. They include accounting principles, general ledger systems, budget control and cost allocation systems. The fundamental reform in financial systems as proposed in this Study is desirably to be completed before transforming to Persero. The financial reform required for transforming to Persero will be described in Chapter 10 in the Draft Final Report.

As stated previously in sub-section 4.2.2, the roles and responsibility of Persero Jasa Tirta comprise two aspects of management: water resources management and corporate management. The former has been done by PJT for long time since its establishment in 1990. For the latter

aspects, PJT has only a short experience. Several preliminary studies are already completed for further stages. The realization of these commercial projects is the key for success as a Persero organization. The new Directorate for Business Development is the core organization for Persero management.

As for the water resources management, administrative and financial aspects will have special importance for the sustainable development of the Persero Jasa Tirta. The negotiations with central government will be necessary for the realization of government subsidy to the Persero Jasa Tirta's service for non-specified beneficiaries in areas like river maintenance flow. Another negotiations with beneficiaries like PLN, PDAM and industries on the rational formula of tariff rates will be needed as well. The public relations activities are to be intensified so that the beneficiaries-pay concept can be accepted by irrigation farmers and fish farmers.

4.4.2 Tasks and Organization of Persero Jasa Tirta

Tasks in the field of water management will not be changed basically. However, in order to follow the business oriented management, raising efficiency and saving operation and maintenance costs in many aspects of daily activities will be required. As stated earlier, the task analysis which aims at determining the appropriate number of staff for each job unit is to be made by employing professional consultants.

Tasks special for Persero concentrate in Bureau of Corporate Management. Commercial projects in various fields are planned and studied in this Bureau. Their realization is also within the responsibility of this Bureau. Some staffs are to be reinforced from private sectors and/or hired under contract bases. Supporting works will be directly required from Sections of Public Relations and Legal Affairs to cope with issues and/or disputes anticipated in the process of implementing commercial projects.

The structural organization of Persero Jasa Tirta in 2005 is as depicted in Figure A12-9. The job description of Persero Jasa Tirta in 2005 is as presented in Table A12-9.

4.4.3 Possibility of Business Expansion

According to the Ministerial Decree No.56/PRT/1991, PJT can carry out additional tasks besides the main tasks that are stipulated in the said decree. In this case, the approval of the Minister of MPW is required. Tourism development is already included in the scope of trading of PJT in this decree.

Recently (February 1996), PJT has made a preliminary study on the seeds of new business by itself. Areas of possible business expansion comprise the following.

- (a) Hydropower related projects
 - Tulungagung Hydro Electric Power Plant (HEPP)
 - Lodoyo HEPP
 - Mendalan-Siman Energy Production Enhancement

- Karangates IV and V HEPP and Kesamben HEPP
- (b) Potable Water Supply and Waste Water Treatment
- Potable Water Supply for Kabupaten Sidoarjo
 - Potable Water Supply for South Gresik Area
 - Potable Water Supply for Mojokerto
 - Long Storage Utilization of Wonokromo River for Potable Water Supply for Surabaya Eastern Coastal Area
 - Boezem Management of Morokrembangan, North Surabaya
 - Waste Water Treatment of Surabaya River
- (c) Other fields
- Tourism Development
 - Wlingi Sand Utilization
 - Labor Training Program on Operator and Heavy Mechanical Equipment
 - Packed Drinking Water Business

Out of the above, Wlingi Sand Utilization was already implemented.

As observed from the above, these belong to the area PJT has an advantage in doing business. The structure to tackle with new business in PJT is that the initial survey and feasibility study is being done by Research and Development Bureau and then it will be handed to Corporation Development Bureau where the project will be studied in more detail for preparation for implementation.

As stated later in sub-section 4.2.2, under the Perum status, there is some restriction in financing the investment for projects. Persero status is more convenient for new investment. The shifting from Perum to Persero status would pave the way for implementing new business of PJT.

4.4.4 Possibility of Private Sector's Participation

There is some difficulties for private sector to participate in water resources management of the Brantas because water resources management has a nature of public works. However, it is possible for private sector to participate in the projects PJT is going to implement. Actually, the Wlingi slate slates factory has been started under a joint operation with a private company which is introduced in sub-section 2.1.2. The potable water supply to south Gresik is approaching final stage of preparation which is being planned under the joint venture (BOT) with a private firm. All the new projects presented in previous sub-section has the possibility of private sector participation. With the know-how of PJT and with the capital investment of private company, new projects can be implemented more smoothly.

As for tourism development, PJT has tourism resources in many spots in the Brantas. Although

some resort development has been promoted by PJT by itself, the achievements are not so good. The number of tourist visiting Selorejo and Karangates resort areas is decreasing these years. The conceivable reason of this decrease is competition with new private resorts. And another reason may be the lack of hospitality of PJT staff, which has been heard from a private company staff working for a private-run resort facilities. Tourism sector does not fit for public servants but fits for private sector people. It is recommendable for PJT to entrust the management of tourism spots like Selorejo and Karangates to private companies.