CHAPTER 8

WATER QUALITY AND WATERSHED MANAGEMENT

8.1 Water Quality of Jeneberang River

8.1.1 General

Water quality issues in the Jeneberang River are represented by; i) increasing deterioration of river waters due to domestic and industrial effluent discharged into the river, ii) aggravated pollution in urban drainage canals in Makassar City, especially during the dry season, and iii) saline water intrusion from the damaged portion of the rubber dam in the lowest reach. Of these, iii) is supposed to be solved once the repair of the rubber dam is completed in 2005.

Moreover, a major problem arising recently is the inflow of increased sediment and turbid water into the Bili-Bili Reservoir. This problem was brought about by large-scale land collapse that occurred on Mt. Bawakaraeng slopes in March 2004.

8.1.2 Present Condition

(1) River Water Quality

Of rivers in South Sulawesi Province, the Jeneberang River has better raw water quality. The extent of river water pollution can be assessed by biochemical indexes such as biochemical oxygen demand (BOD) and chemical oxygen demand (COD). Though the available data are limited, the BOD and COD values in the rivers can be summarized as below.

Comparison of BOD and COD in Rivers in South Sulawesi

(Unit: mg/l)

River	Jeneberang River [1)]	Average of other 7 rivers [2)]	Urban Drainage Canal in Makassar City [3)]
BOD	2 – 6	6 -20	20 -50
COD	8 -14	14 -50	35 -70

Note: The above figures show a range of observed data (see Figure F1.1 of Supporting Report F)

Source: 1) Environment Impact Assessment of Bili-Bili Multipurpose Project (1997-2001), 2) Hydrology and monitoring section of Dinas PSDA (2003), and 3) Observation under JICA Study (2004)

Figure 8.1 and Figure 8.2 show the seasonal variation and vertical profile of representative water quality parameters of the Jeneberang River, respectively. Though the extent is not severe, BOD values do not meet the requirement of the standard of Class-I water[1], which is classified as the water acceptable for a raw water source for drinking water supply. COD is also at a marginal level

[1] Raw Water Quality Standard of Government Regulation No.82/2001

of meeting the Class I standard.

The river water has relatively high suspended solids and turbidity during the rainy season. This is supposed to be due mainly to deterioration of the upper watershed and partly due to sand mining activities in the river.

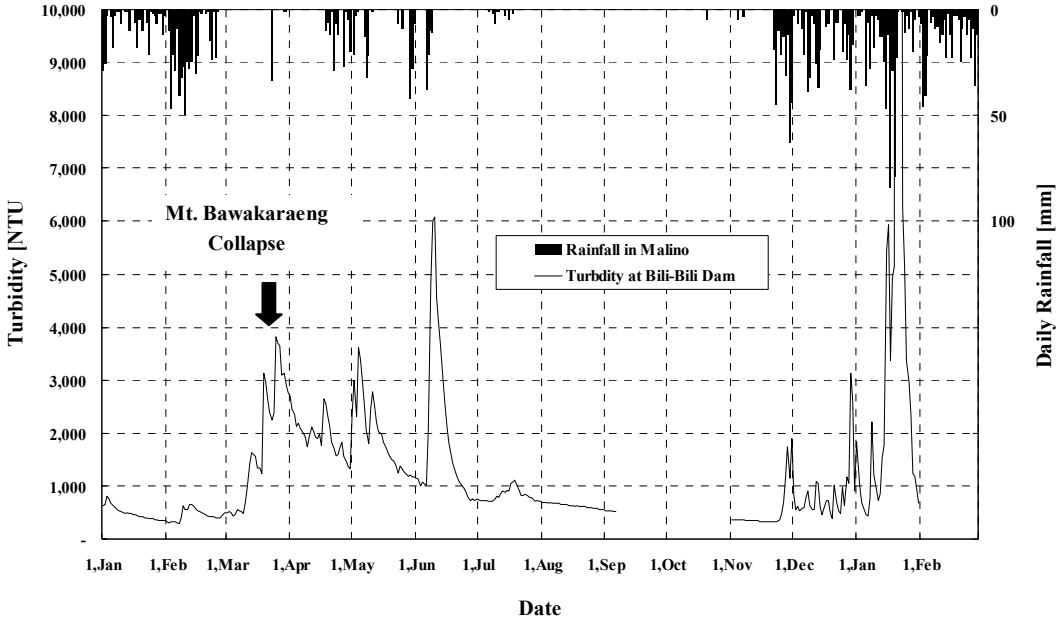
The Figures also show that river water with total nitrogen (T-N) content of 0.15 – 0.25 mg/l flows into the reservoir, which indicates increasing use of fertilizers in the upstream agriculture.

The potential sources of water pollution or contamination are summarized as; (i) domestic pollution sources located everywhere along the river stretches, (ii) industries located mainly in the lower area, (iii) agricultural activities in the upstream area, (iv) deterioration of upper watershed, (iv) sand mining activities, and (v) recent Mt. Bawakaraeng land collapse.

Figure 8.3 shows the location of potential pollution sources.

(2) Sediment Yield due to Land Collapse at Mt. Bawakaraeng

After the slope collapse at Mt.Bawakaraeng on 26th March 2004, the turbidity of river water has significantly increased and has become a serious factor especially from the viewpoint of municipal water supply. The figure below shows extraordinarily high turbidity just after the slope collapse in March and also in the succeeding April-June period following rainfall in the upper basin. The turbidity stabilized during the dry season from July to November, but again rose in the next rainy season (from December 2004).



Period: Jan. 2004 – Aug. 2004
Source: Proyek Induk (Rainfall), PDAM Makassar (Turbidity)

Record of Turbidity after the Land Collapse

(3) Pollution due to Industrial Wastewater in Downstream Reach

Currently, Bapedalda identifies 16 factories along the Jeneberang River as potential pollutant sources contributing to the deterioration of Jeneberang river water quality. Except for three factories, most are discharging waste water without pre-treatment. Bapedalda commenced monitoring of wastewater discharged from these factories in April 2004.

In 2003, Kabupaten Gowa conducted a monitoring survey of wastewater disposed from 22 industries located in the Kabupaten. The monitoring identified that most industries did not fulfill the requirements of the wastewater standard[2] in various parameters such as BOD-5, COD, acidity (pH) and total suspended solids (TSS). (see Supporting Report G).

(4) Water Quality Condition in Urban Drainage Canals in Makassar City

Presently, domestic wastewater discharges directly into the drainage canals and garbage is also disposed into canals. This reflects the inadequate practices of the general population. In the Jongaya-Panampu drainage canal, an extremely high biochemical pollution level (BOD 23-48 mg/l and COD 47-70 mg/l) was detected in September-November 2004. It is seen in the table below that the BOD and total coliforms greatly exceed the standards set forth for Class-IV water[2], which is classified as the lowest class of water.

Water Quality in Urban Drainage Canal in Makassar City (2004)

Parameters	17th, Sep. 20:00	24th, Sep. 16:00	8th, Oct. 16:30	22nd, Oct. 14:30	5th, Nov. 14:30	Standard for Class-IV Water(1
BOD	42.84	48.13	23.9	17.6	35.94	12
COD	68	69.84	47.26	35.5	57.33	100
Total Coliforms	37,000	24,000	24,000	11 million	10 million	10,000

Source: River water quality monitoring conducted under this Study as entrusted to Environmental Laboratory of University of Hasanuddin, 2004

Location: At a bridge in Jl. Sungai Sadang Baru (approximate location is shown on Figure 8.4)

Note: (1 South Sulawesi Governor's Decree No.14/2003 and Government Regulation No.82/2001

8.1.3 Water Quality Monitoring Conducted under this Study

The Study conducted a 7-month water quality monitoring program during the period from September 2004 to March 2005. The main objective was on the collection of suspended sediment load and turbidity data in connection with the Mt. Bawakaraeng slope collapse that occurred in March 2004. The work was carried out under subcontract to CES-UNHAS (Center of Environmental Science, University of Hasanuddin). The sampling and testing were made at seven locations once every two (2) weeks. The locations of sampling are shown in Figure 8.4.

[2] Sulsel Governor's Decree No.14/2003 on water quality and wastewater

Figure 8.5 shows the results of water quality monitoring during the period from September 2004 to March 2005. Both turbidity and total suspended solid (TSS) increased sharply during the rainy season from December. This indicates that debris deposits in Bawakaraeng land collapse area are still subject to heavy erosion due to rain. The observed value were relatively high even during dry season, which is compared with the value in the Jenelata River that was not affected by the Bawakaraeng collapse.

It was confirmed that all observed data of BOD, COD and total coliforms were high in the drainage canal of Makassar City, showing almost similar value to those shown in Subsection 8.1.2 (4) above.

8.2 Present Water Quality Monitoring Activities

8.2.1 Water Quality Monitoring Activities by Public Institutions/Agencies

(1) BAPEDALDA[3] (South Sulawesi Province)

BAPEDALDA is basically a regulatory agency in the field of conservation and management of environments. As one of its functions, BAPEDALDA shall take a leading role in the sector of water quality conservation and management.

In respect of river water quality monitoring, BAPEDALDA is acting as the coordinating agency for the multi-departmental PROKASIH program (Clean River Campaign) which was commenced in 1995. For the Jeneberang River, BAPEDALDA is conducting monitoring at six locations. The frequency of monitoring is however limited to once a year. The location of monitoring and observed data is shown in Figure 8.6

As stated above, BAPEDALDA also monitors the activity and effluent status of industrial factories along the Jeneberang River, presently totaling 16 sites. The monitoring activity was essentially started in 2004.

[3] Badan Pengendali Dampak Lingkungan Daerah (Regional Agency for Environmental Impact Assessment)

Existing Activities of BAPEDALDA related with WQM

- Industrial Effluent Monitoring (PP No.14/2003, No.7/2003)	
Location	: At outlet of 16 industrial factories along the Jeneberang River
Period	: Every 3 months
Analysis	: Sampling and analysis is conducted by each industrial factory itself.
Reporting	: A report should be prepared by factories and submitted to BAPEDALDA
- Raw Water Monitoring (PROKASIH)	
Location	: At 6 points along the Jeneberang River
Period	: Once a year
Monitoring Parameter	: pH, TSS, BOD, COD
Analysis	: At a laboratory of Balai Industrial Ujung Pandang

Source: Verbal information from Bapedalda

(2) Dinas PSDA

Dinas PSDA South Sulawesi incorporates the Hydrology and Water Quality Monitoring Section. This agency has conducted monitoring on seven (7) rivers in the province during the five (5) year period from 1999-2003.

(3) Other Institutions (JRBDP, Balai PSDA and Cipta Karya Makassar)

JRBDP carried out a series of water quality monitoring observations on the Jeneberang River during 1994 to 2001 under an environmental monitoring program for Bili-Bili dam project. In 2004, JRBDP conducted a water quality survey in connection with the Mt Bawakaraeng land collapse. Their activity is not, however, on a continuous basis.

Balai PSDA is assigned to carry out water quality monitoring as one of its duties of river basin management. However, the organization is still on a mobilization stage and has not yet commenced the monitoring activity.

Based on present knowledge, Cipta Karya of Makassar City is not carrying out water quality monitoring for city drainage canals on a continuous basis, apart from ad-hoc observations conducted irregularly. Some water quality data of drainage canals are available from a previous study[4].

8.2.2 Water Quality Monitoring Activities by PDAM and PLN

(1) PDAM Makassar

PDAM Makassar undertakes periodic monitoring of raw water quality at every water treatment plant (WTP) that takes water from the Jeneberang River and Lekopancing (Maros) River. A total of 32 parameters (6 for physical, 24 for chemical and 2 for biological) are fully tested in their own laboratory basically once a month. Somba Opu WTP is monitoring fundamental parameters (temperature, pH, turbidity, color and residual chlorine, etc.) daily.

[4] Master Plan and Feasibility Study on Wastewater and Solid Waste Management for the City of Ujung Pandang" in 1994

Water Quality Monitoring at Five WTPs of PDAM Makassar

	Name of WTP	Raw Water Source	Parameter	Period
I	Ratulangi	Jeneberang River	Monthly, for 32	Apr. 2000-Now
II	Panaikang	Lekopancing River	Parameters for Physical,	
III	Antang	Lekopancing River	Chemical and Biological	
IV	Maccini Sombala	Jeneberang River	Testing	
V	Somba Opu	Jeneberang River		Apr. 2001-Now

(2) PLN

Since January 2004, PLN is conducting water quality sampling on a monthly basis to assess the potential impact of water quality on the mechanical equipment of hydropower plant. In the monitoring, 23 parameters (6 for physical, 15 for chemical and 2 for biological) are tested at the laboratory of UNHAS-PPLH. According to the data collected up to August 2004, no notable contents hazardous to the equipment have been detected except for relatively high values of dissolved iron (Fe).

8.2.3 Water Quality Testing Laboratory

At present, there are four laboratories in operation in Makassar. These are listed below:

Profiles of Existing Water Quality Testing Laboratory in Makassar City

Laboratory	Operating Agency	Activities
Balai Industry	Provincial Industrial Service	➢ Conducts water quality analysis on demand of other public institutions and private enterprises, but undertakes no regular monitoring and analysis of raw water quality by themselves
Balai Health	Provincial Health Service	➢ Owns testing equipment provided under JBIC loan project ➢ Conducts water quality analysis on demand of other public institutions, but undertakes no regular monitoring and analysis of raw water quality
Bapedalda	Bapedalda	➢ Owns testing equipment provided under JBIC loan project ➢ Laboratory started operations in April 2004 ➢ Conducting river water and effluent quality monitoring
UNHAS	UNHAS	➢ Owns sufficient equipment for testing ➢ Conducts water quality analysis on demand of other organizations, including project studies

Source: Interview held by the Study Team (September 2004)

All of these laboratories have a capability to conduct ordinary items of water quality testing. The Study assumes that new Public Corporation can use these laboratories on an outsourcing contract basis and hence will not need to have its own laboratory for a certain period. Nevertheless, there will be an option to have an own laboratory in the future depending on the increase of work volume..

8.2.4 Issues in Present Water Quality Monitoring Activities

Reviewing the present water quality monitoring activities, the Study noted that improvement

would be required for the following aspects:

(a) Several agencies are conducting water quality monitoring. They are, however, mostly on an ad-hoc and intermittent basis and not based on a predetermined integrated monitoring program coordinated among the agencies concerned. The observed data are not properly reported to Bapedalda.
(b) There is no coordinated data management system at present. The data are maintained by each agency using different filing systems (hard copy or computerized file).
(c) Bapedalda has commenced monitoring of effluent discharges, but has not fully launched implementing procedures for the control of inadequate effluent disposal (such as instruction of corrective measures by polluters, fines and sanctions), although some effort is being made.

As the leading agency for water quality conservation and management, Bapedalda shall take the initiative to improve the above aspects in coordination with the concerned agencies.

For reference purpose, Figure 8.7 shows the proposed overall framework of demarcation of roles and responsibilities for water quality monitoring and water pollution control.

8.3 Legal Framework of Water Quality Monitoring and Water Pollution Control

Existing legal structures related to water quality management and pollution control in Indonesia and South Sulawesi Province are summarized in Table 8.1.

Government Regulation No.82/2001 concerning Water Quality Management and Pollution Control stipulates water quality standards for surface water through classification into the following four classes:

Raw Water Quality Standard by Water Use

Grade	Purpose
Class-I	Water usable for raw water for drinking water supply
Class-II	Water usable for recreational activity and other uses mentioned for Classes III and IV
Class-III	Water usable for fisheries and other uses mentioned for Class IV
Class-IV	Water usable for agriculture and livestock farming

Source: Government Regulation No.82/2001 concerning Water Quality Management and Pollution Control

Table 8.2 indicates the standard values set forth for respective classes of water. These standard values were also legislated at regional level by the Provincial Regulation No.7/2003. These standard values are used as guideline indices in assessing the quality of surface water used for various purposes.

Governor's Decree No.14/2003 stipulates wastewater standards for 26 different types of industry including domestic wastewater and general industrial wastewater. These standards can be used as guideline indices to control the effluents from industries. Details of the standard values are contained in Volume IV-2: Databook.

In addition to the above standards, river water quality management work will require another guideline standard that describes the target quality of river water specific for each stretch of the river. This standard has not been prepared for the Jeneberang River. Bapedalda should prepare the guideline and legislate it as a Governor Decree, based on which the new Public Corporation can undertake river water quality management in a proper way.

8.4 Water Quality Management by Public Corporation

8.4.1 Proposed Role of Corporation

As one of the elements for proper water resources management and as required in the relevant regulations, the new public Corporation shall participate in water quality monitoring and pollution control activities in a cooperative manner with the concerned agencies, including Bapedalda. As for the case being conducted by PJT I and PJT II, the role and responsibility of the Public Corporation will be as follows:

Activities to be Undertaken by the Corporation

Item	Proposed Activity
1. Water Quality Management	1) Conduct river water quality monitoring through sampling and testing at 8 proposed locations (see Subsection 8.4.2 below for detail), including collaboration with PROKASIH program 2) Release river maintenance discharge as required for maintaining the river water quality 3) Report the results of monitoring and recommend corrective measures to Bapedalda through Dinas PSDA 4) Assist Bapedalda in formulating and conducting an integrated water quality monitoring activity in the basin
2. Wastewater Pollution Control	1) Periodically monitor effluent quality at pollutant sources in addition to factories' own 3- monthly reporting currently in practice 2) Identify pollutant sources as a part of river patrol survey 3) Analyze the collected data and propose the necessary corrective measures as required 4) Report the results of data analysis and recommend corrective measures to Bapedalda through Dinas PSDA 5) Submit technical recommendation regarding the issue of effluent discharge permits on demand of Bapedalda 6) Assist Bapedalda in formulating and conducting an integrated water pollution control activity in the basin 7) Collect effluent discharge fee as service cost for the above activities, through regional tax office (collection of fee together with effluent discharge tax)
3. Data Management	1) Keep in custody all collected data in a data base system established in the Corporation 2) Exchange data among all other agencies to share the information 3) Coordinate with Bapedalda in establishing a provincial data management system 4) Disseminate the relevant information to public through Corporation's annual report, public information leaflet or web-site

8.4.2 River Water Quality Monitoring Plan

(1) Monitoring Plan

Main objectives of river water quality monitoring are placed on identifying any potential problems before they arise. The monitoring will focus mainly on the following six aspects:

(a) Adequacy of water quality for use as source of drinking water supply
(b) Hazardous industrial effluent inflow into the river in the lower reaches
(c) Effect of use of fertilizers for upstream agriculture
(d) Eutrophication of Bili-Bili reservoir water, particularly potential pollution due to fish-cage aquaculture
(e) Excessive sediment runoff from Mt Bawakaraeng area
(f) Excessive aggravation of water quality in drainage canals in Makassar City

Eight (8) locations are selected for monitoring of the river water quality as shown in the table below (see Figure 8.8 for the locations). Of the 8 locations, observation of No.8 shall eventually be taken over to the Cipta Karya of Makassar City in the future.

Proposed Sampling Locations in the Jeneberang River

No.	Location	`Sampling Point	Number of Samples
1	Sabo Dam No.4	Under the Daraha bridge	1
2	Sand Pocket No.2	At overflow weir	1
3	Bili-Bili Reservoir	At 1) surface 2) middle and 3) bottom depths at center of Bili-Bili Reservoir	3
4	Bili-Bili Dam Site	Near outlet of Bili-Bili Dam (near the intake facility of PDAM)	1
5	Kampili	Near the irrigation gate	1
6	Malengkeri	Near the intake facility of PDAM	1
7	Long Storage (Maccini Sombala)	Near the intake facility of PDAM	1
8	Jongaya-Panampu Drainage Canal	Near the flushing gate	1

In view of the objectives of the monitoring, the testing parameters shall cover the following:

Proposed Water Quality Monitoring Parameters

Parameter	A. Upstream of Reservoir	B. Downstream of Reservoir	C. Downstream
Turbidity, Temperature, pH, Electric Conductivity, TSS, and TDS	○	○	○
BOD, COD, PO_4^-, T-N, NH_3-N, NO_3-N, and NO_2-N	○	○	○
Pb, Fe, Ca, Cr^{6+}, Cd, Hg, Mn, As, and CN		○	○
Cl^-, Na, and Mg			○
Fecal Coliforms, Total Coliforms (T-C)	○	○	○

8.4.3 Financial Source

Water quality monitoring is a service essential for public health and environmental conservation, but no revenue income is expected for the Corporation. Thus, the expenditure incurred by the Corporation for water quality monitoring shall be borne by the Government under a concept of

public service obligation (PSO) or Government responsibility principle.

Existing regulations (Government Regulation No.6/1981) stipulates that polluters shall pay a fee to the river management body to compensate for having caused contamination of water. Based on this concept, the Corporation can collect a fee from polluters. However, there is no regulation specifically applicable for the Jeneberang River basin. MPW or regional government shall legislate a new decree similar to Kimpraswil Decree No.342/KPTS/M/2002 issued for PJT I (authorization of PJT I to collect fees including effluent discharge fee). The fee rate shall also be agreed between stakeholders.

8.4.4 Service Schedule and Cost Estimate

Provision of these services will be a burden on the Corporation during the initial phase of operation since no revenue income is expected for them. It is proposed that the Corporation would commence these services only after it has established a firm revenue-collecting system; for instance, commencing the services after 3 years of operation.

Annual direct cost of the services incurred by the Corporation is estimated to be around Rp. 366 million (see Supporting Report F), which is regarded as part of the Corporation's routine operation cost added to the O&M cost estimated in Chapter 7.

8.5 Present Condition of Watershed Conservation

8.5.1 General

This Section describes the outline of watershed management issues the new Public Corporation should take into account in conducting river basin management. The main focus was generally placed on forestry conservation, natural environment conservation, and fishery development and conservation.

8.5.2 Land Coverage in the Basin

(1) Current Status of Land Use

According to the latest data obtained from Dinas Forestry of Gowa Regency (2004), land use in the Jeneberang River basin is dominated by forest (45.3%), grass land (27.3%), paddy field (13.0%), mixed estate crop field (7.3%), dry crop field (4.9%), dam reservoir area (1.5%) and urban area (0.6%). It is noted that forest land of varying types cover some 53.4% of the upper catchment upstream from the confluence of the Jeneberang and Jenelata rivers.

Land Use in the Jeneberang River Basin

No	Classification of Land Use	Upper Reaches from Confluence with Jenelata		Lower Reaches from Confluence with Jenelata		Basin Total	
		(ha)	(%)	(ha)	(%)	(ha)	(%)
1	Forest Area	32,929	53.4	1,716	11.7	34,646	45.3
2	Grass Land	18,193	29.5	2,668	18.1	20,861	27.3
3	Mixed Estate Crop Field	2,280	3.7	3,284	22.3	5,564	7.3
4	Paddy Field	3,892	6.3	6,035	41.0	9,927	13.0
5	Dry Crop Field	3,227	5.2	548	3.7	3,775	4.9
6	Dam Reservoir Area	1,170	1.9	-	0.0	1,170	1.5
7	Urban Area	0	0	465	3.2	465	0.6
Total		61,691	100	4,716	100	76,408	100

Source: Department of Forestry Services, Kabupaten Gowa, 2004
Note: These land use statistics show different features from the figures in other literature, presumably due to use of different land use classification criteria.

A land use map of the Jeneberang river basin is shown in Figure 3.5 in Chapter 3. It is noted that the land use classification used in the Figure 3.5 is slightly different from those of the above table, since both are based on land used data of different sources. Figure 8.9 shows a land use plan contemplated by PDAS.

(2) Change of Land Coverage

According to the CEPI-PPLH UNHAS study in 2001, it was identified from the interpretation of Landsat images in year 1987 and 1996 and Spot image in year 1996 that a considerable change in land use coverage has taken place during the period. The results are summarized below:

Changes of Land Use Cover in the Jeneberang River Basin

No	Kind of Cover Crops	Landsat 1987		Landsat/Spot 1996	
		Area (ha)	%	Area (ha)	%
1	Forest	25,845	34.46	17,250	23.00
2	Dry-land	22,118	29.49	28,845	38.46
3	Wetland paddy	19,973	26.63	18,383	24.51
4	Settlement Area	3,314	3.93	5,909	7.69
5	Bushes	3,750	6.15	4,613	6.15
Total		75,000	100.00	75,000	100.00

Source: Center for Environmental Survey of Hasanuddin University (CEPI-PPLH UNHAS), 2001
Note: Some figures above, especially total land area, are different from those shown in the table in (1) above, which is due to different origins of the data

Because of population growth and development activities, land coverage in the upstream area of Jeneberang River basin has changed year by year. Horticultural farming practice and tourism activities in the upstream area generated a change in land coverage pattern from forest area to horticulture cultivation, tourism infrastructures, and supporting facilities. Local people (generally farmers) have cleared the forest for new agricultural land and also for housing land (villas). Moreover, agricultural investors also had a role in land coverage change.

As shown in the table above, within one decade (1987 – 1996), land coverage in the form of forest area decreased by around 10% from 25,845 ha (1987) to 17,250 ha (1996). Presently, forest is found around Mt. Lompobatang at EL.1,500-2,800 m and along Bulu Bila, Bulu Ruku-Ruku,

Bulu Serongan regions in elevations ranging from EL.1,300-1,500 m. Some forest coverage in scattered locations in upstream areas are also observed at EL.700-1,000 m where steep land slopes exceeding 40% exist.

Land coverage on dry-land farming, which includes rainfed paddy field, estate crop field and mixed estate crop field, increased by about 9 % from 22,118 ha to 28,845 ha. This is largely found on steep lands with a slope of about 10 – 30%. This dry-land farming is mainly cultivated by local people in the upstream area of Jeneberang River basin, in the form of horticultural crops in Bulutana Village, cacao and coffee in other villages within Kecamatan Tinggi Moncong, and corn, cassava as well as sugar cane estate cultivated by PTP Nusantara XIV (a state-owned estate company).

Paddy field is generally found on land with a relatively mild-slope. Large areas of paddy field exist in the downstream area, these being cultivated intensively under the Bili-Bili, Bissua and Kampili irrigation schemes. Paddy field is also found in the middle reach of Jeneberang River; some are along the river terraces adjacent to the river channel in the reach upstream of Bili-Bili reservoir.

Settlement is generally based on a clustered model. Such a model has been applied since flat land area is very limited particularly in the upstream area. Settlement area increased within one decade by about 3% from 3,314 ha (1987) to 5,909 ha (1996). This increase took place mainly around Malino in the upstream area.

8.5.3 Current Issue Prevailing in the Basin

(1) Forest Conservation

As stated above, land use conversion has reduced forest area in the upstream basin and impacted on the forest ecosystem. It has also generated further impacts on the hydrology, which in turn affects other aspects such as increasing the max.-min. discharge ratio, drought duration in the downstream area, excessive sediment yield, and so on.

The need for forest conservation should be jointly pursued, and not simply regard as the responsibility of Forestry Services. Comprehensive planning by involving all stakeholders is required so that all parties accept a level of responsibility.

(2) Conservation of Natural Resources

Degradation of other natural resource environments, such as river environment, sand mining and other resources, were caused by a lack of government apparatus and the communities' knowledge on sustainable natural resources management. Therefore, it is necessary to formulate an integrated natural resources management concept in order to ensure the lack of management of certain natural resources will not have disadvantageous effects on other resources.

(3) Fishery Resources

The number of households engaged in the fishery sector is presently 2,748 RTP (RTP: fisherman household), which corresponds to about 2.31% of total households within Kabupaten Gowa. Of the total PTP, those engaged in fish culture amount to 1,419 and those engaged in fishing in common waters amount to 1,329.

Fish catching by RTP for commercial and non-commercial purposes along the Jeneberang River is done without considering the carrying capacity of fishery resources. This has resulted in over-fishing. Therefore, sustainable management of fishery resources is required.

8.5.4 Forest Conservation Activities

(1) Conservation Activities by Forestry Services

Forestry Services of Kabupaten Gowa has a vision of accomplishing forest conservation based on the provision of professional management for community welfare through self-determination approaches. To achieve the vision, Forestry Services has a mission to restore, maintain and improve forest functions as a livelihood alternative and as production resources. Based on these visions and mission, forest conservation is one of the priority objectives of the Gowa Forestry Services.

Since 2003, Gowa Forestry Services has been implementing a master plan for the forest conservation sector for a 5-year period (2003–2007). The plan was incorporated in the National Campaign for Land Rehabilitation and Forest Rehabilitation (GNRHL). The plan consists of five programs shown in the table below:

Forest and Land Rehabilitation Programs in Jeneberang Basin, 2003 – 2004

No	Activities	Quantity	Location
1	Land Rehabilitation / Public Forest a. Area(ha) b. Seed requirement (Seed)	 1,075 537,500	Tinggimoncong, Bungaya
2	Recharge Well Construction a. No. of wells (unit)	 24	Tinngimoncong, Bungaya, Parangloe
3	Seedling a. Volume (unit) b. Production (Seed)	 19.75 3,585,000	Tinngimoncong, Bungaya, Parangloe, Bontomarannu, Barombong, Sombaopu
4	Check dam construction a. No. of dams (unit) b. Length of dam (mean, meter)	 37 34.38	Tinngimoncong, Bungaya, Parangloe
5	Forest Rehabilitation / Reforestation a. Area (ha) b. Seed requirement (Seed)	 2.95 5,900,000	Tinggimoncong, Bungaya

Source: Forest Service, Kabupaten Gowa, 2003

(2) Conservation Activities by Communities

Conservation activities by communities in Jeneberang River Basin are carried out by establishing

community groups as outlined below:

a) Forest Farmers' Group (Kelompok Tani Hutan (KTH))

This farmers' group, which is guided and directed by Forestry Services, is the origin of the group that carries out social forestry. Members of the farmers' group are the communities who live around protected forest area and are allowed to cultivate in the protected forest area under special authorization. Types of plants to be cultivated in the protected forest area are 70% forest plants and 30% multi-purpose tree species, including non-forest wood plants such as petai (tree that produces beans with pungent odor), jackfruit, breadfruit, coffee, etc. Seed requirements are provided by Forestry Services or by communities themselves.

b) Reforestation Farmers' Group (Kelompok Tani Penghijauan (KTP))

This farmers' group members includes peasants that take care of reforestation activities outside the forest area. Plants are selected based on their own needs. However, if Forestry Services has a stock of such plants, communities may have them free of charge.

c) Natural Resources Conservers' Group (Kelompok Pelestari Sumber Daya Alam (KPSA))

Organizationally, this group has a large network nation-wide and is active in entire sectors such as forestry, agriculture, plantation and fisheries. The major activities are, broadly speaking, associated with natural resources conservation. Periodically, KPSA holds national conventions in different places, and gives awards to the best KPSA nationally. In Jeneberang River Basin, KPSA located at Malino, has achieved a national award.

d) NGO Consortium

This consortium has members of seven NGOs that are active in the environmental sector. The consortium has obtained authorization from Kabupaten Gowa government. Every activity that requires NGO assistance in Kabupaten Gowa must be recognized by this consortium and executed by one of the consortium members. Such activities include institutional or communal capacity development as well as physical forestry activities in the field. Capacity development for communities is undertaken in the form of training, education, advocacy, dissemination, etc, whereas the physical activities include tree planting, demonstration plots (model plantations), etc. The consortium is also involved in the activities of GNRHL (National Campaign for Land Rehabilitation and Forest Rehabilitation).

(3) Illegal Logging Control

Control of illegal logging activities has been undertaken in several ways such as (i) intensifying control on illegal logging by Forest Rangers, (ii) punishing every person involved in illegal logging, (iii) socialization of the hazards of illegal logging, and (iv) installation of warning and

caution posts in the forest area bordering settlement areas and roads.

According to Forestry Services of Gowa, it is planned to form an integrated team for illegal logging control, consisting of forestry agency, police, prosecutor and representatives from other related agencies (Bapedalda, Universities).

Additionally, Forestry Services has also established Kelompok Pengaman Hutan (Forest Protector Group) in every RPH (Forest Ranger Resort) at Kecamatan level, which consists of about 60 peoples in each group. The groups have run their activities for two years in cooperation with forest rangers. Their duties include organizing fire fighting activities and protection against any types of disturbances such as clearing, stealing, illegal logging, etc. There are 6 (six) RPHs within Jeneberang River Basin, with a Forest Protector Group being organized for each.

8.5.5 Environmental Resources Conservation

(1) Environment Condition of Jeneberang River Basin

a) Water Quality

Water quality conservation is an important element of overall watershed management. A program to be undertaken by the new Public Corporation was proposed in Section 8.4.The program shall be implemented in integration with other watershed conservation programs described below.

b) Sediment Yield

Bili-Bili reservoir is designed with a sedimentation capacity of 29 million m^3 (of a gross reservoir storage capacity of 375 million m^3). This sedimentation capacity can accommodate a sediment yield of 1,500 $m^3/km^2/year$ from a 384.4 km^2 catchment for the period of 50 years. This was estimated based on basin conditions prevailing at the time of dam design. Subsequently, a revised estimate of sediment yield was made incorporating the change of basin conditions. This has been reassessed as 1,794 $m^3/km^2/year$[5]. The balance from the original estimate of 294 $m^3/km^2/year$ was planned to be trapped in Sabo dams and sand pockets. Eight in total (of which one was abandoned in 2004) have been built in the reaches upstream of the Bili-Bili dam catchment. Further, a subsequent study by UNHAS estimated the yield rate may be as large as 2,043 $m^3/km^2/year$. Utmost attention therefore needs to be paid to this increasing trend in sediment yield.

A particular aspect now arising, however, is the substantial increase in bulk sediment yields from the Mt Bawakaraeng area caused by recent mountain slope collapses. Countermeasures for this issue were discussed in Subsection 7.6.6 of Chapter 7.

[5] Detailed Design of Environmental Improvement Works and Raw Water Transmission Main in the Bili-Bili Multipurpose Dam project (Phase II), October 1994, CTI Engineering

c) Other Environmental Issues

In depth interviews with the Head of Bapedalda of Kabupaten Gowa were held on 28 June, 2004 in order to identify other potential issues in Jeneberang River Basin. The interview noted three major environmental issues.

a. Groundwater pollution

Some studies (e.g. JICA study conducted in 1994) reported that groundwater is being contaminated with saline water in some parts of the coastal area, although the extent is still not a major problem. Other information sources, however, state the relatively low quality of groundwater in the area is due to particular soil properties. Another problem arising is that shallow household wells are contaminated by the inflow of sudsy water, which is presumably due to pollution by detergents. Further study is needed to grasp the actual condition of groundwater, especially salinization.

b. Deviation of town development from Urban Spatial Plan

It is reported that more than 20% of urban development activities around Sungguminasa do not conform to the spatial plan determined by the regional government. This circumstance is closely related to the location of Sungguminasa, which is adjacent to Makassar City. Development of the urban area in Sungguminasa area is rapidly increasing, while monitoring activity by the regional government (Dinas Spatial Plan) frequently lags development activities.

c. Air pollution

Based on monitoring activities conducted in accordance with the 'blue sky campaign program' by Bapedalda, it was identified that the PM 10 parameter has exceeded the prescribed quality level at some places within the urban Sungguminasa area. Accordingly, high particle content of about 10 microns in the urban air may generate ISPA (respiratory disease).

(2) Environmental Conservation Activities by Bapedalda

Bapedalda of Kabupaten Gowa is conducting various activities including monitoring of river water quality, wastewater quality, and air quality. Such activities are being conducted in line with national programs, known as 'Clean River Campaign' (PROKASIH) and 'blue sky campaign program'. Major items of water and other environment-related activities undertaken by Bapedalda for the budgetary year 2004 are as follows:

(i) Blue Sky Campaign; air quality monitoring and analysis
(ii) Clean River Campaign; river water and wastewater quality monitoring and analysis
(iii) *Bangun Praja*; for clean urban environment
(iv) Providing vegetation plant seeds for communities who live in bordered regions with

forest area

(v) Dissemination to farming groups regarding environment-friendly agricultural practices

(vi) Urban vegetation

(vii) Encouragement for Kalpataru (environment preservation contribution)

8.5.6 Fishery Development and Conservation

(1) Fishery Condition of Jeneberang River Basin

The agricultural sector, which has a strategic role for Kabupaten Gowa's economy, contributes about 43.76% of total GRDP, while the fishery sub-sector's contribution is about 0.32% (CBS, 2002).

In Kabupaten Gowa, there are some potential fishery resources such as coastal fishponds, fresh-water fishponds, and paddy field, swamp, rivers and reservoirs. Prominent fishery commodities include gold fish (carp), blue dye fish (nila), red nila, milk fish and shrimp.

Fish production in 2002 was as follows:

Fish Production in Jeneberang Basin in Year 2002

Production Source	Production (ton)	Production Value (Rp. million)
Swamp	212.9	823.2
River	164.5	564.3
Coastal Fishpond	58.1	1,096.8
Inland Fishpond	86.8	545.9
Paddy field	118.1	826.8
Total	640.4	3,857.0

Source: Fishery Service of Kabupaten Gowa

(2) Fishery Resources Development and Conservation

Fishing in the common waters or along the Jeneberang River including the Bili-Bili reservoir, either for commercial and non-commercial purpose, is a real necessity for local people. The resources will be endangered if not properly conserved. Government of Kabupaten Gowa, via Fishery and Marine Services, has implemented the following strategies:

(a) Freshwater culture development (in fishpond and paddy field), which aims at the intensification of production and quality improvement.

(b) Coastal fishpond culture development, which aims at intensification improvement by means of efficient and effective technology application and introduction.

(c) Fishing activities in the common waters (swamp, river and reservoir), which are guided to rationalize resource utilization by means of restocking. Additionally, improved catching techniques are attempted, including arrangement of types, number and size of net meshing

for fishing gear.

(d) Freshwater young fish business development, being led by *Balai Benih Ikan* (Spawning Centre) and *Unit Pembenihan Rakyat* (Public Spawning Unit), aims at improving young fish quality and quantity through single young fish spawning.

(3) Fishery Potential in the Bili-Bili Reservoir

a) Present Fishing Activity

Major types of fish caught in the Bili-Bili reservoir are Common Carp (*Cyprinus carpio*), Javanicus Java Carp (*Carp Puntius*), Nile Tilapia (*Trichogaster pectoralis Spotted Gourami*), Gabus (*Ophiocephalus striatus - Murrel*), Nilem (*Osteochilus hasselti - Carp)* and Sepat Siam. Production quantity and value from fishing activity in the Bili-Bili reservoir are summarized below:

Fish Production Quantity and Value by Kind in the Bili-Bili Reservoir, 2002

Kind of Fish	Production (ton)	Value (Rp.1000)
1. Common Carp (*Cyprinus carpio*)	30.9	216,300
2. Javanicus Java Carp (*Carp Puntius*)	12.2	28,975
3. Nile Tilapia (*Trichogaster pectoralis Spotted Gourami*)	48.7	170,450
4. Gabus (*Ophiocephalus striatus - Murrel*)	8.1	36,450
5. Nilem (*Osteochilus hasselti - Carp)*	4.9	11,025
6. Sepat Siam	10.5	26,095
7. Other	14.5	37,615
Total (2002)	129.8	526,910
Last Year (2001)	125.5	509,515

Source: Fishery and Marine Services of Gowa Regency, 2002.

In 2002, total fish production in the Bili-Bili reservoir was 129.8 ton. an increase of about 4.3 ton from the previous year (2001). The above Table shows that Nile Tilapia was the largest production in terms of quantity (about 48.7 ton), while Carp had the highest production value at about Rp. 216.3 millions. The number of trips and production quantity by type of fishing gear are shown below:

Number of Trips and Production Quantity by Kind of Fishing Gear (Bili-Bili Reservoir, 2002)

Kind of Fishing Gear	No. of Units	Trip	Production (ton)
1. Gill-net static	298	12,012	84.1
2. Fishing rod	128	7,987	15.9
3. Bubu *	58	3,214	5.5
4. Other	60	9,772	24.3
Total (2002)	544	32,985	129.8
Last Year (2001)	542	32,850	125.5

Source: Fishery and Marine Services of Gowa Regency, 2002.
Note: * Plaited rattan fish trap

As indicated in the Table above, fishing gear largely used by RTP (fisherman household) is

gill-net static (298 units). Fish production using gill-net static (84.1 ton) was larger than for other fishing gear in 2002. The use of gill-net static increased from the previous year, and is foreseen to increase further. It is required to formulate a regulation on fishing gear dimension (size) to prevent over-fishing in the Bili-Bili reservoir, particularly for gill-net static. Fish hatcheries using fish floating net-cages are still not popular in the reservoir.

Fish production in the reservoir tends to decrease due partly to over-fishing. A measure to be introduced is to guide fishermen to use nets having mesh sizes of three (3) inches. A previous study[6] mentioned that, in the case of larger sized nets, the production of Nila Fish and Gold Fish would increase by about 30% and 15%, respectively.

b) Fish Culture Potential in Bili Bili Reservoir

A fish hatchery using fish floating net-cages is one of the activities that may be developed in the Bili-Bili reservoir in the future.

According to the previous UNHAS study, the observed average total phosphate concentration in the reservoir waters (April 1998 – March 1999) was 31.8 mg/m^3 before hatchery activities began. Assuming a maximum total phosphate concentration in tropical reservoir waters of about 250 mg/m^3 (Beveridge, 1984), the reservoir capacity to receive an additional phosphor load is estimated as 218.2 mg/m^3.

In reference to the Beveridge formula (1984), the maximum amount of phosphor load from fish floating net-cage is calculated as 7.70 gram/m^2/year. If the effective reservoir surface area is 1,233 ha (of 1,850 ha at surcharge water level), then the total maximum phosphor load that can be received in the reservoir is 94,940 kg/year. It is also estimated that production of one ton of fish will result in an additional 22.6 kg phosphor load into the water (P-environment). Based on these figures, it is calculated that potential weight of fish that can be produced in the reservoir from fish floating net-cages is about 4,200 ton/year.

The production of fish in floating net-cages is estimated as 15 kg/m^3. Based on this production level, should the fish floating net-cage have a depth of 2.5 m, then the proposed fish floating net-cage gross area would be about 5.6 ha or 0.5% of the effective reservoir area (1,233 ha). According to criterion proposed by the Fishery Centre of Research and Development of Agricultural Department (1991), the appropriate area of a fish hatchery by fish floating net-cages using intensive systems is 0.25 – 1.0% of effective reservoir waters. The above figure of 0.5% falls within this allowable range.

The above indicates that Bili-Bili reservoir has great potential to develop a fish hatchery industry, which should be promoted with priority.

[6] Study on Integrated Management of Jeneberang River Basin – Phase II, Center for Environmental Study, Hasanuddin University (UNHAS), 2001

A constraint arising recently is the excessive turbidity of the reservoir water due to high sediment yield from the Mt Bawakaraeng collapse. Lack of sun light in turbid water will certainly result in unfavorable conditions for breeding young fish fry. It is expected, however, that the current excessive turbidity will diminish within several years once Sabo works presently envisaged by JRBDP are completed and the sediment yield from the upstream part reduces.

8.6 Watershed Conservation Program

8.6.1 Main Focuses in River Basin Management

From the river basin management aspect by the new Public Corporation, the main interests will be placed on the following:

(a) Reduction of sediment yield from the upper basin
(b) Conservation of water resources by increasing water holding capacity in the upper basin
(c) Conservation of natural environments in the river course
(d) Conservation of fishery resources, particularly in the Bili-Bili reservoir

Of the above, item (a) - reduction of sediment yield, will need the utmost attention and active participation by the Corporation.

8.6.2 Measures for Reduction of Sediment Yield

There are various types of measures, both structural and non-structural, to reduce sediment yield. Among these, the following may be the main activities:

(1) Reforestation

As described before, transformation on forestry resources is taking place due mainly to uncontrolled conversion from natural forest to crop forest, cultivation and settlement areas, and also more recently from crop forest to cultivation and settlement areas. A major driving force of this forest transformation is the expansion of horticulture plantations, especially potatoes and vegetables, which have good and continuous marketability.

A report of Dinas Forestry and Land Conservation of Kabupaten Gowa (year 2000) estimated that during the last ten years forest area converted to other uses has reached 10-15% of total forest area. The report stated that existing forests requiring a reforestation program total around 2,050 ha. The reforestation program will be implemented for those areas with Dinas Forestry Services playing a leading role, to which the Public Corporation will provide necessary assistance.

(2) Forest Management

Other than the reforestation program, the UNHAS study in 2001 proposed the following forest exploitation and conservation plans:

Exploitation of existing pine forests is possible by planting coffee with proper cultivation and silviculture technique, so that it may not disturb the trees. Another proposed activity is *gondorukem* production by employing local people as sap/latex incisors. For example, Dinas Forestry and Land Conservation of Kabupaten Gowa reported that incision activities have contributed additional income for more than 500 families in RPH Malino area. Encouragement of these economic activities will reduce the uncontrolled cutting of trees in the area.

Conversion of public forest to horticulture plantation can still be done by maintaining areas for Acacia trees or Eucalypts, without felling existing in-situ trees. This method may be realized by applying agro-forestry techniques, particularly by preserving dense trees on the edge of plantation areas to act as erosion and sedimentation control zones.

Intensification of greenbelt functions occurs along rivers and around the reservoir by planting multipurpose trees that will contribute to improved community incomes, particularly on the steep slopes in upstream areas. The width of greenbelts should be sufficient to effectively prevent sediment inflow into the water body and be preserved permanently. Land behind the greenbelt may be used for plant cultivation with due care to prevent surface erosion in the manner proposed in (3) below.

These proposed measures appear to be practical and to meet community requirements in a sense that the land is still usable for income generation of the communities.

(3) Land Use Practices

Farming most common in the upstream area is food crop farming in the form of rainfed paddy, horticulture plants (vegetables) and plantation. Sediment yields can be reduced by exercising improved land use practices in those areas.

Paddy Field Farming is found both in flat and hilly areas. In the hilly area, paddy field farming should be done by applying land use practices based on bench terracing following contour lines.

Horticulture Farming (vegetables) occurs in the garden or yard, mixed garden, non-irrigated field, rainfed field, and agro-forestry areas. Main vegetables commonly planted are potato, cabbage, leek, and tomato. This horticultural farming is being done in flat to hilly (0 – 40% slope) areas; farming areas in hilly land are possibly subject to extensive erosion. Conservation efforts can be implemented by constructing embankments on contour lines, planting along the contour lines (especially for potato), benched terraces, or combinations of embankment and terracing.

Plantation business, such as tea, passion fruit, and coffee, have developed by involving investors/corporations (e.g. Nitto Tea, Marikisa Malino), although the plantation area has not increased much recently. Coffee plantation still continues to expand, being mainly planted under pine trees (this practice is officially permitted by Forestry Agency). Applied land use efforts include benched terraces, embankment terraces, and planting methods following contour lines, or mix/combinations as well as land covering efforts involving year-round vegetation (especially

tea) using rotary crop systems.

These measures, if properly executed, would contribute greatly to the reduction of sediments yields.

(d) Structural Measures

Typical structural measures conceived in the basin to reduce sediment yield include check dams, sand pockets, gully protection, channel consolidation work, and various types of hillside erosion control work (e.g. planting work, lateral drain, fence work, slope greening work, etc.).

Several types of work will be implemented by Dinas Forestry Service of Kabupaten as appropriate for each location. Public Corporation will provide technical services (design and construction supervision) and also provide funding assistance for those structural woks.

8.6.3 Watershed Management by Public Corporation

(1) Role of Public Corporation Stipulated in Law

New Water Resources Law No. 7/2004 prescribes in Article 47 (3) that 'Business entities (incl. Public Corporation) and individuals must participate in conducting water resources conservation activities and improving the welfare of the surrounding community'.

'Draft Government Regulation (GR) on Corporatization of Water Resources Management in River Basins', although it is still a draft version, seems to indicate the MPW's latest concept of public corporation's roles and duties. This Draft GR states in Article 13:

(i) the implementation of the activities of water resources management as stated in Article 12 covers conservation, efficient use of water resources and control of water damaging force (e.g. flood)
(ii) conservation, as stipulated in (1), includes the activities of water resources protection, water conservation and water quality management

It is understood, on one hand, that the leading role of watershed conservation is taken by Dinas Forestry in the field of forest conservation and by Dinas Plantation / Dinas Agriculture in the field of land use practices in cultivation areas. Hence, the main role of Public Corporation will be the participation on a collaboration concept basis in those watershed conservation activities. Collaboration on watershed management activities is one of the off-stream services for the Corporation.

(2) Proposed Watershed Management Activities by Corporation

It is proposed that, for the period of the mid-term plan (initial 5 years), the Corporation will provide the following services in the watershed conservation sector:

Proposed Watershed Management Activities by Corporation

	Description	Purpose
1.	Reforestation and Forest Management (a) Donation of seeds and/or seedlings to Dinas Forestry and communities (b) Provision of technical recommendation regarding priority area of reforestation / forest management, particularly from aspect of sediment yield reduction	SYR & WRC
2.	Improvement of Land Use Practices (a) Donation of fund for land use practice improvement work undertaken by Dinas of local government and communities (b) Provision of technical recommendation regarding priority area of land use practice improvement, particularly from aspect of sediment yield reduction	SYR
3	Structural Measures for Sediment Yield Reduction (a) Donation of fund for sediment yield control work undertaken by Dinas of local government and communities (b) Planning, design and construction supervision service of structural works in assisting Dinas of local government	SYR
4.	River Environment Conservation (a) Periodic inspection of condition of river course to identify any adverse issues such as physical damages on river channel, environmental deterioration, etc., (b) Implementation of corrective measures as required as part of river channel maintenance work	REC
5.	Fishery Resources Conservation (a) Monitoring of fish culture activities in the Bili-Bili reservoir so that over-development of fish-cage aquaculture should not occur (b) Reporting to local government (Dinas Fishery) regarding condition and recommendation of corrective measures	FRC

Note: SYR: Sediment yield reduction, WRC: Water resources conservation, REC: River environment conservation, FRC: Fishery resources conservation

(3) Service Schedule and Cost Estimate

Provision of these services will be a burden to the Corporation during the initial phase of operation since no direct revenue is expected from them. It is proposed that the Corporation would commence these services only after the Corporation has consolidated firm revenue income; say, commencing the services from the 3rd year after operation.

Annual direct cost of the services incurred by the Corporation is estimated to be around Rp. 285 million (see Supporting Report G), which is regarded as part of the Corporation's routine operation cost added to O&M cost estimated in Chapter 7.

Table 8.1 Existing Legislation related with Water Quality Management

Title of Document	Kind of Document	Main Contents
National Law		
State Law No.23/1997 on Environmental Management	State Law	- Stipulates general framework: ➢ Strengthening of environmental regulations on business operations ➢ Strengthened penalties ➢ Enhanced regulations for environmental disputes ➢ Introduction of the right of the public on environmental information
Government Regulation No.82/2001 on Water Quality Management and Pollution Control *)	Government Regulation	- Revision of raw water quality standard and determines standards for 46 parameters for 4 kind of water use - Delegation of authority on water quality management to regional government
Minister's Decree No.51/1995 on Industrial Effluent Standard for 21 industrial activities	Minister's Decree of Ministry of State's Environment	- Determines effluent liquid standard for 21 industrial activities - Guideline for evaluating and calculating the amount of wastewater
Ministerial Regulation No.416/1990 on Clean Water	Ministerial Regulation of Ministry of Health	- Determines standards for; i) drinking water, ii) clean water, iii) water for swimming pool, and iv) water for public bath
Regional Regulation		
South Sulawesi Provincial Regulation No.7/2003 on Water Quality Management and Pollution Control	Provincial Regulation	- Provincial standard for water quality and wastewater regarding national standard and guidelines - Delegation of authority for water quality monitoring and pollution monitoring - Demarcation for water quality management among relevant agencies/institutions - Procedure and criteria for issuing effluent license
SS Governor's Decree No.14/2003 on Water quality and Wastewater, air condition management	Provincial Decree	- Determine wastewater quality standard for 26 industries, domestic, hotel, hospital and general industrial activity
(Draft Regulation)		
- Water Pollution Control in South Sulawesi Prov.	Provincial Level	- To determine detailed procedure for wastewater monitoring and pollution control, such as reporting and giving technical guidance to factory

Source: Field Survey by the JICA Study Team (2004)

Note: *) As of Nov. 2004, GR is under the revision by MPW (former Kimpraswil)

Table 8.2 National Water Quality Standard for Water Quality Management (Government Regulation No.82/2001)

Parameter		Unit	Class				Remarks
			I	II	III	IV	
A. PHYSICAL							
Temperature		°C	± 3	± 3	± 3	± 5	from the natural condition
Total Dissolved Solids	(TDS)	mg/l	1,000	1,000	1,000	2,000	
Total Suspended Solids	(TSS)	mg/l	50	50	400	400	
B. INORGANIC CHEMICAL							
pH			6-9	6-9	6-9	5-9	
Biochemical Oxygen Demand	(BOD)	mg/l	2	3	6	12	
Chemical Oxygen Demand	(COD)	mg/l	10	25	50	100	
Dissolved Oxygen	(DO)	mg/l	6	4	3	0	Minimum Value
Total Phosphate	(T-P)	mg/l	0.2	0.2	1	5	
Nitrate Nitrogen	(NO_3-N)	mg/l	10	10	20	20	
Ammoniac Nitrogen	(NH_3-N)	mg/l	0.5	(-)	(-)	(-)	≤ 0.02 mg/l (**)
Arsenic	(As)	mg/l	0.05	1	1	1	
Cobalt	(Co)	mg/l	0.2	0.2	0.2	0.2	
Barium	(Ba)	mg/l	1	(-)	(-)	(-)	
Boron	(B)	mg/l	1	1	1	1	
Selenium	(Se)	mg/l	0.01	0.05	0.05	0.05	
Cadmium	(Cd)	mg/l	0.01	0.01	0.01	0.01	
Hexavalent Chromium (VI)	(Cr^{6+})	mg/l	0.05	0.05	0.05	1	
Copper	(Cu)	mg/l	0.02	0.02	0.02	0.2	≤ 1 mg/l (*)
Iron	(Fe)	mg/l	0.3	(-)	(-)	(-)	≤ 5 mg/l (*)
Lead	(Pb)	mg/l	0.03	0.03	0.03	1	≤ 0.1 mg/l (*)
Manganese	(Mn)	mg/l	0.1	(-)	(-)	(-)	
Mercury	(Hg)	mg/l	0.001	0.002	0.002	0.005	
Zinc	(Zn)	mg/l	0.05	0.05	0.05	2	≤ 5 mg/l (*)
Chloride	(Cl)	mg/l	600	(-)	(-)	(-)	
Cyanide	(CN)	mg/l	0.02	(-)	(-)	(-)	
Fluoride	(F)	mg/l	0.5	1.5	1.5	(-)	
Nitrite Nitrogen	(NO_2-N)	mg/l	0.06	0.06	0.06	(-)	≤ 1 mg/l (*)
C. PHYSICS							
Sulfate	(SO_4)	mg/l	400	(-)	(-)	(-)	
Free Chloride	(Cl_2)	mg/l	0.03	0.03	0.03	(-)	not required for the ABAM
Hydrogen Sulfide	(H_2S)	mg/l	0.002	0.002	0.002	(-)	≤ 0.1 mg/l (*)
D. MICROBIOLOGY							
Fecal coliform		/100ml	100	1,000	2,000	2,000	≤ 2,000 total/100ml (*)
Total coliform		/100ml	1,000	5,000	10,000	10,000	≤ 10,000 total/100ml (*)
E. RADIOACTIVITY							
Gross-A		Bq/l	0.1	0.1	0.1	0.1	
Gross-B		Bq/l	1	1	1	1	
F. ORGANIC CHEMISTRY							
Oil and Fat		µg/l	1,000	1,000	1,000	(-)	
Detergent as MBAS[1]		µg/l	200	200	200	(-)	
BHC		µg/l	210	210	210	(-)	
Aldrin, dieldrin		µg/l	17	(-)	(-)	(-)	
Chlordane		µg/l	3	(-)	(-)	(-)	
DDT		µg/l	2	2	2	2	
G. PHYSICS							
Heptachlor and heptachlor epoxide		µg/l	18	(-)	(-)	(-)	
Lindane		µg/l	56	(-)	(-)	(-)	
Methoxychlor		µg/l	35	(-)	(-)	(-)	
Endrin		µg/l	1	4	4	(-)	
Toxaphone		µg/l	5	(-)	(-)	(-)	

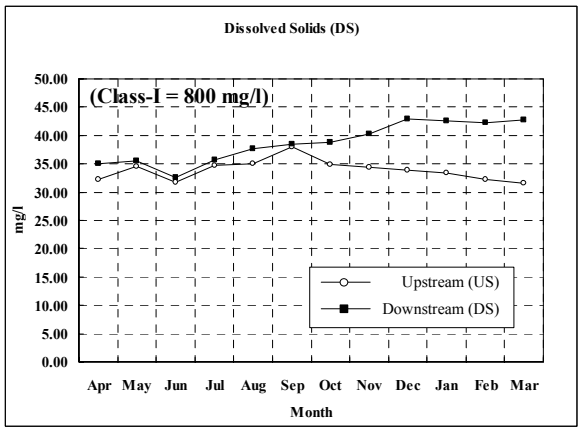
(*) criterion for a conventional drinking water processor (**) for Fishery

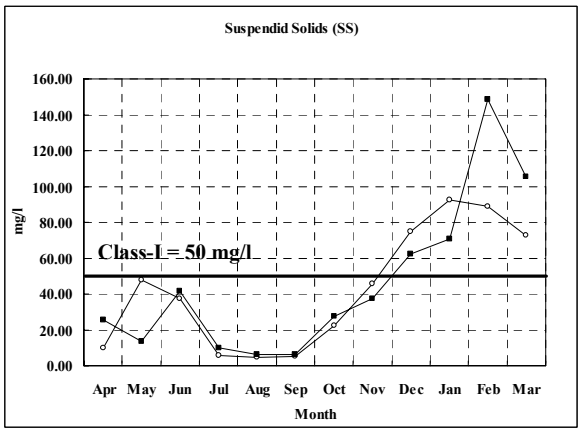
Source: Attachment of Government Regulation Number 82 Year 2001 dated on 14 December 2001 concerning Water Quality Management and Water Pollution Control

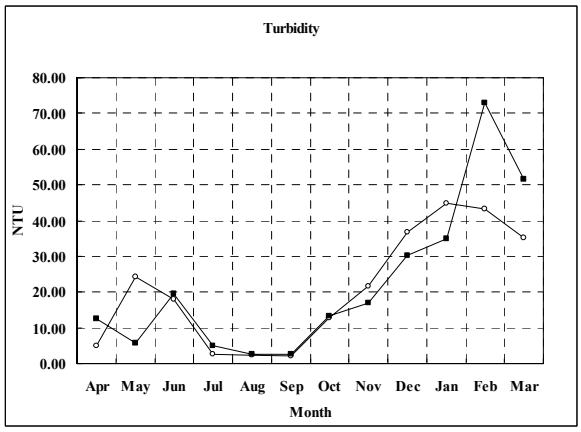
Note: mg: milligram, µg: microgram, ml: milliliter, l: liter, Bq: Becquerel,

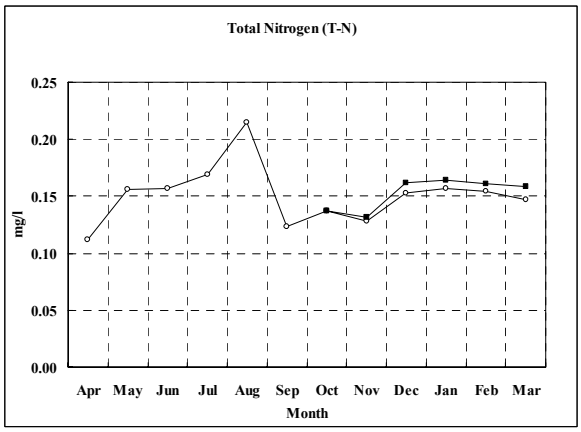
Note: [1] MBAS: Methyl Blue Activators Substances

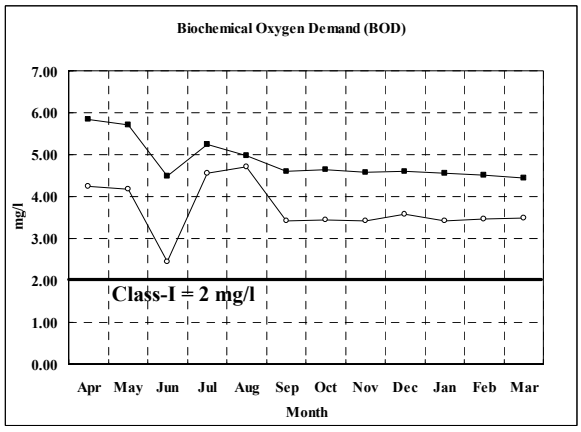
Figure 8.1 River Water Quality of the Jeneberang River - Seasonal Variation

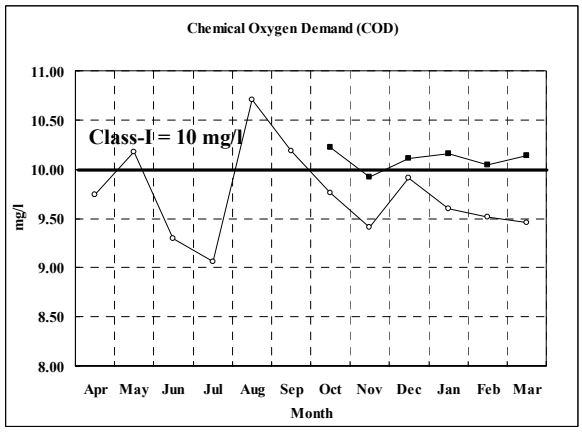


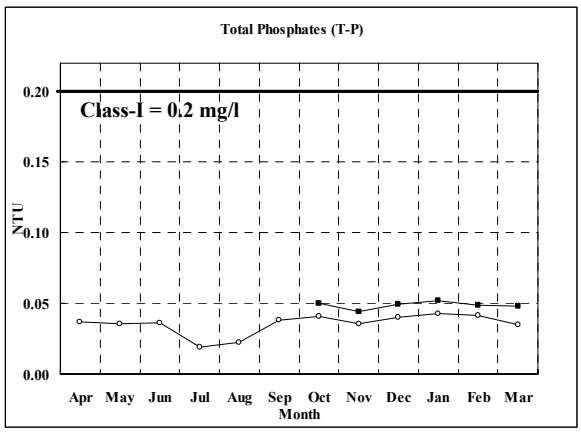


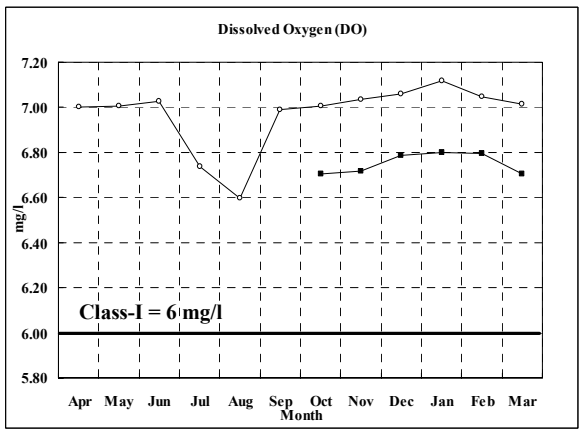








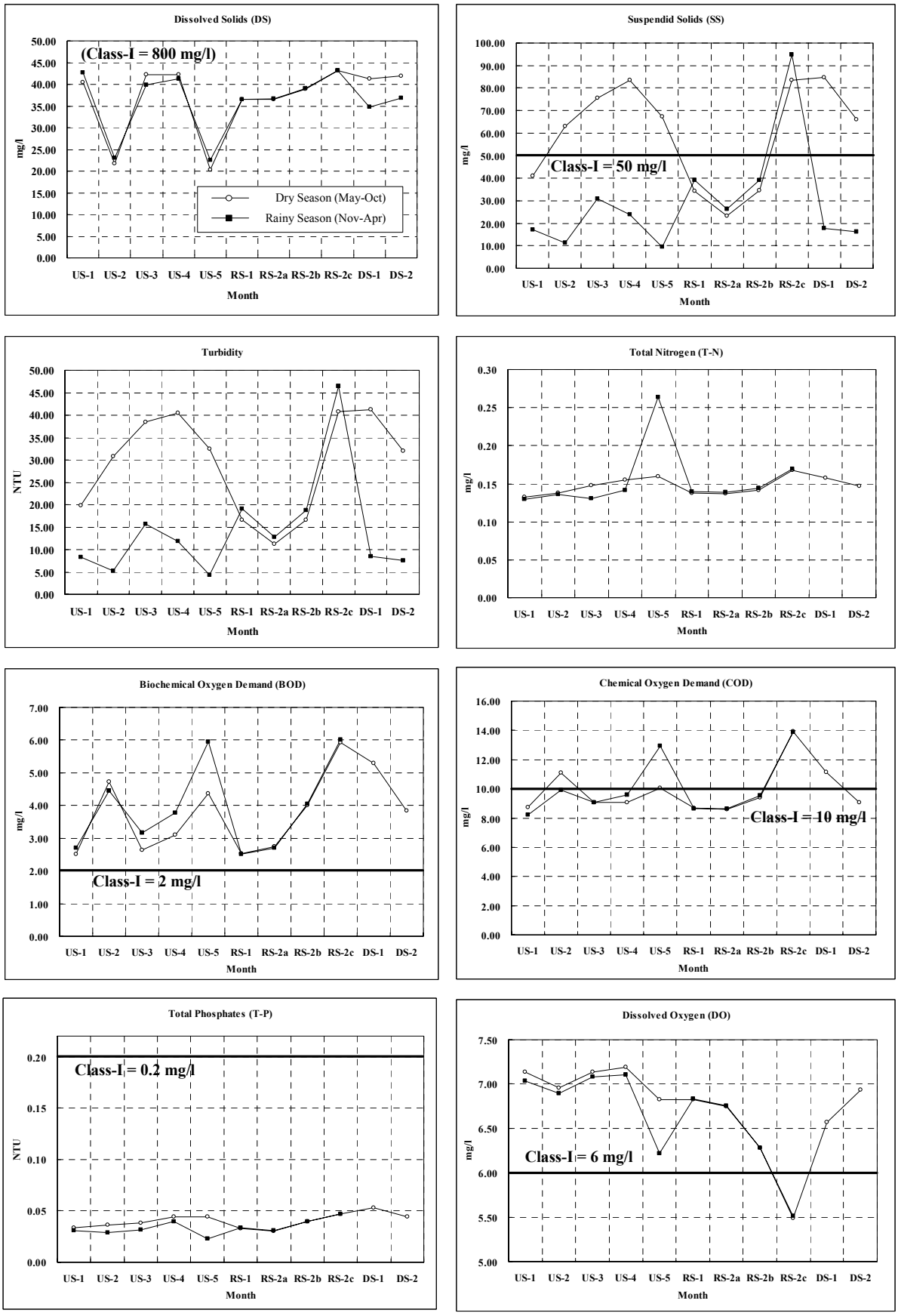




Note: Class-I - Provincial water quality standard for drinking raw water determined by South Sulawesi Governor's Decree No.14/2003

Source: Environmental Impact Assessment of Bili-Bili Multipurpose Dam Project

Figure 8.2 River Water Quality of the Jeneberang River - Vertical Profile



Note: Class-I - Provincial water quality standard for drinking raw water determined by South Sulawesi Governor's Decree No.14/2003

Source: Environmental Impact Assessment of Bili-Bili Multipurpose Dam Project

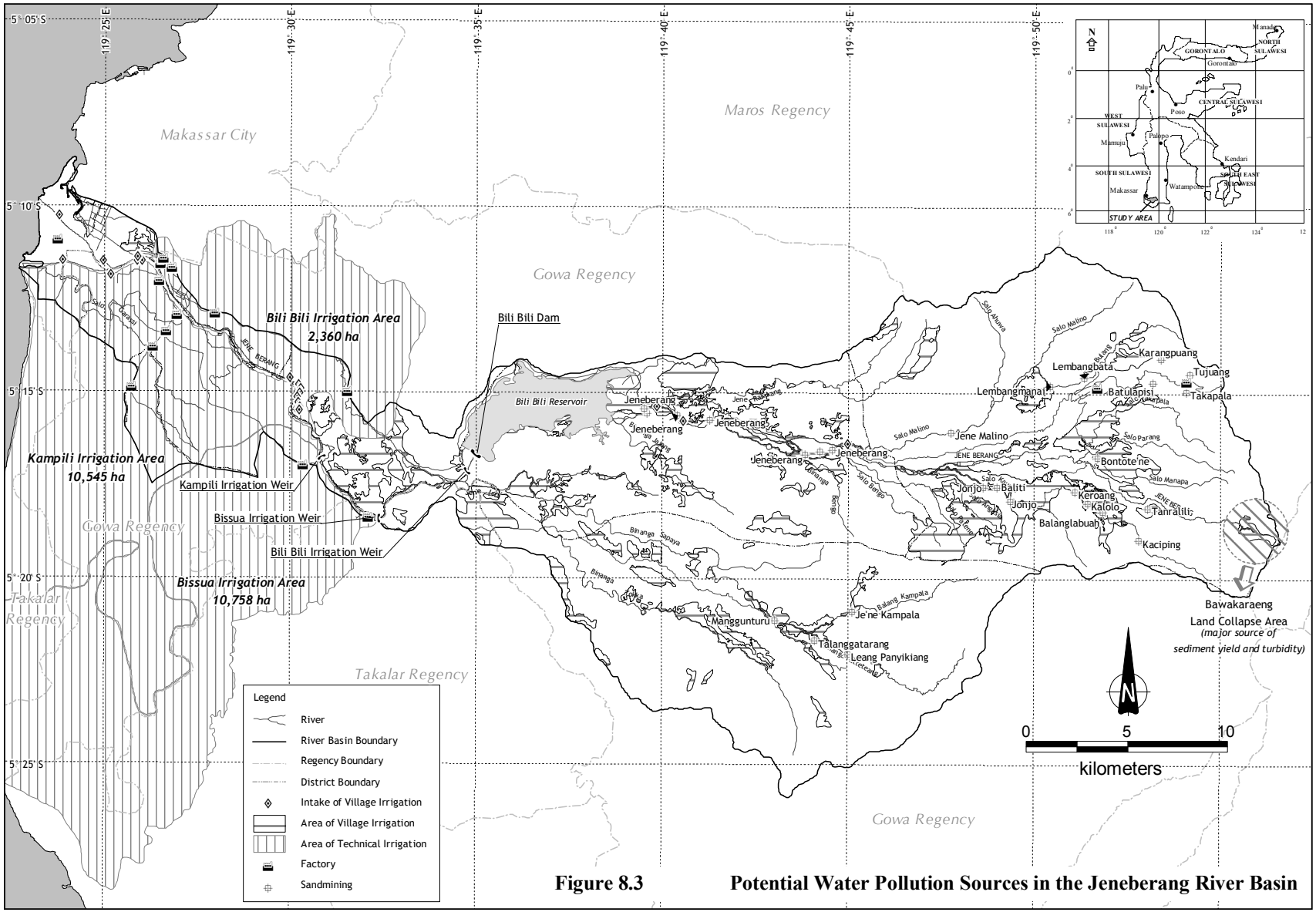


Figure 8.3 Potential Water Pollution Sources in the Jeneberang River Basin

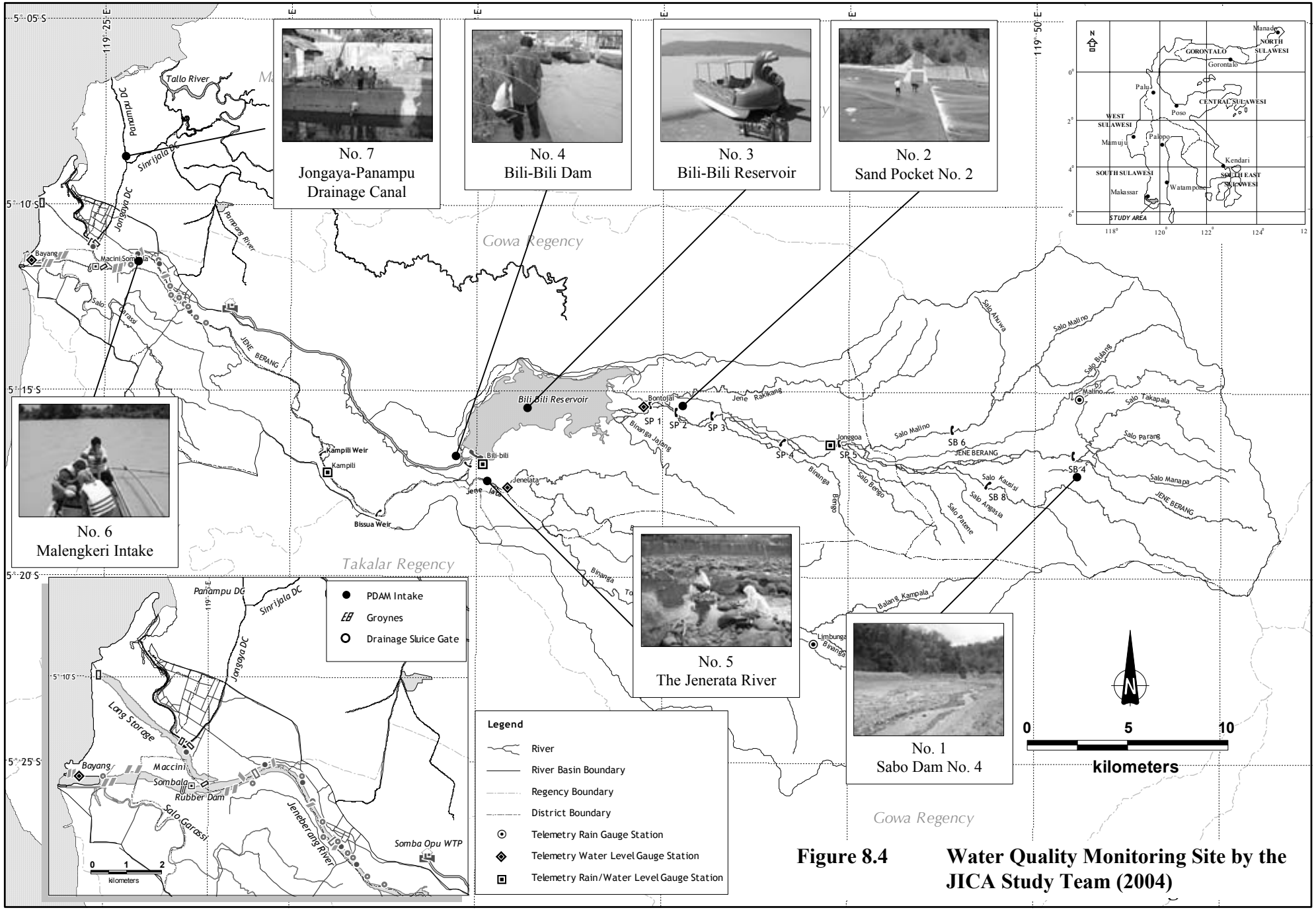
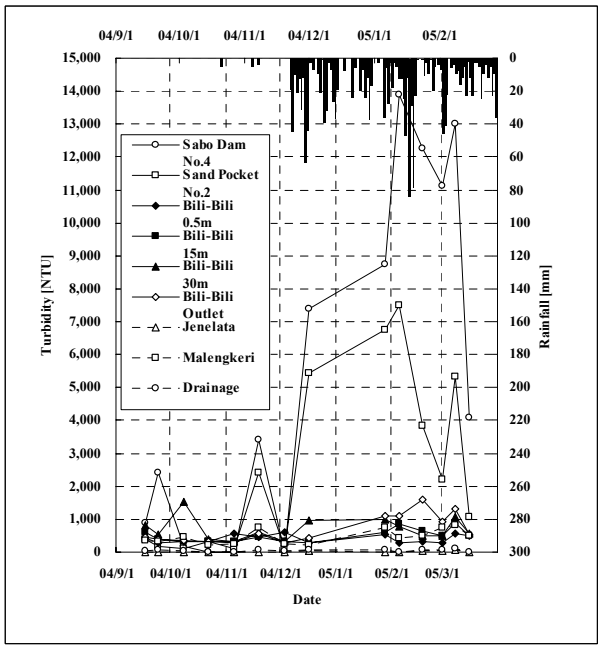
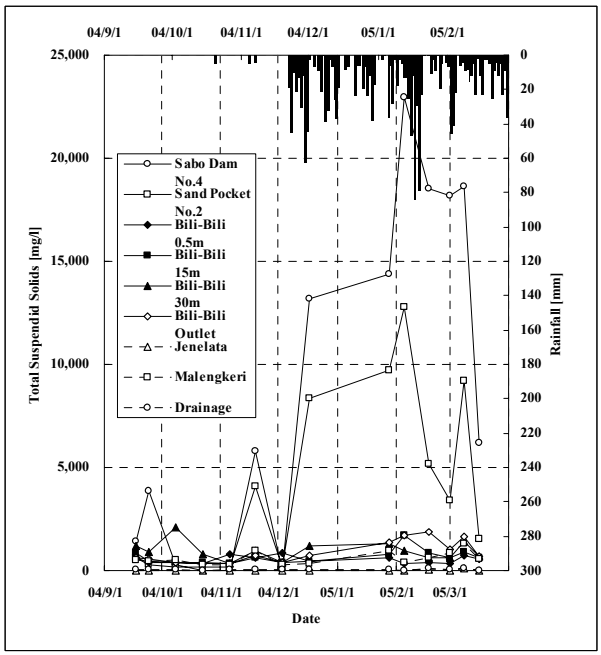


Figure 8.4 **Water Quality Monitoring Site by the JICA Study Team (2004)**

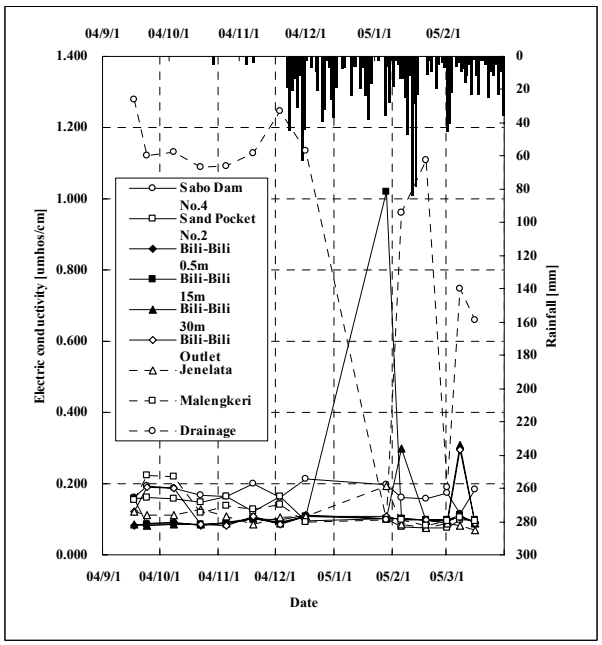
Figure 8.5 Water Quality Monitoring by This Study (2004-2005)



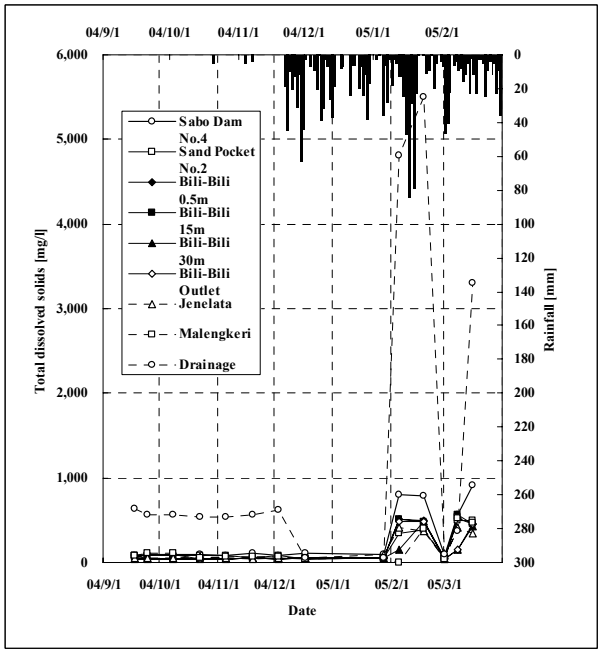
a) Turbidity



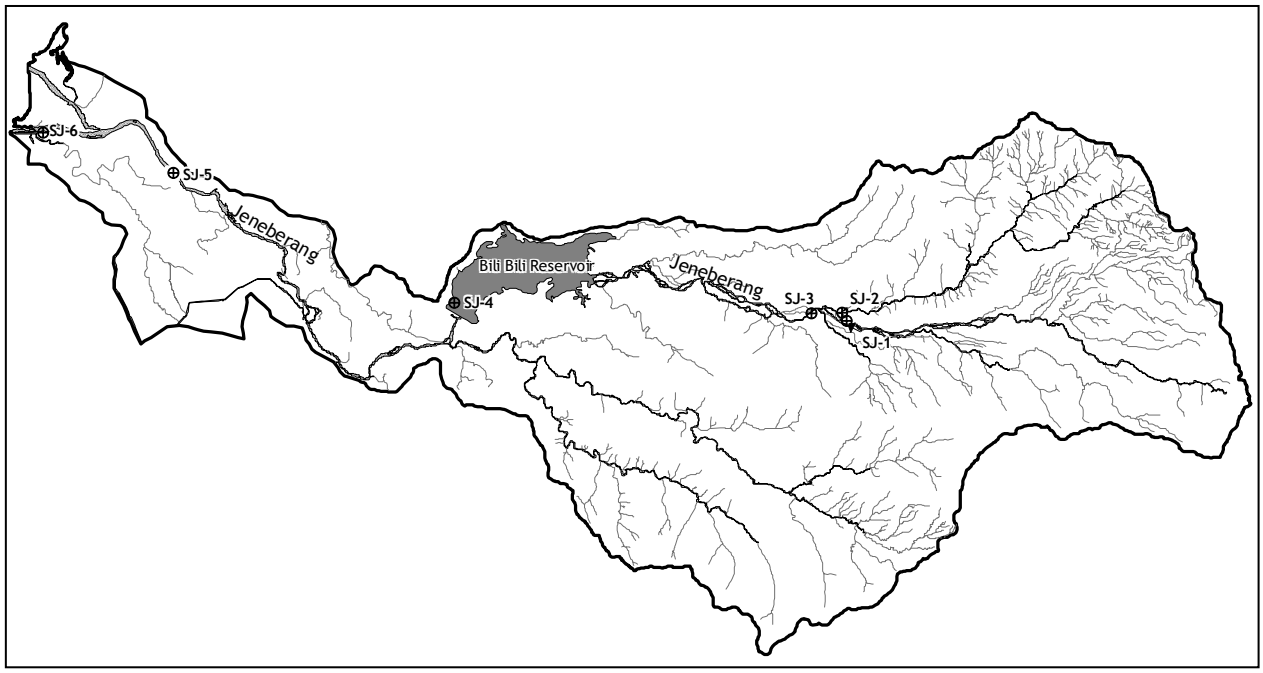
b) Total Suspended Solids



c) Electric Conductivity



d) Total Dissolved Solids



A. Sampling Date: November 1999-January 2000

No	Parameter	Unit	SJ-1	SJ-2	SJ-3	SJ-4	SJ-5	SJ-6
1	pH		7.1	7.3	7.6	7.0	6.8	6.8
2	Total Suspended Solids (TSS)	mg/L	7	2	24	9	32	18
3	Biochemical Oxygen Demand (BOD)	mg/L	9	10		11		
4	Chemical Oxygen Demand (COD)	mg/L	14	15		17		
5	Dissolved Oxygen (DO)	mg/L	8	7	6	7	6	7

B. Sampling Date: July 2001

No	Parameter	Unit	SJ-1	SJ-2	SJ-3	SJ-4	SJ-5	SJ-6
1	pH		7.926	7.146	7.777	8.465	7.988	7.959
2	Total Suspended Solids (TSS)	mg/L	29	21	19	9	19	128
3	Biochemical Oxygen Demand (BOD)	mg/L	27.3	3.9	10.4	4.5	13.0	27.3
4	Chemical Oxygen Demand (COD)	mg/L	42	6	16	7	20	42
5	Dissolved Oxygen (DO)	mg/L	8.03	6.90	8.60	7.03	5.68	5.16

C. Sampling Date: September 2002

No	Parameter	Unit	SJ-1	SJ-2	SJ-3	SJ-4	SJ-5	SJ-6
1	pH		6.877	7.871	6.703	7.813	7.661	8.068
2	Total Suspended Solids (TSS)	mg/L	44	37	24	54	48	26
3	Biochemical Oxygen Demand (BOD)	mg/L	1.72	3.15	6.8	1.35	7.18	9.5
4	Chemical Oxygen Demand (COD)	mg/L	2.65	5.92	13.46	2.24	13.26	16.93
5	Dissolved Oxygen (DO)	mg/L	6.85	8.14	7.67	7.71	7.74	7.70

Source: PROKASIH Annual Report Year 1999/2000, 2001, and 2002, BAPEDALDA South Sulawesi Province

Figure 8.6 Water Quality Monitoring Data by PROKASIH (1999-2002)

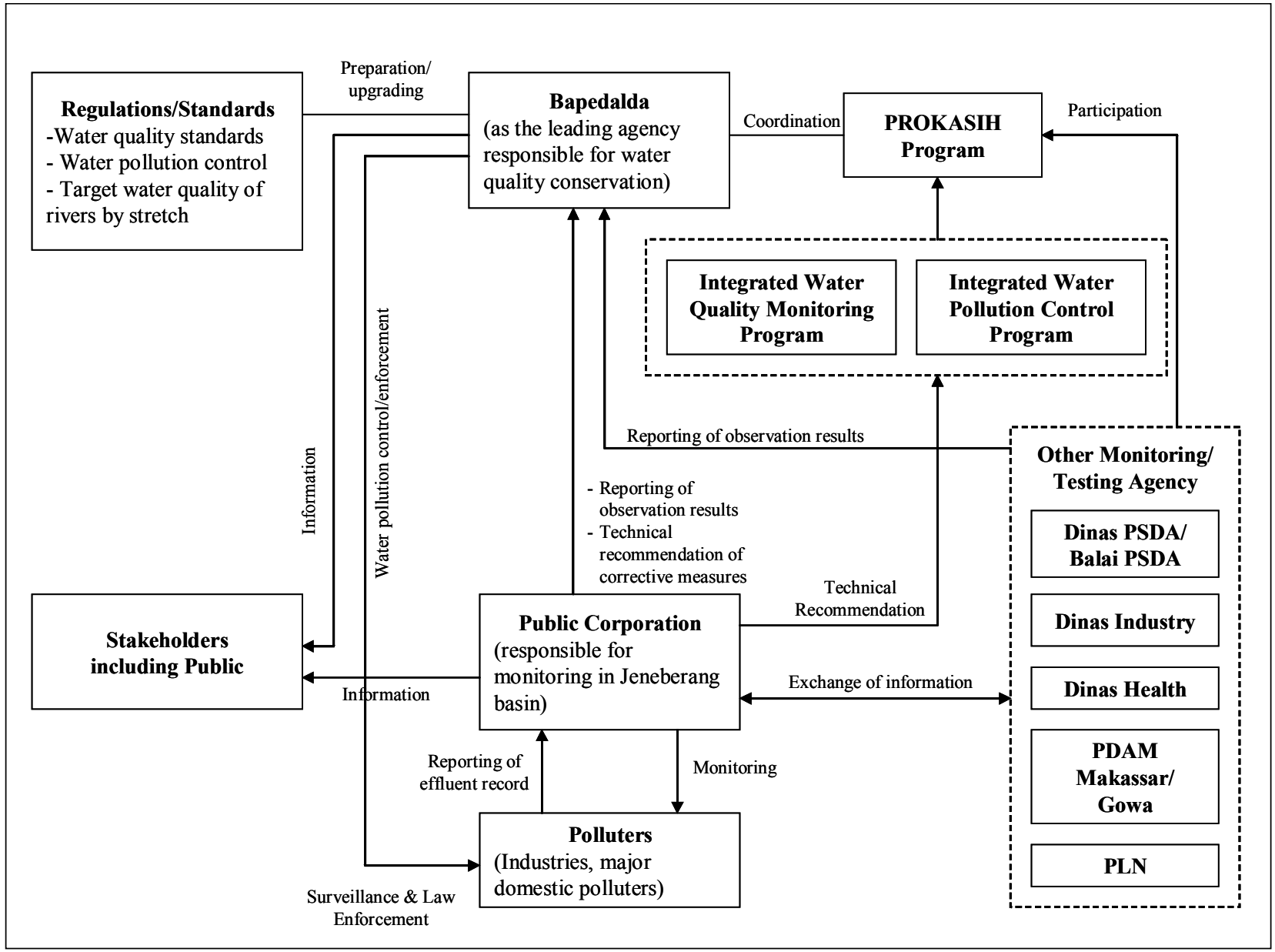


Figure 8.7 Demarcation of Roles and Responsibilities

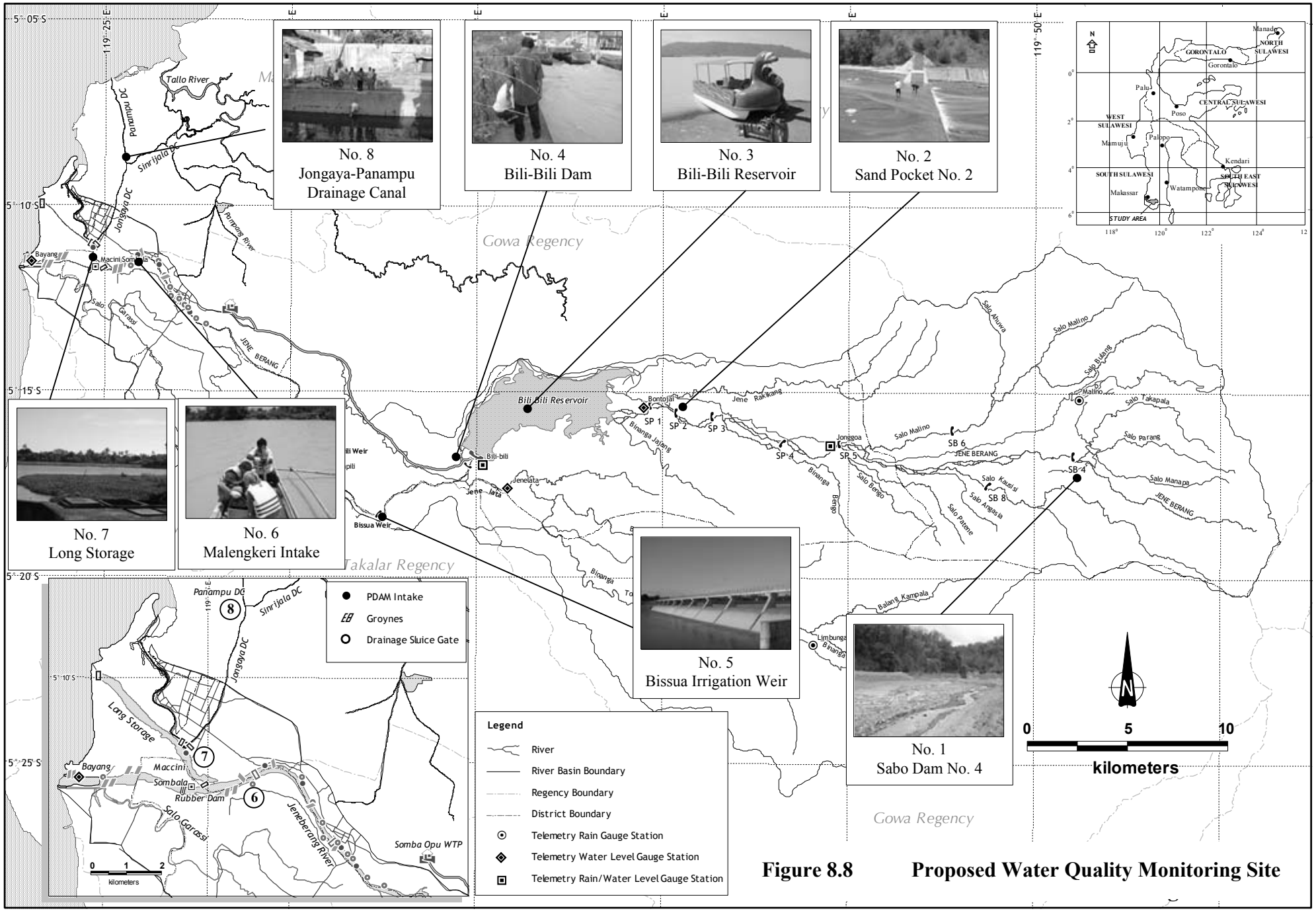


Figure 8.8 Proposed Water Quality Monitoring Site

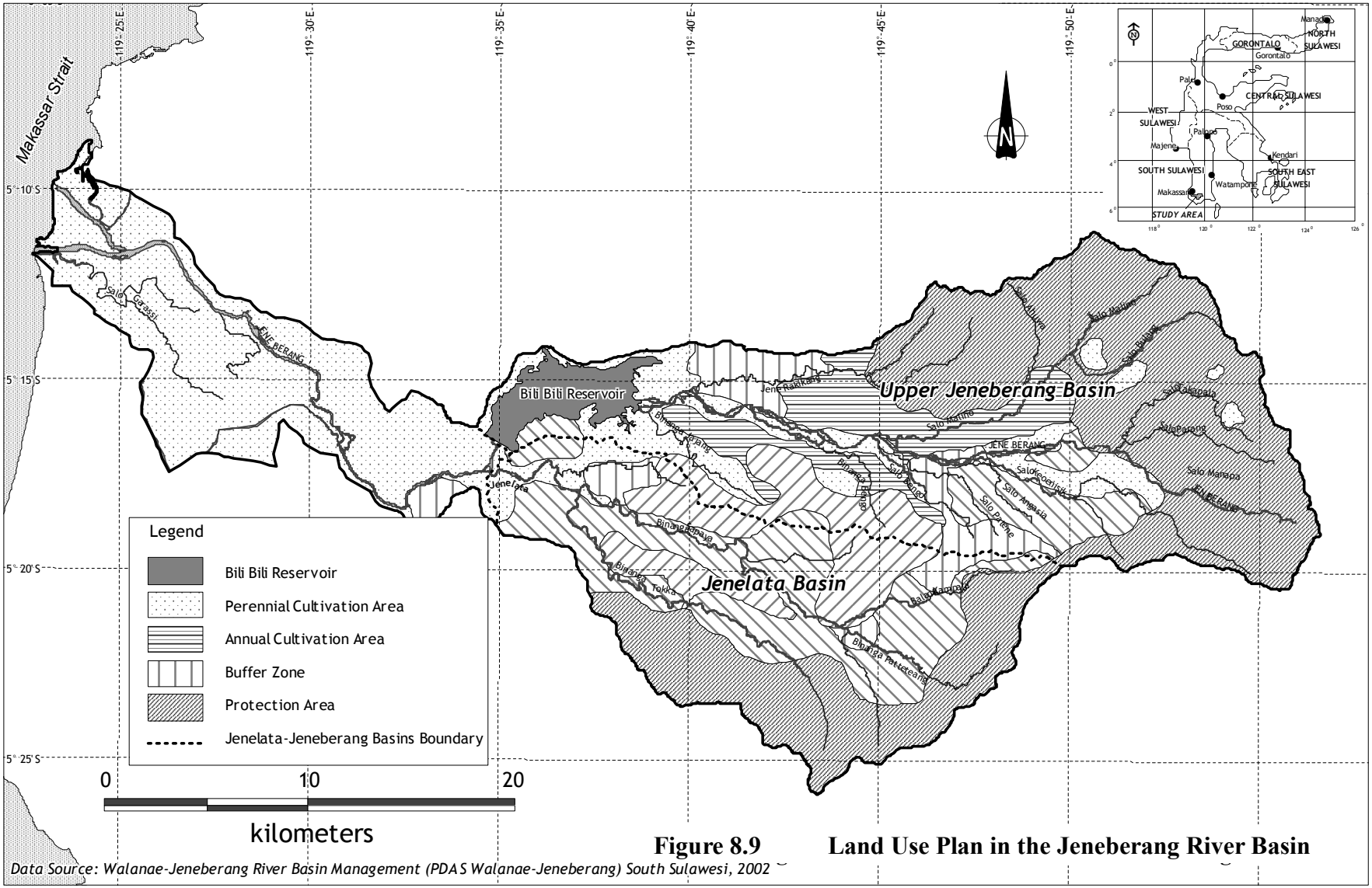


Figure 8.9 Land Use Plan in the Jeneberang River Basin

Data Source: Walanae-Jeneberang River Basin Management (PDAS Walanae-Jeneberang) South Sulawesi, 2002

CHAPTER 9

LEGAL AND INSTITUTIONAL FRAMEWORK

This chapter summarizes the existing and proposed legal and institutional framework (concentrating mainly on the proposed) for the new WRM Corporation in the Jeneberang River basin

9.1 Existing Legislation

Four areas of legislation govern water resources management (WRM) in Indonesia: (i) control of water resources (see Section 9.1.1), (ii) regional administration (see Section 9.1.2), (iii) WRM funding and taxation (see Section 9.1.3) and (iv) the public corporation (see Section 9.1.4). This section summarizes some key current central government legislation.

9.1.1 Control of Water Resources

(1) Presidential Decree Number 64/1972 on the Authority and Management of Geothermal Steam, Ground Water and Hot Spring Water

By this decree, the Ministry of Mining is given administrative responsibility for ground water, at the ministry's request.

(2) Law No. 7 of 2004 on Water Resources

The main changes to the earlier Law 11/1974 cater for new (or enhanced) paradigms such as regional autonomy, decentralization and state revenue sharing, an intergovernmental coordination framework headed by a National Water Resources Council, stakeholder participation in water resource policy-making, private sector involvement in water resource development and management, and empowerment of beneficiaries (especially farmers). Improvements are required in several key subsectors such as water quality management. Major stipulations are:

(i) No licence is needed for water utilized for private or irrigation needs.
(ii) Surface and ground water resource management shall be based on basins, with integration between surface and groundwater.
(iii) Statement of WRM responsibilities of central, provincial, district and village government for river basins and irrigation systems within and across their boundaries.
(iv) Cross-sectoral and cross-regional coordination of WRM to be done by water resources councils at national, provincial, district and river basin levels.
(v) Criminal penalties up to Rp 1.5 billion and 9 years imprisonment are specified for infringements of this law.

Some 35 Government Regulations (GRs) are required to implement this law (see Section 9.2 below for details of revised and new GRs).

(3) Government Regulation No 22 of 1982 on Regulation of Water Management

This GR sets out the principles of water resource management, many of which still apply. A replacement regulation under the new water law has been drafted.

(4) Government Regulation No. 35 of 1991 on Rivers

This GR on rivers stipulates how they are to be managed. In particular, it confirms that the Minister is given the responsibility and authority for the planning and development of rivers, which is based on the river basin unit.

An important omission from this regulation is a system of river classification according to size or other parameter. An amendment has been final drafted by MSRI[1].

(5) Ministerial Regulation No. 63/PRT/1993 on River Boundaries

This regulation stipulates the river corridor border line and the utilization area of a river, including lake and reservoir.

(6) Ministerial Decree No. 1451K/10/MEM/2000 from Ministry of Energy & Natural Resources on Ground Water

This decree guides the arrangement of government tasks in the groundwater sector and confirms the authority of MENR in controlling sources of groundwater. This Study is recommending that management of groundwater and surface water resources should be integrated under MPW (as suggested by new Water Law No. 7/2004). (See also Section I.7 in Supporting Report I)

(7) Government Regulation No. 77/2001 on Irrigation

This regulation stipulates, among other things, the transfer of authority for irrigation management from Local Government to water user associations as legal entities. A new GR under the new Water Law, has been final drafted by Kimpraswil.

(8) Government Regulation No. 82 of 2001 regarding management of water quality and control of water pollution.

This GR defines authority and general responsibilities for water pollution control. It stipulates penalties briefly but relies on local government and administrators to set values. A new GR is being drafted by MPW.

(9) Presidential Decree No. 123 of 2001 on Coordination Team for Water Resource Management

[1] In this report, MPW is used for all present or future references, and MSRI (or Kimpraswil) for references earlier than October 2004.

The "Tim Koordinasi" should now[2] be upgraded to a National Water Resources Council, along with equivalent upgrades of provincial PTPAs and river basin PPTPAs.

9.1.2 Regional Administration

(1) Law No. 22 of 1999 on Regional Administration

This law governs regional administration.

However, DPR[3] in September 2004 approved the revision of this Law, now Law No. 32 of 2004, to include the following changes: (i) Direct election of heads of regional government agencies; (ii) Central Government can dismiss such officials in case of corruption or other acts deemed to be a threat to national security; (iii) Other changes, as yet unspecified, believed to limit the powers of kabupaten and kota. In particular, regional leaders will not be able to issue regulations that contradict Central Government policy.

(2) Law No. 25 of 1999 on Financial Proportion between Central and Regional Governments

This law governs the financial proportion and its management between central government and the regional administration.

However, DPR, also in September 2004, passed a new Intergovernmental Fiscal Balance Law, Law No. 33 of 2004, to replace Law No. 25 of 1999.

Key points of the revised law include: (i) Some increase in the amount of property and property transfer taxes paid from CG to provinces and local administrations; (ii) A small increase in oil and gas revenues received by CG, paid from CG to producing provinces and local administrations; and (iii) Provinces may issue bonds (without CG guarantee) after MOF and DPRD approval.

(3) Government Regulation No. 25 of 2000 on Autonomy and Decentralization

This government regulation, based on the superseded Law No. 22/1999, was intended to define central government authority and regional authority as autonomous region, and thereby the residual authority of kabupaten and municipalities. However, additional legislation (e.g. government and provincial regulations and guidelines) was and is now needed, as well as extensive training and development for those in local government.

With the overdue revision of Law No. 22 of 1999 reported above, this GR will also have to be revised. It is hoped that this revision will correct some of the deficiencies of the present GR.

(4) Government Regulation No. 8 of 2003 on the Organizational Structure of Regional Government

This GR is an update of GR No. 84/2000, which was issued as a general guideline to implement Law No. 22/1999. A significant weakness remains in this GR, namely a uniform grading

[2] Under Water Law No. 7/2004
[3] House of Representatives.

structure for all regional government positions regardless of the size, scope and complexity of the work of particular Dinas.

9.1.3 WRM Funding and Taxation

(1) Government Regulation No 6 of 1981 on Fee for Water Resources Infrastructure

An amendment has been final drafted under the new water law according to the WATSAL program.

(2) Law No. 18 of 1997 on Regional Taxes and Levies *(retribusi)*

Kabupaten and Kota taxes shall include tax on groundwater and surface water utilization but at a rate no higher than 20 %.

(3) Law No. 34 of 2000 on Amendment to Law No. 18 of 1997

This law introduced some amendments to Law No. 18 to make it consistent with the provisions of Law No. 22 of 1999 and, especially, Law No. 25 of 1999. Because of the changes to these two laws noted above, a further amendment to this law will be required.

(4) Government Regulation No. 65 of 2001 on Regional Taxation

This GR stipulates that the tax rate on the exploitation and utilization of ground water and surface water shall be set at 20 % and 10 %, respectively, following Law No. 34/2000.

(5) Presidential Decree No. 42 of 2002 on Implementation of Budget Guidelines for Central Government Resources and Expenditure

This decree stipulates that the Ministry of Finance as State General Treasurer shall provide funds and allocation procedures to finance the State Expenditures Budget. It also sets out balancing budget implementation guidelines.

(6) Law No. 17 of 2003 on State Finance

This law (Article 24) makes provision for the financing and sale of state-owned and regional enterprises.

(7) Law No. 1 of 2004 on the National Treasury

This law deals with the transfer and sale of state assets.

9.1.4 The Public Corporation

(1) Government Regulation No. 13 of 1998 regarding Public Corporation (Perum)

This GR, based on Law No. 9 of 1969, deals with the aims, objectives and business characteristics of the perusahaan umum (Perum).

(2) Law No. 19 of 2003 on State-owned Enterprises

This law is an update of all previous legislation on SOEs.

MSOE is preparing a revised GR in which it is hoped that certain omissions in the law will be addressed.

(3) Draft Government Regulation on Public Corporation for Water Resources Management

This draft 'generic' GR is intended to be the legal basis for establishing further river basin public corporations. An additional presidential decree or GR will be needed to establish each individual RBPC.

(4) Draft Government Regulation on the Establishment of a Public Corporation for the River Basins of Bengawan Solo, Jratunseluna, and Serayau Bogowonto

A draft GR for the creation of a new PJT (PJT III) to manage these three river basins in Central and East Java is awaiting approval by Minister MPW before passing to MSOE and the State Secretary for authorization.

9.1.5 The PJT Corporations

(1) PJT I

Following the example of PJT II (then POJ[4]) in the Citarum river basin, GOI issued Presidential Decree No. 58/1990 and GR No. 5/1990 to establish the Jasa Tirta Public Corporation in the Brantas river basin as a Perum and BUMN.

The corporation's main objective was the O&M of water resources infrastructure in the Brantas Basin. In 1999, by GR No. 93/1999, the PJT Corporation became PJT I. Eleven other items of ministerial and regional legislation currently regulate PJT I's activities in the Brantas River basin.

By Presidential Decree No. 129/2000, management of the Bengawan Solo River basin was added to PJT I as a new Directorate, an extension to PJT I's working area. A further 24 items of legislation were prepared and enacted to permit PJT I Bengewan Solo to become fully operational in 2002.

(2) PJT II

PJT II was established in 1970[5] as a wholly State-owned corporation (BUMN) known as Perum Otorita Jatiluhur (POJ). It was to operate and manage selected rivers, the associated river infrastructure and all irrigation facilities in the developed Citarum river basin. In 1999, POJ became Perum Jasa Tirta II by Government Regulation No. 94/1999. Unfortunately, the opportunity was not then taken to remove the provision for irrigation management by PJT II.

9.1.6 Legal Issues

[4] Perum Otorita Jatiluhur
[5] By Government Regulation No. 20/1970

Although conceived with good intentions – the decentralization of government to the regions – the many defects of Law No. 22/1999 have resulted in its revision to Law No. 32/2004.

At the time of preparing this report, the full text of the new laws was not available. However, from media reports, it appears that the new law does give back, to Central Government and to provincial governments, some of the authority previously enjoyed, and sometimes abused, by kabupaten / kota. For example, it seems that central government can now:

- Override decisions of elected regional leaders on what is in the public interest;
- Control provincial budgets;
- Control staff establishments (through State Minister for Administrative Reform);

Provincial governments (usually the Governor) can also:

- Resolve disputes between kabupaten / kota or take over disputed functions;
- Control the budgets of kabupaten/ kota;
- Appoint kabupaten Secretaries from shortlists;
- Control kabupaten / kota organization structures.

Unfortunately, some important features are less than satisfactory, for example:

- Lack of definition of the roles of the different levels of government (but one of the 48 necessary GRs may (should) correct this);
- No guarantee of competition and transparency in appointing staff;
- Few sanctions for lack of, or illegal, action. For example, some 30 regional regulations are required but no sanctions are available if these are not passed;
- Apparently unnecessary duplication of many national regulations for regional processes. Special provisions have apparently been created for regional elections, financial management, personnel management, treasury and organization.

This assessment suggests that the new law will require some further adjustment if it is to be an improvement on the old law.

Finally, but most importantly, is the matter of general law enforcement. The combination of a new Water Law, new regional autonomy legislation and a new President and National Administration should provide a sound basis for real improvement in this traditionally ignored area of national life.

9.2 Revision of Regulations Mainly Related to New Water Law No. 7 of 2004

Under the new Water Law No. 7 of 2004, some 35 GRs are called for. Of these, at least 12 need to be drafted soonest.

The status of the 12 revised or new GRs required is shown in the table below.

Revised or New Government Regulations Required under Water Law No. 7 / 2004[1)]

	Current Regulation	Revised Regulation	Current status[2)]
1	GR 77/2001 on Irrigation	GR on Irrigation (No. 78)	Final MPW draft, now with Sec. Gen. Awaiting inter-department scrutiny. Aim to issue before end 2004
2	GR 35/1991 on Rivers	GR on Rivers	Final MPW draft now with Sec. Gen. Awaiting inter-department scrutiny. Aim to issue before end 2004
3	GR 82/2001 on Water Quality Management	GR on Water Quality Management	MPW draft being prepared
4	No GR. Earlier regulation was by Presidential Decree No. 64/1972 and Ministerial Decree[3)]	GR on Ground Water	1st draft available from Ministry of Energy & Mineral Resources
5	GR 22/1982 on Water Resources Management	Replacement GR on Water Resources Management	Final MPW draft completion scheduled before end 2004
6	GR 6/1981 on Fee for Water Resources Infrastructure	GR on Financial Management of Water Resources	Final MPW draft completed according to WATSAL program
7	None	GR on Drinking Water	Draft not yet prepared
8	None	GR on Water Use Rights	Sanyu Consultants Study on-going, but restricted to irrigation. There is need to address Water Use Rights for *all* users. Thus GR draft not yet prepared
9	None	GR on Reservoirs and Dams	This new GR now to be included in the revised GR on Rivers
10	None	GR on Corporatization of Water Resources Management	MPW 'special' draft prepared. Awaiting internal scrutiny
11	GR 93/1999 on PJT I	GR on PJT I	MPW initial draft prepared
12	GR 94/1999 on PJT II	GR on PJT II	MPW initial draft prepared
13	GR 27/1991	GR on Swamps	Draft not yet prepared.

Note: 1) Position at 14/10/04. 2) Current status is given rather than estimated issue date due to present inability to provide such estimates. 3) Ministry of Energy and Natural Resources (now Ministry of Energy & Mineral Resources) Decree No. 1451K/10/MEM/2000 on Ground Water.

MPW is responsible for the initial drafting of all the GRs except for groundwater (by Ministry of Energy and Mineral Resources). The Study Team has not discovered whether irrigation has been removed (as it should be) from the responsibility of PJT II in the revision of GR No. 94/1999.

In addition, the final draft (prepared by Kimpraswil) of a GR exists to establish a new river basin corporation in Central Java, to be known as PJT III, and consistent with the MPW-approved Option II[6]. This new PJT would manage the Bengawan Solo, Jratunseluna and Serayu Bogowonto river basins. Its establishment would be closely linked with that of the Jeneberang River Basin Corporation[7] because of the need to transfer the corporatized Bengawan Solo River basin from PJT I to PJT III at about the same time. The PJT III draft is understood to be currently awaiting MPW Ministerial approval. It appears that the PJT Jeneberang and PJT III legislation can be enacted under existing WR legislation.

[6] See section 9.9.2 for details of Option II.
[7] Which can be designated PJT Jeneberang (or PJT J).

It is understood from MSOE that GR No. 13/1998 on the Public Corporation will be amended to incorporate necessary amendments from Law No. 19/2003.

A Presidential Decree on Strategic River Basins has been drafted by Kimpraswil and is understood to include Jeneberang. In this event, all WRM expenses in the JRB that cannot be covered by revenue when PJT Jeneberang (PJT J) is established would, in principle, be paid by Central Government. River basin management responsibilities and activities would be delegated by MPW to South Sulawesi Governor along with, in principle, the necessary funding.

Finally, the Study Team considers that there is, as yet, no clear plan to establish the necessary budget for completing the above legal processes and the associated public consultation and socialization.

9.3 Legislation Needed for the Establishment and Operation of the New Corporation

9.3.1 Legal Products

After extensive discussions with numerous national and regional agencies, the Study Team has produced the list of national and regional legal products in the table below. The table also estimates, in column 3, the sequence for processing the various legal products.

Legal Products Required to Establish and Operate PJT Jeneberang as PJT I Extension[8]

No.	Legal Product	Chronological order[9]
	NATIONAL	
1	Presidential Decree on the extension of PJT I's working area to include the Jeneberang River basin ***[new]***	1
2	Government Regulation on Investment of State Capital into the Capital of PJT I ***[new – needed to meet initial O&M costs in PJT Jeneberang]]***	2
3	MPW Decree Delegating Authority to South Sulawesi Governor to issue permits for water use from beneficiaries in PJT Jeneberang's working area ***[new]***	2
4	MPW Decree on the Authority of PJT I as a corporation authorized to collect and receive fees to finance O&M of regional infrastructure ***[existing]***	2
5	Revision to Decree of State Minister for SOE on Appointment of PJT I Supervisory Board ***[existing – to add one SS member to the Supervisory Board]***	2
6	MPW Decree on Basic Tariff for fee for financing O&M of water resources infrastructure and use of raw water for industry and PDAM within PJT I's work area ***[existing]***	2
7	MPW Decree on Basic Tariff for fee for financing O&M of water resources infrastructure and use of raw water for PLN within PJT I's work area ***[existing]***	2
	REGIONAL	
8	*Provincial Regulations of South Sulawesi on:*	
8.1	Surface Water Extraction and Utilization ***[existing]***	2
8.2	Land Use in River Administrative Area ***[existing]***	3
8.3	River Protection concerning C-Class [sand] Mining in the River Administrative Area ***[existing]***	3
8.4	Water Quality Management and Water Pollution Control ***[existing]***	3

[8] Excluding PJT I Board of Directors' Decrees.
[9] Estimated by PJT I from its experience of establishing Bengawan Solo River basin as extension to PJT I working area. Partially modified by South Sulawesi Legal and Institutional Bureau, and later by officials from DGWR, Jakarta..

No.	Legal Product	Chronological order[9]
9	*Decrees of South Sulawesi Governor on:*	
9.1	Guidelines for Implementing Provincial Regulations (for areas in #9 above) ***[new]***	4
9.2	Permit Procedure for Extraction and Utilization of Surface Water in PJT Jeneberang Working Area ***[new]***	4
9.3	Permit Procedure for Land Use in River Administrative Area in JRB ***[new]***	4
9.4	Procedure for River Protection concerning C-Class [sand] Mining in the River Administrative Area ***[existing]***	4
9.5	Service Fee Payment and Collection for Water Resources Management in PJT Jeneberang Working Area ***[new]***	4
9.6	Working Group for endorsing permit for extracting / utilizing surface water within the working area of PJT Jeneberang ***[new]***	4
9.7	Revised membership of South Sulawesi PTPA to include PJT Jeneberang ***[existing]***	4
9.8	Revised membership of SWS Jeneberang PPTPA to include PJT Jeneberang ***[existing]***	4
10	Decree of Head of South Sulawesi Dinas PSDA on Technical Guidelines for Implementation of each Governor's Decree ***[new]***	4
11	Decree of Head of South Sulawesi BAPEDALDA on Technical Guidance for Implementation of each Governor's Decree ***[new]***	4
12	Joint Decree and Cooperation Agreement between PJT I and Relevant Bupati/Walikota in South Sulawesi Province [primarily Gowa] with the involvement of MPW ***[new]***	5

Some associated legislation, necessary for the proper management of the Jeneberang River basin, is also needed. This legislation would include such items as (i) Provincial Regulations on river water classification and quality standards (new), and waste water quality standards (modification), (ii) a Governor Decree on the formation of Balai PSDA (modification to record involvement of PJT Jeneberang).

9.3.2 Tasks and Establishment Schedule for PJT Jeneberang Legislation

Table 9.1 represents the latest attempt to schedule the drafting, stakeholder consultation, approvals and enactment of the legislation needed to establish and operate PJT Jeneberang as an extension of PJT I. This suggested timetable is the result of further discussions with PJT I, several DGWR divisions and the Legal and Institutional Bureau in the South Sulawesi Governor's Office.

The Minister of Public Works has decided to formally adopt Option II as the model for corporatizing the seven priority river basins[10]; a letter to this effect has been dispatched from the Minister of Public Works to the Ministers of Finance and State Owned Enterprises in November 2004. The draft GR for PJT III is being discussed by the Ministries of Public Works, Finance and State Owned Enterprises, after which it will pass to the State Secretary. The Presidential Decree for PJT Jeneberang is expected to be signed by the President on the same day as the GR

[10] See section 9.7.2 below.

for PJT III. Officials close to the process consider that the Presidential Decree can be signed by the end of March 2005.

The procedures for Provincial Regulations and Governor Decrees are estimated to need, on average, 150 days and 90 days, respectively. During this time, the PR would be (i) discussed internally, (ii) publicly consulted, (iii) evaluated by Provincial Legal Bureau, (iv) submitted to DPRD, (v) finally issued by the Governor and socialized. The Governor Decree follows a similar path without passing through DPRD. In Table 9.1, a conservative total of 18 months has been allowed for the four provincial regulations running in parallel, and after a delay of one month, a further conservative 18 months for the Governor Decrees and Dinas Decrees on technical guidelines, also running in parallel.

According to Table 9.1, PJT Jeneberang cannot be established before 1 January 2006, and cannot begin operating before 1 January 2007. This is mainly because of the time needed (i) to enact provincial decrees, (ii) to budget for the cost of preparing, consulting and agreeing all the legal products required, and (iii) to prepare PJT Jeneberang's staff, premises, O&M and financial resources for full short term O&M operation on 1 January 2007.

9.4 Capacity Development Plan

For better decision-making the PJT Jeneberang management need to understand in some detail the legal and regulatory environment in which PJT J is operating. This knowledge will contribute to a better understanding of national and, in particular, regional responsibilities and relationships. The management of the Jeneberang River basin will thereby benefit.

All the holders of structural positions in the PJT Jeneberang start-up organization, together with the lone member of the HR Section, should attend a series of lectures and discussions on:

- national laws, regulations, decrees;
- provincial regulations and decrees;
- kabupaten / kota regulations and decrees;
- PJT I Directors' Decrees

applying to the water and corporation sectors. The principles of legal drafting and the structure of legislation throughout Indonesia should also be covered.

Two one-week periods of instruction in Makassar are proposed from a suitably qualified PJT I trainer. Training would be scheduled for some convenient period during the second half of 2006. This program is detailed in Chapter 12.

9.5 Institutions Involved in River Basin Management

There are three types of organizations in the water sector:

a) Central Government Agencies,
b) Regional Government Agencies,
c) Foreign-funded Projects, such as the Jeneberang River Basin Development Project,

and farmers, organized into P3As[11] and GP3As.

9.5.1 Central Government Agencies

The Ministry of Public Works (until October 2004 Ministry of Settlement and Regional Infrastructure (MSRI - Kimpraswil)[12] has overall responsibility for the management of water resources in Indonesia through the Director General of Water Resources. The role of MPW is (or should be) largely restricted to policy formulation and dissemination, regulation and standard setting, and funding capital projects. It has retained technical and administrative control over externally funded development projects, although provincial dinas PSDA are allowed some supervisory responsibilities.

The Ministry of Home Affairs (MHA) guides, regulates and financially supports regional governments through various Directorates General.

The Ministry of Agriculture (MOA) is concerned with WRM in irrigation because it provides agricultural support services to farmers using irrigation. MOA also undertakes watershed and soil management in unforested areas.

The Ministry of Forestry, through Provincial Balai PDAS[13], regulates the use of forested watersheds sustainably, but seems to have little authority over strong agencies such as Perhutani and individual kabupaten. This is noticeable where areas of forest within trans-kabupaten river basins have been transferred to kabupaten. Balai PDAS are said to "coordinate" watershed management but they need more authority and funding to do this effectively.

The Ministry of Finance (MOF) manages the classification and evaluation program for the collection of PBB (land and property tax), which is redistributed to regional government and can be used (in addition to IPAIR) for funding irrigation O&M.

The State Ministry of State-Owned Enterprises (BUMN) manages the establishment, operation, performance, funding and, if necessary, termination of all perum and persero corporations. MPW supervises SOEs in respect of its sectoral activities and performance.

Tim Koordinasi should provide top level coordination of policies and strategies in the water sector. This body should evolve into a National Water Resources Council of ministers and stakeholders responsible for various aspects of WRM and the management of river basins that cross two or more provinces. Now Law No. 7/2004 is effective, the NWRC should be implemented without delay.

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[11] Perkumpulan Petani Pernakai Air (Water Users Association); Gebungan Perkumpulan Petani Pernakai Air (Water Users Association Federation)

[12] As stated above, in this report, MPW is used for all present and future references, and MSRI (or Kimpraswil) for references earlier than October 2004.

[13] Regional Office of Watershed Management reporting to DG Land Rehabilitation and Social Forestry Affairs in the MFP. Provincial and kabupaten forestry dinas also operate in this sub-sector without clear demarcation of responsibilities. An independent study is warranted here.

9.5.2 Regional Government Agencies

Through decentralization, responsibility for WRM has been progressively transferred to regional government (Provincial and now Kabupaten Governments). The main agencies responsible in South Sulawesi Province and the Jeneberang river basin are:

(i) The Provincial Water Resources Management Service[14] and its technical implementation unit (TIU), the Balai PSDA (Regional Office of Water Resources Management) for Jeneberang SWS,
(ii) The Provincial Water Resources Coordination Committee[15],
(iii) At Jeneberang RB level, the River Basin Water Resources Management Committee[16],
(iv) At kabupaten/kota level, the Kabupaten or Kota Water Resources Service,
(v) At farmer level, P3A and GP3A. (See Chapter 4 for detail)

(1) Dinas PSDA Sulawesi Selatan (Provincial Water Resources Management Service for South Sulawesi)

The Governor of South Sulawesi Decree No. 214/2001, and Provincial Regulation No. 18/2001, state that the Dinas PSDA is responsible to the Governor for implementing various authorities in water resources management and, specifically:

(i) To formulate technical policy planning of development, management, general improvement, guidance and licensing according to the Governor's policy;
(ii) To technically control and supervise the water resources management services according to the Governor's policy;
(iii) Administration Management;
(iv) Management of Technical Implementation Unit of the Service (UPTD).

Dinas PSDA has some overall jurisdiction, on behalf of the provincial Governor, of the two foreign-funded projects managed by (1) Jeneberang River Basin Development Project (see 9.6.1 below) and (2) South Sulawesi Major Wetland Irrigation Project (PIRASS – see 9.6.2 below).

(2) Balai PSDA

The Balai PSDA for Jeneberang SWS, established by SS Governor Decree No. 212/2001 and Provincial Government Regulation No. 18/2001, and launched in 2002, is the Technical Implementation Unit (UPTD) of the Dinas PSDA. The 8,000 km^2 working area of the Balai PSDA in the Jeneberang SWS includes the Pangkajene Kepulauan, Maros, Gowa, Takalar, Jeneponto, Bantaeng, Bulukumba, Sinjai, Selayar and Makassar areas.

It is mandated to operate and maintain trans-kabupaten/kota water resources and infrastructure in the Jeneberang river basin including: irrigation schemes, raw water supply, rivers and river infrastructure, lakes and dams, water pollution control and ground water sources.

[14] Dinas Pengelolaan Sumber Daya Air – Dinas PSDA
[15] Panitia Tata Pengaturan Air – PTPA
[16] Panitia Pelaksana Tata Pengaturan Air – PPTPA

The Balai PSDA has a present total staff of 23[17], but is expected to expand in 2005 to undertake more of its responsibilities.

A planned approved project, WISMP[18], will continue development in 2005 under the proposed World Bank Adjustable Program Loan spanning the period 2005 to 2015.

(3) Provincial Water Resources Coordination Committee (PTPA)

Legally established under South Sulawesi Governor's Decree No. 35/2002, the multi-sectoral PTPA's role is to assist the Governor to plan and regulate water utilization and quality in JRB (and the other provincial basins). The PTPA is now established but not fully operational. It should meet three times a year.

(4) River Basin Water Resources Management Committee (PPTPA)

The Jeneberang RB PPTPA was legally established in August 2002 (by South Sulawesi Governor Decree No. 709/VIII/2002) to assist PTPA to regulate basin management and water utilization and quality. It has a 150-person membership of heads of kabupaten/kota[19] and kabupaten/kota level heads of all relevant offices and other stakeholder agencies.

(5) Kabupaten Water Resources Services

Nearly all of the JRB (96 %) is in one administrative area, Kabupaten Gowa, while Kabupaten Takalar and Kota Makassar each have about 2 % of the JRB. There are several different WR structures in the JRB kabupaten, illustrated by the names of the dinas that report to the kabupaten/kota head.

Kabupaten Gowa Dinas PSDA is one of 11 different dinas reporting to the Kabupaten Head (Bupati). Dinas PSDA's task is water resources management within the kabupaten's territory[20]. There are four sub-dinas and one administrative division reporting to the head of Dinas PSDA.

To implement the dinas' tasks in the field, there are 9 UPTDs, with about 207 staff, based in kecamatan offices and covering 16 kecamatan in total. The work of the UPTDs is almost entirely O&M of irrigation including primary, secondary and tertiary canals, while coordinating with P3As. The P3As are said to be taking little part in the O&M of the tertiary system despite training and support from various institutions. The UPTDs are unable to undertake significant training themselves because of limited funding. Coordination is said to be good with both Provincial Government and Kabupaten Takalar.

Kabupaten Takalar Sub Dinas Pengairan is one of four sub-dinas reporting to the head of Dinas Daerah PU Kab. Takalar. Responsibilities are similar to those of Kab. Gowa Dinas PSDA within their own territory. The Sub-Dinas Head has 8 groups named *juru pengairan* of tertiary irrigation workers including gate operators to operate and maintain the tertiary system. Trans-

[17] 5 structural staff and 18 non-structural staff.
[18] Water Resources and Irrigation Sector Management Program
[19] Kota Makassar and the following nine Kabupaten: Gowa, Bantaeng, Bulukumba, Jeneponto, Maros, Pangkep, Selayar, Sinjai and Takalar.
[20] But not the WRM of trans-kabupaten rivers, canals and other systems.

kabupaten irrigation between Takalar and Gowa is operated according to a MOU between the two kabupaten and apparently gives little trouble until the dry season when there are frequent water shortages in Takalar. Although most of the tertiary schemes have been handed over to P3As, much coordination and assistance appears to be still necessary and gatemen still report to the Sub-Dinas.

(6) Dinas Cipta Karya Kota Makasssar

The main tasks of Dinas Cipta Karya are environmental management and the development and maintenance of public infrastructure. Funding is obtained from Central, Provincial and Kota Governments in varying proportions. Staffing comprises about 84 in total, estimated to be more than needed for the current workload.

It should be noted that the main drainage channels and Pampang pumping station are still being operated and maintained by Proyek Induk 9 years after completion. This infrastructure should have been handed over to Kota Makassar years ago.

9.5.3 Farmer Groups

Where no river basin management corporation exists, operation and maintenance of the main irrigation system, which includes headworks, feeder canals, primary canals, secondary and sub-secondary canals, down to the tertiary turnouts**,** is the responsibility of Dinas PSDA and Kabupaten PSDA.

According to recent irrigation legislation (which will be changed under Law No. 7/2004), O&M of the on-farm system, which includes tertiary and quaternary canals, is now the responsibility of Water Users Associations (WUAs) or more commonly known as P3As (Perkumpulan Petani Permakai Air).

The work of the P3A and GP3A is said to be supervised by staff of the responsible kabupaten UPTD.

9.5.4 Other Provincial Water-related Agencies

South Sulawesi BAPPEDA is responsible for: (i) Preparing the APBD[21]; (ii) coordinating the planning activity of every sector; (iii) Revising the Strategic Plan; (iv) Evaluating and controlling dinas; (v) Drafting regional regulations; and (vi) "Socialization".

In executing the above, SS BAPPEDA liaises with and coordinates all 18 provincial dinas and the 28 kabupatens and cities in the Province. It has a total PNS staff of about 126.

South Sulawesi BAPEDALDA office's stated objectives are: (i) to improve awareness of environmental problems and measures to resolve these; (ii) to improve cooperation among institutions in studying and solving environmental problems; (iii) to improve monitoring of environmental damage and water resource pollution; (iv) to develop an environmental information system and (v) to apply sanctions for breaking environmental regulations.

[21] Anggaran Pendapatan dan Belanga Daerah (APBD - Provincial Government Revenue and Expenditure Budget)

SS BAPEDALDA's organization follows the provincial model with four operating divisions *(bidang)* and a secretariat for administrative support services. It has a total PNS staffing of about 65.

To date and after more than ten years of the PROKASIH campaign, no licenses are yet issued for discharge of trade effluent into water bodies and no penalties are imposed for discharge of pollution loads in excess of a permitted standard.

9.6 Foreign-funded Development Projects

9.6.1 Jeneberang River Basin Development Project (JRBDP)

The JRBDP[22] is one of two main foreign-funded development projects in the JRB. The JRBDP General Project Manager reports to Director of the Eastern Region Directorate of Water Resources, but is also under the general supervision of Dinas PSDA acting for the South Sulawesi Governor. Total project staff in April 2004 amounted to about 175, of which about 63 were permanent government employees.

According to DGWR Decree, the objectives of JRBDP are:

(i) To increase water supply and mitigate flooding;
(ii) To improve efficiency and productivity of water resource utilization;
(iii) To motivate the community to develop and distribute water resources;
(iv) To increase community involvement in O&M of WR infrastructures.

The completed Bili-Bili Reservoir and Dam (constructed by the Project) is operated and maintained under the Sub-Project Manager for Management. This arrangement will continue until the projected handover to PJT Jeneberang, currently scheduled for 1 January 2007. Total staff in April 2004 amounted to 60, including Pampang pumping station, of which 8 were permanent employees. There were 17 non-permanent staff engaged in security operations.

9.6.2 South Sulawesi Major Wetland Irrigation Project (PIRASS[23])

The overall objective of this project is, throughout South Sulawesi Province, to: rehabilitate dams and irrigation systems; develop irrigation systems; develop swamps; and develop irrigation for fishponds. Since its inception in the 1970s, the project has completed the following types and total area of irrigation schemes:

Irrigation Scheme Type	Area (ha)
Technical	250,000
Semi-technical	62,000
Simple	18,000
Village	184,000
TOTAL	514,000

[22] Proyek Induk Pengembangan Wilayah Sungai Jeneberang – PIPWS Jeneberang
[23] PIRASS = Proyek Irigasi dan Rawa Andalan Sulawesi Selatan.

There are eight irrigation schemes presently being developed, amounting to some 88,000 ha and costing an estimated Rp 650 billion. Except for Bili-Bili-Bissua-Kampili (2004), they are scheduled to complete in 2006 or 2007.

Funding is currently provided from JBIC, the Islamic Development Bank and the APBN budget. The Japanese Government has been a consistent contributor to the project from its beginning in the 1970s.

In the Jeneberang river basin[24], one of the 8 project groups is responsible for developing, rehabilitating and the O&M of Gowa/Takalar irrigation. This comprises three schemes currently covering 23,690[25] ha, Bili-Bili, Kampili and Bissua, all supplied with water from the Jeneberang River. The three schemes were scheduled to finish development in 2004.

9.7 Background and Requirements for PJT Jeneberang

This part of Chapter 9 provides a brief background to WRM corporatization and some institutional and other requirements for the new WRM Corporation in the Jeneberang River basin.

9.7.1 Priority River Basins

MPW envisages the development of corporations in the following seven priority river basins throughout Indonesia: Kali Brantas (PJT I), Bengawan Solo (PJT I), Citarum (PJT II), Jratunseluna (studied), Serayu Bogowonto (studied), Jeneberang (studied), Way Seputih-Way Sekampung (studied).

9.7.2 Corporate River Basin Management Arrangements

Three options for the management of these seven river basins have been formulated:

(i) Option I has two regional PJTs: a) an Eastern Region PJT managing Brantas, Bengawan Solo, Jratunseluna, Serayu Bogowonto and Jeneberang river basins; and b) a Western Region PJT managing Citarum and Way Seputih-Way Sekampung river basins;
(ii) Option II has three separate PJTs: a) PJT I, managing Brantas and Jeneberang river basins, b) PJT II managing Citarum and Way Seputih-Way Sekampung river basins, and c) a new PJT III managing Bengawan Solo, Jratunseluna and Serayu Bogowonto river basins;
(iii) In Option III a national PJT would manage all seven priority river basins.

It is understood that Option II has been approved by the new Minister for Public Works and is being considered by Ministries of Finance and State Owned Enterprises..

9.7.3 Rivers and River Infrastructure to be Managed by PJT Jeneberang

Five first, second and third order rivers and their associated infrastructure in the Jeneberang River basin (JRB) have been initially selected for PJT Jeneberang to manage. Selected rivers

[24] This refers to the Study area and not the wider Jeneberang Satuan Wilayah Sungai (SWS).
[25] Bili-Bili = 2,360 ha; Bissua = 10,785 ha; Kampili = 10,545 ha.

and infrastructure are listed in Table 9.2 and include, on the Jeneberang River, the Bili-Bili Dam and raw water transmission main (RWTM) to Somba Opu PDAM, the Bili-Bili, Bissua and Kampili irrigation weirs, six sabo and sand pocket dams, and six hydrological gauging stations. There are a further two sabo dams and four hydrological gauging stations on three selected Jeneberang tributaries, the Jenelata, Salo Malino and Kausisi rivers.

Finally, a long water storage area ("Long Storage") is selected near the mouth of the Jeneberang, which is considered to be a part of the Jeneberang River. The facility is intended to store raw water for supplying users and flushing Makassar City's drainage canals.

The distribution of rivers, river infrastructure and measuring devices is shown in Figure 9.1, showing the whole river basin and in Figure 9.2, a plan of the lower Jeneberang. The five intakes for PDAM Makassar and Gowa treatment plants on the lower Jeneberang are operated and maintained by the water treatment company.

9.7.4 Institutional Requirements

River basin management must be consistent with Government policies on good governance, decentralization, people's participation, and long-term sustainability as stated in the draft National Water Resources Policy.

The PJT Jeneberang must deliver cost-effectively the appropriate level of O&M[26] by ensuring that, in the JRB:

(i) All potential sources of revenue are identified and realized, and used (apart from tax payment) only to defray water resource management costs,
(ii) Operating, maintenance and administration costs are minimized,
(iii) Quality assurance in delivering O&M is a major objective,
(iv) Financial viability is attained,
(v) Full attention is given to training all personnel to the requisite standard and that only suitably qualified, capable people are recruited for jobs,
(vi) Stakeholders are actively encouraged to participate in basin management.

9.7.5 Areas of Responsibility

To be consistent with other PJTs, the Corporation's main areas of responsibility, within its selected rivers and infrastructure, are proposed as:

(i) Watershed management, in collaboration with related agencies and under the regional Balai PDAS[27],
(ii) Water quantity management, which includes: water use licensing and establishment of water rights, water allocation and distribution,

[26] A new definition of "normal or standard level of O&M cost" is proposed under this project in Section 9.9.6 below.
[27] Balai Pengelolaan Daerah Aliran Sungai (Regional Office of Watershed Management) which reports to DG Land Rehabilitation and Social Forestry Affairs in the Ministry of Forestry and Plantations. It is considered that the responsibilities of the three main agencies concerned with watershed management in the Jeneberang River basin are not clearly differentiated and should be reviewed.

(iii) Water quality management, which includes: a) effluent discharge licensing; b) water quality monitoring; and c) pollution control, performed in-stream and off-stream;
(iv) Flood and drought management;
(v) River administrative area management;
(vi) Water resources infrastructure maintenance.

The PJT Jeneberang will also undertake necessary support activities (e.g. (1) collection of revenue from beneficiaries, polluters and government, (2) coordination and collaboration with local government, and (3) later, development and operation of non-water business (such as sustainable sand mining, equipment rental, tourism and recreation) to boost revenue.

The PJT Jeneberang would recommend water abstraction permits to SS Dinas PSDA, which would either itself approve or obtain approval from the Governor, depending on the importance of the proposed abstraction. At present, such formal permits do not exist.

The Study Team considers that control of groundwater resources and the approval of abstractions should be in the hands of the authority responsible for surface water, i.e. MPW nationally, and the SS Dinas PSDA in the Jeneberang River basin. It is therefore recommended that such a transfer[28] should be made by revising Presidential Decree No. 64/1972 and issuing a new Ministerial Decree from the Ministry of Energy and Mineral Resources.

9.7.6 Objectives

The following general objectives are suggested for the PJT Jeneberang:

(i) To improve river basin management (RBM) and level of O&M to the norm[29].
(ii) To become self-financing by improving financial performance.
(iii) To conserve river environment.
(iv) To develop an effective and efficient working environment to reduce costs and deliver excellent service.
(vi) To develop private sector participation (PSP) where appropriate.

9.7.7 Sources of Finance

To achieve sustainable O&M, finance must be secured. Thus, beneficiaries, polluters and Government must increasingly bear the full cost of managing the river basin by applying:

(i) The Beneficiaries Pay Principle: through water use fees and revenue from non-water services;
(ii) The Polluters Pay Principle: through pollution fees and penalties;
(iii) The Public Service Obligation Principle: where Central or Regional Government pays for essential, non-commercial water services (e.g. flood management, water quality

[28] This transfer was also recommended under the WATSAL program.
[29] "Normal" annual O&M cost of river infrastructure is now proposed to be "the estimated required accumulated annual O&M cost of each facility and river, including management. This annual O&M cost is based on (i) field reconnaissance, (ii) interview survey and (iii) the actual status of river infrastructure".
This definition would replace, and is believed to be less costly than, the previously employed "at least 1 % of the current undepreciated asset value of each facility".

management, watershed management and water resources conservation), where such services cannot be funded by (i) and (ii).

Potential beneficiaries with an obligation to pay water use fees include: two PDAMs (Makassar City and Gowa), PLN at Bili-Bili Dam from late 2005, and one small industrial concern[30].

No functioning beneficiary is at present paying for the raw water it consumes. No polluters are paying for licenses or for discharging pollutants into water bodies. The Public Service Obligation Principle has been accepted by GOI, is already operating in other Ministries (e.g. Education), and is currently being discussed for the water sub-sector, but is unlikely to become effective before mid-2005.

In the case of farmers and water for irrigation (to be provided without charge according to new Law No. 7 or 2004), there is a strong case for government[31] to pay some amount to PJT Jeneberang for the supply of such irrigation water (~80% of all surface water consumed). Such a cost should not be subsidized by either commercial or private consumers / users.

9.8 Organization Structure and Indicative Staffing

9.8.1 Overall Structure: PJT Jeneberang as Extension to PJT I

The outline organization structure of PJT Jeneberang is an extension of the PJT I working area and its relation to PJT I is proposed in Figure 9.3. So that Provincial Government may have some influence at the highest level of PJT I, it should appoint a senior representative to the PJT I Supervisory Council.

PJT Jeneberang's more detailed organization and indicative staffing is proposed in Figure 9.4. The estimated staffing level of 76 persons is intended for a future steady state (in the 5th year, say) to allow assets controlled by PJT J to be maintained sustainably and efficiently. Start-up staff levels will be much reduced, partly for financial reasons (costs should be minimal until adequate revenue is assured) and partly because any newly established organization must begin with a reduced functionality and staffing.

The main features of the PJT J organization are described below.

A Director of Jeneberang Operations, who should, when the new structure is fully implemented, be a member of the PJT I Board of Directors, will be responsible for achieving corporate objectives within budget, and maintaining the necessary external relations within the Jeneberang River basin. He will be assisted by the PJT I Directors in their respective domains and will be based in Makassar City. He will also be advised by a small committee of multi-sectoral stakeholders representing interests in the JRB.

The Operations Director should have considerable authority to manage his Directorate within budget and without frequent reference to PJT I. For now, the authority levels currently allocated

[30] This is a sugar factory (which consumes 10,000 m^3/year of raw water) understood to be in financial difficulties.
[31] Central government for irrigated areas > 3,000 ha: provincial government for irrigated areas > 1,000 ha and ≤ 3,000 ha; kabupaten government for irrigated areas ≤ 1,000 ha.

to Operations Directors in Brantas and Bengawan Solo river basins should be used. Authority limits should cover, within and outside budgets, such items as recruitment, expenditure commitment, payments, public statements, and technical recommendations.

The Operations Director will be responsible for the following subordinate units:

(i) Two Water Services Divisions (see Section 9.10.2 below);
(ii) A Technical Bureau, responsible for: technical planning (with water services divisions); preparing and monitoring execution of the annual work program; water quality planning and control (monitoring, testing and reporting); laboratory management[32] and water quality and quantity data processing;
(iii) An Administration and Finance Bureau, responsible for providing: budgeting, management accounting and financial accounting services; personnel administration and training services; office, property and procurement services; and business development, public relations and promotional services; and
(iv) In due course, a Non-Water Services Division should be set up to develop revenue from non-water business, such as sustainable sand-mining, tourism, equipment hire and consultancy. This division has not been structured or staffed for this report. However, both PJT I and PJT II have extensive experience in this area.

Quality management and internal audit functions will be undertaken initially from PJT I's head office in Malang.

9.8.2 Water Services Divisions

The water services divisions will undertake responsibilities (i) to (vi) in Section 9.9.5 for the selected five rivers and river infrastructure. They will formulate, with the Technical Bureau, the O&M program for this infrastructure. Divisions and sub-divisions will be allocated to defined areas of the JRB and have office locations as shown in Figure 9.4. Water services divisions will also have some business-related responsibilities in their areas of jurisdiction: fee collection, development of customer base, and development of the commercial use of resources (land, water, and initially, C-class mining[33]).

Water Services Division 1 will be based at the Bili-Bili Dam site and will operate and maintain the Bili-Bili Dam and reservoir, the raw water transmission main (RWTM) to Somba Opu PDAM, the Bili-Bili Dam catchment area of the upper Jenberang River, and the Jenelata River, as well as all the hydrological gauging stations. The work will be accomplished by two sub-divisions:

(i) Sub-Division I-1 will operate and maintain the Bili-Bili Dam and reservoir and its related infrastructure and measuring devices operated from or related to the Dam site;

[32] Initially laboratory services would be out-sourced; later PJT J would establish its own laboratory.
[33] If C-class mining becomes a significant business, it must be moved to a separate non-water business unit to avoid conflicts of interest (e.g. with its watershed conservation responsibilities).

(ii) Sub-Division I-2 will maintain the sabo and sand pocket dams, and be responsible for river and watershed conservation in the Bili-Bili Dam catchment and in the Jenelata River catchment.

Water Services Division II will be based in Makassar City and will operate and maintain Bili-Bili, Bissua and Kampili irrigation weirs on the Jeneberang River, the river itself and its infrastructure from just below the Bili-Bili Dam to the Makassar Strait, as well as the Long Storage. This work will be done by two sub-divisions:

(i) Sub-Division II-1, located in a Bissua office, will operate and maintain the three irrigation weirs and the associated stretch of the Jeneberang River;
(ii) Sub-Division II-2 will operate and maintain the rubber dam and Long Storage and the associated gates and other infrastructure. This sub-division will also undertake the necessary river conservation between Bili-Bili Dam and the Makassar Strait.

9.8.3 PJT Jeneberang Start-up (2007-2008, 2 years)

The time frame for producing and enacting the necessary legislation for PJT Jeneberang is discussed in Section 9.3.2. This suggests that after the initial Presidential Decree is issued, hopefully in early 2005**,** a further two years will be required before PJT Jeneberang can legally begin O&M operations.

In the first two years of operation, PJT J will undertake only the most essential O&M tasks and personnel training in view of the expected limited funding. Such tasks would include: O&M of the Bili-Bili Dam, the three weirs, the raw water transmission main, the long storage gates, and the hydrological gauging stations. Where funds are limited, the emphasis should be on vital O&M of infrastructure rather than indirect support functions. During this period, funds permitting, PJT J should be developing its institutional capacity to deliver the minimum services decided on to a standard acceptable to beneficiaries and other stakeholders. This would be done with systematic help from PJT I.

In addition, efforts should continue (again supported by PJT I) to progress legal and other actions needed to speed the generation of river basin revenue from beneficiaries, polluters and Government.

The start-up organization, it is suggested, will comprise a much reduced Water Resources Division I managed from Bili-Bili Dam Office and a much reduced Water Resources Division II managed from the Proyek Induk Offices in Makassar. The Technical Bureau and Administration and Finance Bureau will also reduce in line with the diminished technical workload and overall staff numbers. It is also assumed that all security tasks and staff will be subcontracted.

Thus, staff numbers reduce from an estimated 76 in the long-term structure to an estimated 45 in the start-up structure. The organization structure and estimated staffing of PJT J during the first two years is shown in Supporting Report I.

It is stressed that these staff numbers, although detailed, are best estimates using available information. They should be verified against a more accurate assessment of the O&M workload and support needs during 2006 by PJT I and the Operations Director for Jeneberang.

Early in 2006, the three key senior officers[34] should be appointed first, in strict accord with job descriptions and employee specifications. They, in turn, would be responsible for appointing, with senior PJT I officials, only the staff that are immediately needed from the estimated 45 (plus the sub-contracted security staff). All these staff should be systematically trained and developed, technically and in the corporate culture, according to the adopted capacity development program (CDP).

Initial selection, training and development of PJT J staff according to a proposed HRD framework and timetable are discussed in Chapter 13.

9.8.4 Development Phase (2009-2011, 3 years)

The following three-year period should see the further development of PJT J, both functionally and organizationally. Funds permitting, the work of the directorate should expand to include more of the required O&M tasks listed in Figure 9.4 and should improve in quality towards the standard expected of an ISO 9001 agency. To help achieve this, the CDP, initiated before the start-up phase, should be continued and elaborated (see Chapter 13 for more on this subject).

During this phase, all available sources of river basin income should have been fully developed, from beneficiaries (including users of groundwater, which by 2011 should have been transferred from Ministry of Energy and Mineral Resources), polluters and Government's PSO funding. Furthermore, it is desirable, that users of the huge amounts of raw water supplied[35] for irrigation would be paying a modest water supply fee[36] to encourage water conservation, and help to defray the costs of weirs and related facilities.

9.8.5 Expansion Phase (2012 onwards, 10-15 years)

During this phase, non-water business should be developed in order to exploit sources of income additional to those from WRM. It is desirable that such business should be organized separately from mainstream water services to avoid conflicts of interest.

Moreover, providing quality can be assured and *the practice is cost-effective,* suitable jobs and services (in addition to the existing security function) may be contracted out to private agencies. In fact, as PJT I is already using such sub-contractors in the Brantas and Bengawan Solo River basins, this practice could be introduced earlier for Jeneberang, after necessary feasibility studies.

[34] Operations Director, Head of Technical, Administration & Finance Section, and Head of the Bili-Bili Division.
[35] About 80% of total water demand from the Jeneberang River predicted in early 2005 by the Study Team.
[36] For this purpose, the Water Law No. 7 / 2004 would need to be amended together with the associated Central and Local Government regulations and decrees. Such a policy shift would be in line with evolving international paradigms on the economic valuation of water obtained through expensive infrastructure, to encourage conservation of water resources as well as help to recover costs.

9.9 Proposed Inter-Agency Arrangements for WRM in the Jeneberang River Basin

For the normal O&M of the Jeneberang river basin, PJT Jeneberang will operate under or together with several other authorities and WRM agencies in the JRB. These are listed below by major function with a brief statement of the proposed relationship with PJT Jeneberang.

9.9.1 River Administration

MPW delegates to the South Sulawesi Governor the final authority on all matters concerning WRM in the JRB. Some of this WRM authority will be delegated in turn to the SS Dinas PSDA. Other ministries delegate similar authority to the Governor in their respective sectors.

9.9.2 Technical Regulation

SS Dinas PSDA will be responsible to the Governor for regulating all aspects of WRM (including issuing and monitoring permits for water abstraction) undertaken by PJT J to ensure compliance, and for enforcing the various WRM regulations. Thus, PJT J should inform DPSDA when infringements of these regulations occur and expect appropriate enforcement action to be taken, for example, through sanctions or penalties prescribed by law.

Other South Sulawesi sectoral agencies would have the same general responsibilities within their sectors.

In the case of forestry and watershed management (vitally important in the relatively fragile Jeneberang River basin), the position is more complex due to the existence of three different bodies with apparently overlapping supervisory responsibilities: the regional Balai PDAS Jeneberang-Walanae, the South Sulawesi Dinas Forestry and the Kabupaten Gowa Dinas Forestry.

To improve the effectiveness of watershed conservation in South Sulawesi, a forum of interested parties has been recently set up by Balai PDAS. Its 100 members include representatives from Hasanuddin University, SS Dinas PSDA, and other regional agencies and NGOs. Unfortunately, its work area is very large, covering the whole of South Sulawesi Province, so its ability to be effective, for example, in the Jeneberang River basin will be limited. One solution to this problem would be to form, as already suggested by the Directorate General of Land Rehabilitation and Social Forestry Affairs, a Local Watershed Forum or Committee to deal specifically with Jeneberang River basin.

The South Sulawesi Office of Energy and Mineral Resources would, for the present, regulate the issue and use of licenses for ground water consumption. However, as already mentioned, the Study Team is recommending that groundwater should be managed and regulated by the agency responsible for surface water, that is MPW (under the new Water Law No. 7/2004) so that all WRM is under the same agency. At provincial level, groundwater would then be regulated by SS Dinas PSDA.

Finally, it is recommended that the regulation of sand-mining within river administration areas should also pass from MEMR to MPW so that in the Jeneberang River basin SS Dinas PSDA would undertake this task. This would include the issue of sand-mining licenses, and enforcing their use. This arrangement is in line with international practice.

9.9.3 River Basin Operation and Service Provision

According to varying practice in other PJT-managed river basins, PJT J will be assisted in the in-stream management of the JRB by the Dinas PSDA's UPTD, the Jeneberang SWS Balai PSDA[37]. PJT J will manage water resources and distribute water to users and consumers in its selected 5 rivers. The Balai PSDA will undertake similar tasks in the remaining JRB rivers.

The Jeneberang SWS Balai PSDA is still, two years after operations began, in training / data collection mode (although it is beginning to undertake its water allocation and distribution tasks) and will be unable to execute its full legal responsibilities for some considerable time (see Section 9.5.2 (2)).

At present, the Water Resources Services of the Gowa and Takalar kabupaten are partially filling the gap.

9.9.4 WRM Coordination and Stakeholder Participation

The present coordination of WRM in the JRB is noted in Sections 9.5.2 (3) and (4). The two coordinating committees, PPTPA[38] at river basin level, and the provincial PTPA[39] are established but are not fully functional. Both committees have some, but insufficient, stakeholder representation. This deficiency should be put right when the committees are converted to Water Resource Councils after the formation of the National Water Resources Council. PJT J should advise (with Dinas PSDA and Balai PSDA, respectively) both committees / councils on matters concerning its own activities and should implement decisions of the PTPA within its jurisdiction.

A particular task of the PTPA will be to agree, based on recommendations from PPTPAs, the annual framework of water rights (including irrigation water supply) in the Jeneberang River basin; and then ensure through bodies such as PJT J and Balai PSDA that water allocations are in accordance with these. Unfortunately, the GR on Water Use Rights, which will regulate the application of these rights, is unlikely to be issued before the end of 2005.

It is recommended that a small stakeholder committee should be formed to meet regularly with, and advise, the PJT Jeneberang Operations Director on decisions and issues concerning JRB and its service areas.

9.10 Implementation / Capacity Development Plan

[37] The working area of the Jeneberang SWS Balai PSDA comprises the Pangkajene Kepulauan, Maros, Gowa, Takalar, Jeneponto, Bantaeng, Bulukumba, Sinjai, Selayar and Makassar areas according to Governor Decree No. 212/2001.
[38] Panitia Pelaksana Tata Pengaturan Air – River Basin Water Resources Coordination Committee.
[39] Panitia Tata Pengaturan Air – Provincial Water Resources Coordination Committee

The objective of the Capacity Development Plan in the institutional sub-sector is to educate selected senior managers and others who will execute procedures in this sub-sector, in the theory and practice of organizational structuring, job analysis, staff planning and budgeting, and personnel administration. The program will therefore concentrate on some matters (except for staff planning and budgeting, and personnel administration) that will be probably undertaken and certainly decided in the PJT I head office in Malang.

However, as part of management education and training, these subjects should be taught to senior personnel and practiced by them in a study environment. It would be beneficial if the basic tenets of good management could be included as well. (This training course should interface seamlessly with that on business planning.) Exercises to be practiced on the course would include the preparation of job descriptions and employee specifications for the more important functional jobs identified for PJT Jeneberang's start-up organization.

Heads of water services divisions and bureaus, and the lone member of the HR Section should therefore attend classroom lectures and practical exercises on:

(i) Organizational planning and development;
(ii) Job analysis / planning and job descriptions / employee specifications;
(iii) Staff planning and budgeting, and the development of staff establishments.

This course would last for 14 working days or three weeks elapsed time.

The second course on HRA would be for the lone member of the HR section and the head of the Administration and Finance Bureau. However, heads of divisions and bureaus should attend some sessions, notably those on performance appraisal and promotion.

Classroom lectures and practical exercises would examine and teach PJT I HRA policies and procedures on:

(i) Staff recruitment and posting;
(ii) Salary and allowances system and payment system;
(iii) Personnel records and MIS;
(iv) Performance appraisal and promotion;
(v) Discipline and dismissal;
(vi) Leave;
(vii) Outsourcing work;
(viii) Document control.

Classroom and practical work would require an estimated 18 working days (25 calendar days). The work should include the critical appraisal of existing documents and the development of improvements, including those recommended in Supporting Report M. In addition to the classroom time, a further 21 working days of on-the-job training has been allocated after PJT Jeneberang starts operations in January 2007.

The trainer would be a suitably qualified PJT I expert (or experts) retained for 75 calendar days in three tranches. It is recommended that he / she should be assisted by a suitably experienced

academic from (say) Hasanuddin University, who could provide additional insights and maybe a wider experience.

More detail can be found in Chapter 13.

Table 9.1 Establishment Schedule for PJT Jeneberang[1)]

Action[2)]	Action by	2004			2005				2006				Remarks
		II	III	IV	I	II	III	IV	I	II	III	IV	
PJT I & III Initial Legislation													
- PP for establishing new PJT III (for Bengawan Solo, Jratunseluna & Serayu-Bogowonto)	MPW												Final draft with Minister for MPW
- Informal discussions with Governor & DPRD of South Sulawesi, concerned Kabupaten / Kota	MPW												
- Keppres for inclusion of Jeneberang Basin as additional working area of PJT I	MPW												
Central Government Legislation (items other than above)													First drafts prepared by PJT I
- Government Regulation													
(1) PP for investment of State capital into the capital of PJT I	MPW												
- Ministerial Decrees													
(1) MPW Decree for authorizing PJT I to collect O&M & other fees in the Jeneberang working area	MPW												
(2) MPW Decree for authorizing Sulsel Governor to issue various permits	MPW												
(3) MPW Decrees on funding O&M: basic tariff for industry, PDAM and PLN	MPW												Prepare in parallel with Provincial Decrees
(4) MSOE Decree for amending PJT I's Supervisory Board	MSOE												
Regional Government Legislation													First drafts of regs and decrees prepared by PJT I
- Budgetary Arrangement	SSGov												Budget for public consultation, etc.
- Four Provincial Regulations for authorizing Corporation to conduct RB management	SSGov												A conservative estimate of 1.5 years
- Various Governor Decrees concerning licensing, fee collection and, generally, implementing Prov.	SSGov												
- Varous Dinas PSDA/Bapedalda Decrees on technical guidelines	SSGov												
- Various Agreements between PJT I and Kabupaten / Kota governments and other stakeholders	KabGov												
Preparation for Establishment of Corporation									**Establish**				
- Transfer of assets to Corporation	MPW												
- Selling scrap assets ro raise funds for the Corporation	MPW												
- Budgeting of fresh money fund needed for corporation establishment	MPW												As budget for initial mobilization expenses
- Organizational setup including office setup and key personnel asignment	MPW												
Preparation for Start of O&M Operation													**Start Operation 1/1/2007**
- Budgeting of fresh money fund for conducting O&M work	MPW												
- Procurement of O&M operation resources	MPW												
- Preparatory work for commencement of actual operation	MPW												Office rules, manuals, staff training, socialization

See Chapter 13 for detail

Notes: 1) The detail of this schedule is still tentative. Dates for establishment (1/1/2006) and start of operations (1/1/2007) should be regarded as firm
2) These actions can be largely independent of the work on revising WRM-related GRs

Table 9.2 Rivers Selected for Management by Public Corporation

1st Order River	2nd Order River	3rd Order River	Length (km)	Catchment Area at Confluence (km2)	%	Infrastructure & Measuring Stations
Jeneberang			**85.50**	**762.01** (at river mouth)	**100.0**	Rubber Dam Kampili Weir (10,545 ha) Bissua Weir (10,758 ha) Bili-Bili Weir (2,360 ha) Bili-Bili Multipurpose Dam Raw Water Transmission Main Hydrological Gauging Station (6) Sabo Dams/Sand Pocket Dams (6)
	Long Storage		**4.50**	**15.76**	**2.1**	Flushing Gate Intake Gate Tidal Gate
	Garassi		16.47	45.32	5.6	
				10.75		
		Burunguntea	6.04	27.10	1.4	
		Salo Bontorea	5.06		3.6	
	Salo Tetebatu		6.57	6.33	0.8	
	Jenelata/Sapaya		**38.45**	**232.69**	**30.5**	Hydrological Gauging Station (3)
	(Largest Tributary)	Bela Punrangan	9.21	11.28	1.5	
		Binanga Tokka	**24.26**	**77.53**	**10.2**	
		Munggunturu	6.47	13.27	1.7	
		Balang Kampala	10.44	32.64	4.3	
		B. Pateteang	5.26	29.95	3.9	
		Tallanggantarang	6.55	13.50	1.8	
	Binanga Jajang		9.73	22.43	2.9	
	Jene Rakikang		19.16	41.24	5.4	
		Bulu Tanetelang	5.26	8.14	1.1	
		Parigi/Asana	3.26	17.23	2.3	
	Binanga Bengo		6.62	14.23	1.9	
	Salo Bengo		8.48	22.55	3.0	
		Salo Patene	8.66	8.88	1.2	
	Salo Malino		**18.67**	**85.89**	**11.3**	Sabo Dam No.6
		Salo Ahuwa	6.53	16.69	2.2	Hydrological Gauging Station (1)
		Salo Bulang	9.96	17.95	2.4	
	Salo Angasia		5.63	5.36	0.7	
	Kausisi		**18.91**	**37.50**	**4.9**	Sabo Dam No.8
		Salo Kanipa	4.10	8.39	1.1	
TOTALS =**1**	14 (**3 selected**)	14 (**1 selected**)	**190.29**	---	---	17 – Major Infrastructures 10 – Hydrological Stations

TOTAL RIVER BASIN CATCHMENT AREA = 762.01 km2

Source: Interim Report Table 10.1

Notes: 1. Criteria for selecting rivers and river infrastructure to be managed by PJT I Jeneberang:
- a) 1st, 2nd, and 3rd order rivers with a sub-catchment area more than or close to 10 % of the total river basin area, or other significant features
- b) Large dams and weirs irrigating > 500 ha of potential area
- c) Other significant infrastructure and measuring stations (Kausisi)
- d) Long Storage is considered to be part of the Jeneberang River

2. Drainage infrastructure and waterways for Makassar City currently managed by Proyek Induk are excluded. They should be transferred to Makassar City Dinas Cipta Karya as already instructed.
3. Bold letters and shaded figures are for selected rivers.

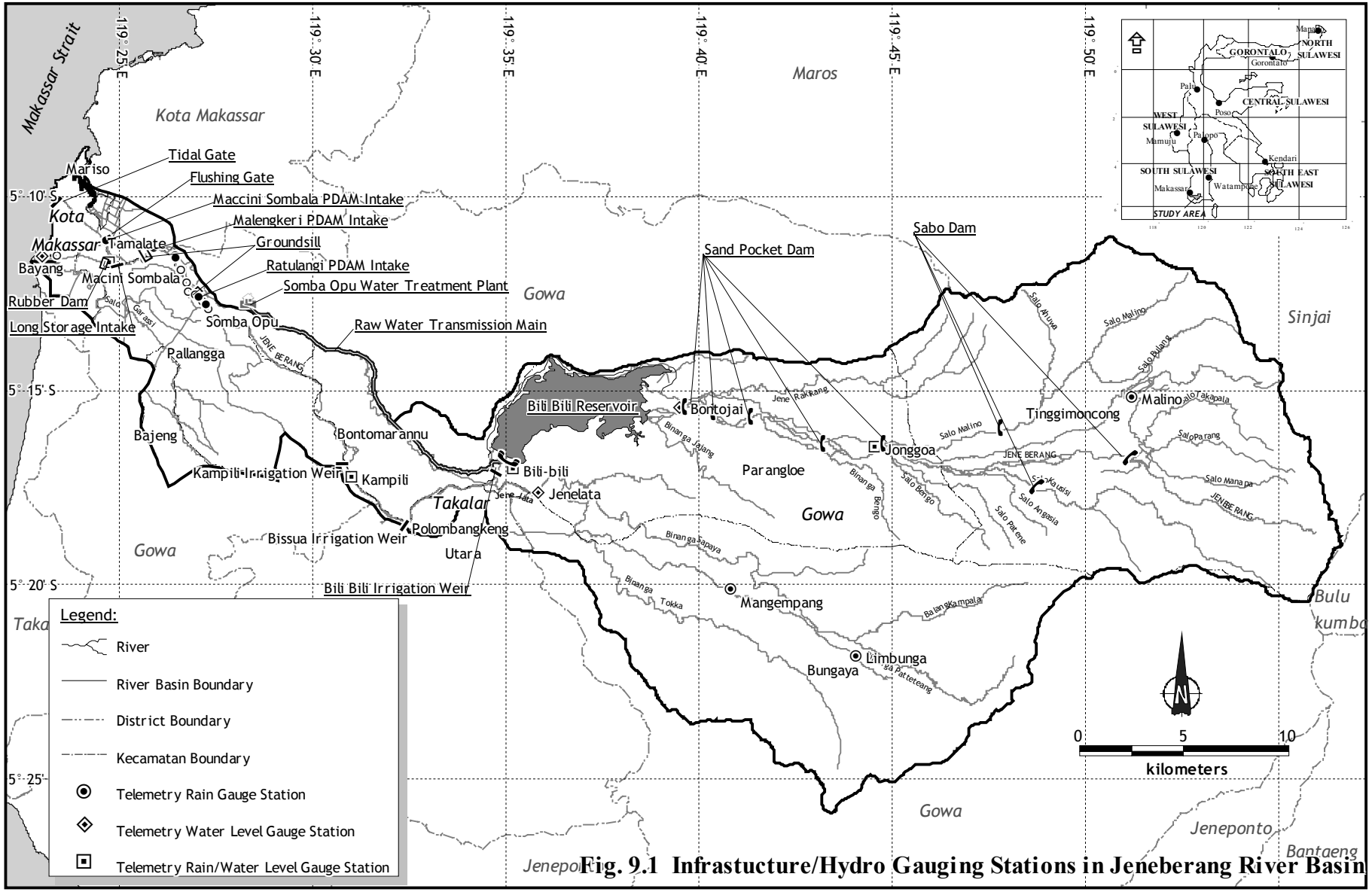


Fig. 9.1 Infrastucture/Hydro Gauging Stations in Jeneberang River Basin

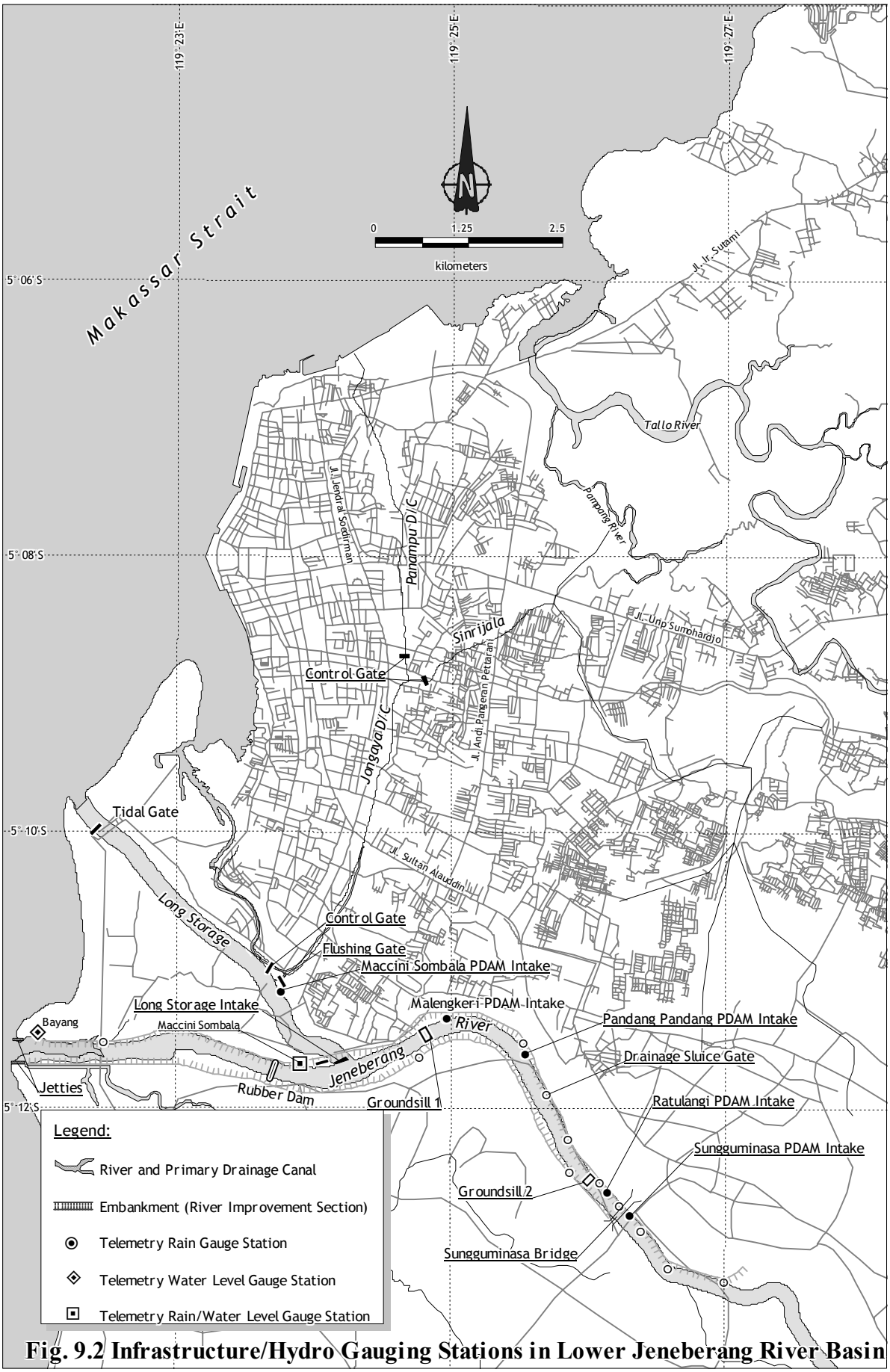


Fig. 9.2 Infrastructure/Hydro Gauging Stations in Lower Jeneberang River Basin

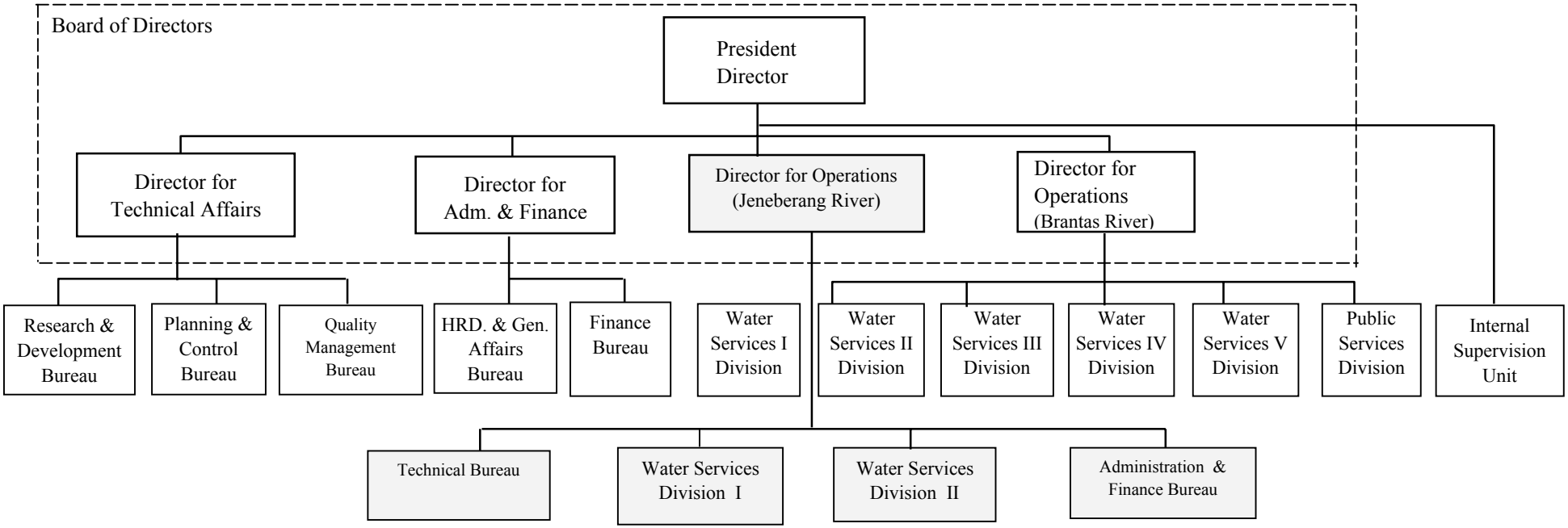
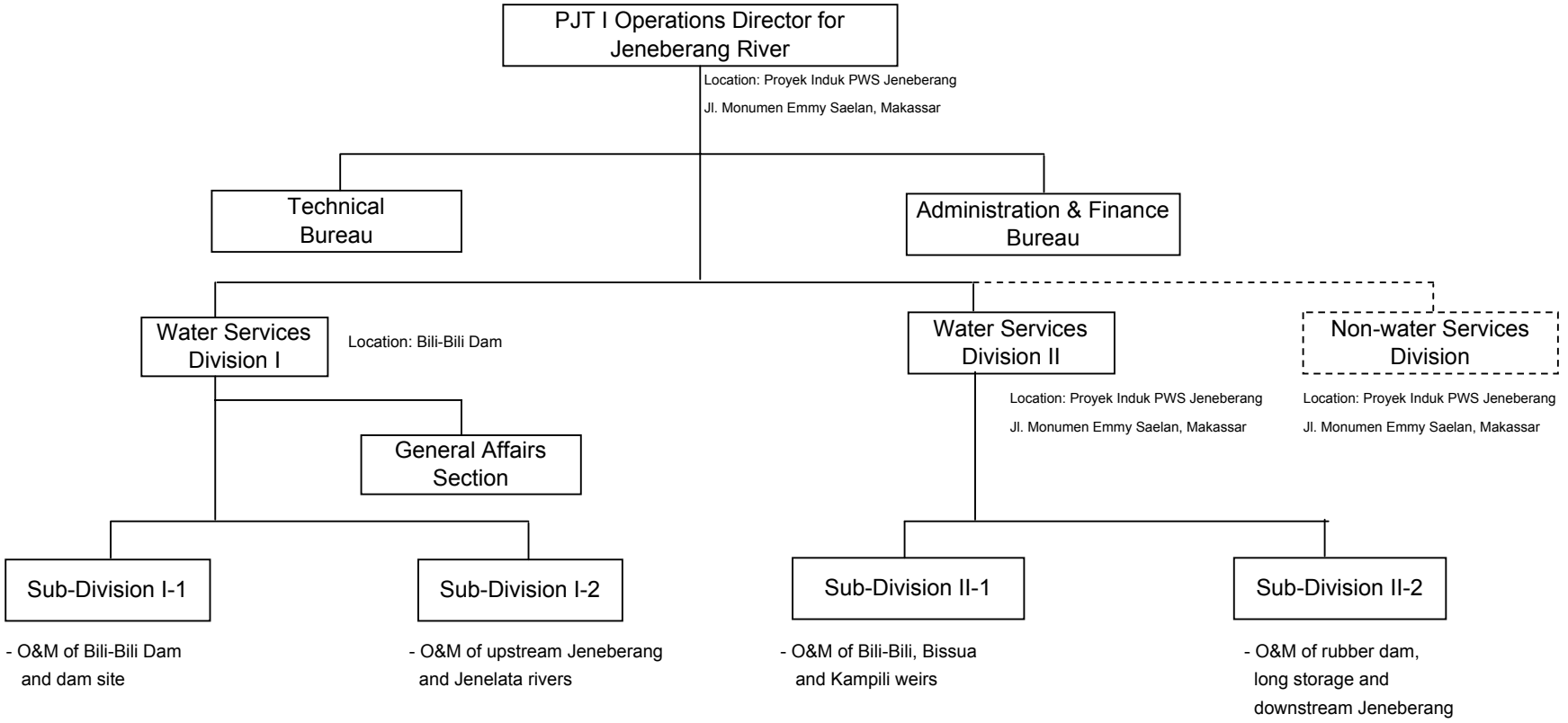


Figure 9.3 Organization Structure of Jasa Tirta I Public Corporation (PJT I) including "PJT Jeneberang" (see highlighted boxes)

Overall Organization

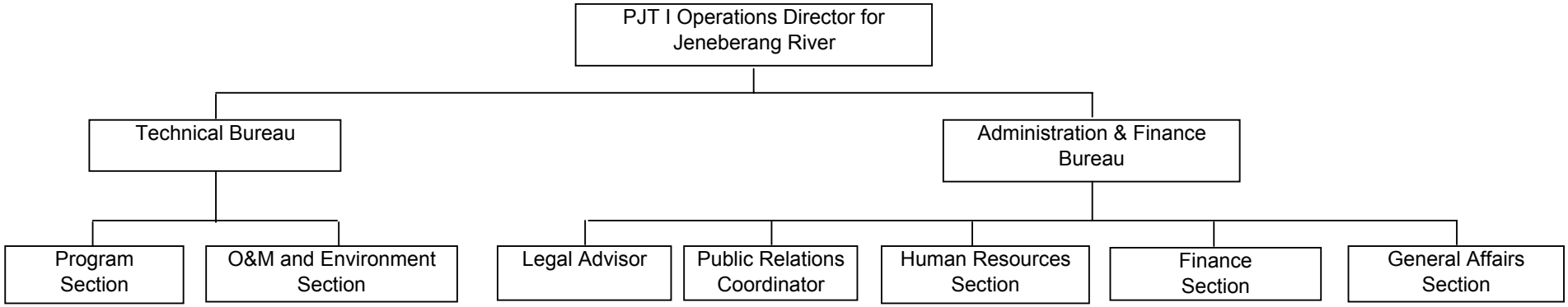


Overall total staff: **76**

Notes:
1) The General Affairs Section attached to Water Services Division I is primarily responsible for dam site security
2) Non-water services are excluded from this chart. However, it is expected that such services will, in due course, include sustainable sand mining, tourism, equipment hiring and consultancy.

Figure 9.4 PJT Jeneberang as Extension of PJT I (1/4)

Technical and Administrative Support



Head of Operations Directorate	1		**Administration & Finance Bureau staff details:**		
Technical Bureau staff details:			Head of Administration & Finance Bureau	1	
			Legal Advisor	1	
Head of Technical Bureau	1		Public Relations Coordinator	1	
Head of Program Section	1		Head of Human Resources Section	1	
Engineering Staff	1		Administration Staff	1	
Head of O&M and Environment Section	1		Head of Finance Section	1	
Water Quality Analyst	1		Finance / Accounting Staff	1	
Sampling Staff	2		Computer Operator / Typist	1	
Structural Enginner	1				
Mechanical/Electrical Engoineer	1		Head of General Affairs Section	1	
Geologist /Soil Mechanic Engineer	1		Administration Staff	1	
			Office Boy/Girl	2	
Computer Operator/Typist	1		Security	[3]	
Survey & Equipment Staff	1		Drivers	3	
Sub Total:	13		Sub Total:	15	**Subcontracted**

Technical and Administrative Support Total: 28 persons

Figure 9.4 PJT Jeneberang as Extension of PJT I (2/4)

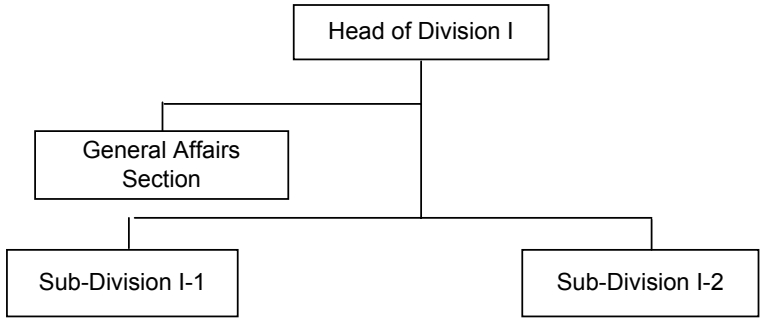
Water Services Division I

Location: Bili-Bili Dam Site

Infrastructure and Tasks:

Bili-Bili Dam	O&M of Bili-Bili Dam: * Main, left wing & right wing dam * Inlet/Outlet structure * Flood control gate * Spillway * Diversion channel
Bili-Bili Dam Site and related operations basin-wide	O&M of Telemetry Hydrological Gauging Station * Telemetry gauging stations (10) * Warning stations (2) * Supervisory control station * Monitoring station O&M of Raw Water Transmission Main * PC pipes (16.0 km) * Steel pipes (0.25 km) * Valves with valve chambers (25 units) Flood forecasting & warning
Upper Jeneberang	O&M of Sand Pocket & Sabo Dams * Sand pocket dams (5) * Sabo dams (3) River conservation in the River Administration Area Collaboration with SS Dinas Forestry and others in watershed conservation in Bili-Bili Dam Catchment Area

Notes:
1) The boundary between Divisions I and II will be placed on the Jeneberang River just below Bili-Bili Dam (except for Raw Water Transmission Main).
2) Control of legal and illegal sand mining will be included in the work of the Upstream River Sub-Division.



Head of Water Services Division I 1

General Affairs Section Staff details:

Head of General Affairs Section	1
Computer Operator / Typist	1
Security*	[6]
Driver	2
Sub Total:	4

*: Subcontructed [staff numbers not correct]

Sub-Division I-1 [Dam O&M] staff details:

Head of Sub-Division I-1	1
Hydrologist / water quality expert	1
Telecommunication engineer	1
Computer Engineer	1
Gate operator	4
Field Inspector / warning crew**	1
Computer Operator / Typist	1
Driver	3
Sub Total	13

**: In addition, six personnel are to be subcontracted

Sub-Division I-2 (Upstream O&M) Staff details:

Head of Sub-Division I-2 / Civil Engineer	1
Field Inspector***	1
Computer Operator	1
Driver	3
Sub Total:	6

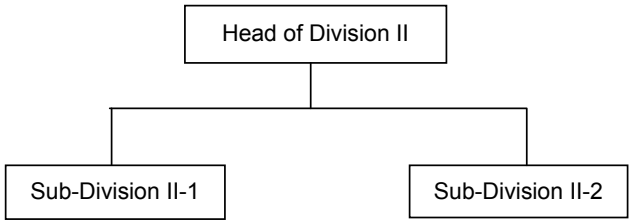
***: In addition, three personnel area to be subcontracted

Division Total : 24 persons

Figure 9.4 PJT Jeneberang as Extension of PJT I (3/4)

Water Services Division II

Location: Proyek Induk PWS Jeneberang, Jl. Monumen Emmy Saelan, Makassar



Infrastructure and Tasks	
Middle Jeneberang (weirs)	O&M of Bili-Bili Weir
	* Diversion weir (1 unit 69.0 m long)
	* Intake structure (1 unit)
	O&M of Bissua Weir
	* Diversion weir (1 unit 239.3 m long)
	* Intake structure (1 unit)
	O&M of Kampili Weir
	* Diversion weir (1 unit 91.0 m long)
	* Intake structure (1 unit)
	River conservation in the River Administration Area between BiliBili Dam and Kampili Weir
Rubber Dam/ Long Storage	O&M of rubber dam
	* Rubber gate with control equipment
	* Bed protection with crushed stone
	* Revetment (316 m)
	O&M of long storage
	* Intake sluice gate
	* Flush gate to drainage channel (2)
	* Outlet box culvert
	* Tidal gate
Lower Jeneberang	O&M of river structures below Kampili Weir
	* Groundsill (2)
	* Drainage sluice gates (11)
	* River dyke (21.1 km)
	* Revetment (11.4 km)
	* Groyne (43)
	* Jetty
	River conservation in the River Administration Area below Kampili Weir

Head of Water Services Division II	1
Computer Operator / Typist	1
Driver	3

Sub-Division II-1 (Weirs O&M) Staff details:

Head of Sub-Division II-1/ Civil Engineer	1
Irrigation engineer	1
Gate operator	6
Driver	2
Sub Total:	10

Sub-Division II-2 (Downstream O&M) staff details:

Downstream River Section	
Head Sub-Divn II-2 / Civil Engineer	1
Hydraulic Engineer	1
Hydrologist/Water Quality Engineer	1
Field Inspector	1
Computer Operator	1
Rubber Dam / Long Storage Section	
Gate Operator	4
Sub-Total	9

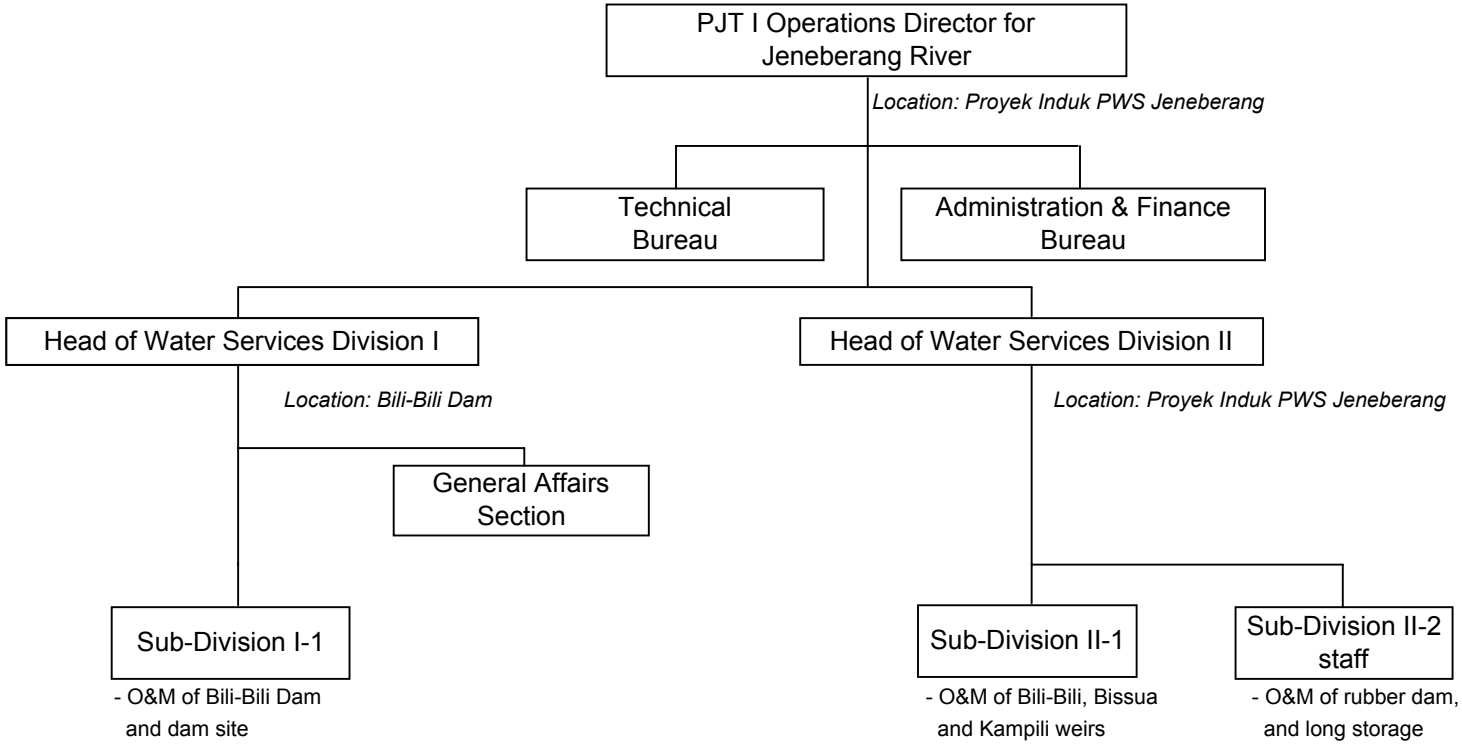
Division Total: **24 persons**

Notes: 1. The 14 river gates along the lower Jeneberang River will be operated by temporary staff living near the gates. Gate operation instructions will be given by BiliBili Dam Control (supervised by Head of Sub-Division I-1

2. The work of the Downstream River Section should include the control of salinity in Long Storage by appropriate means.

Figure 9.4 PJT Jeneberang as Extension of PJT I (4/4)

Overall Organization

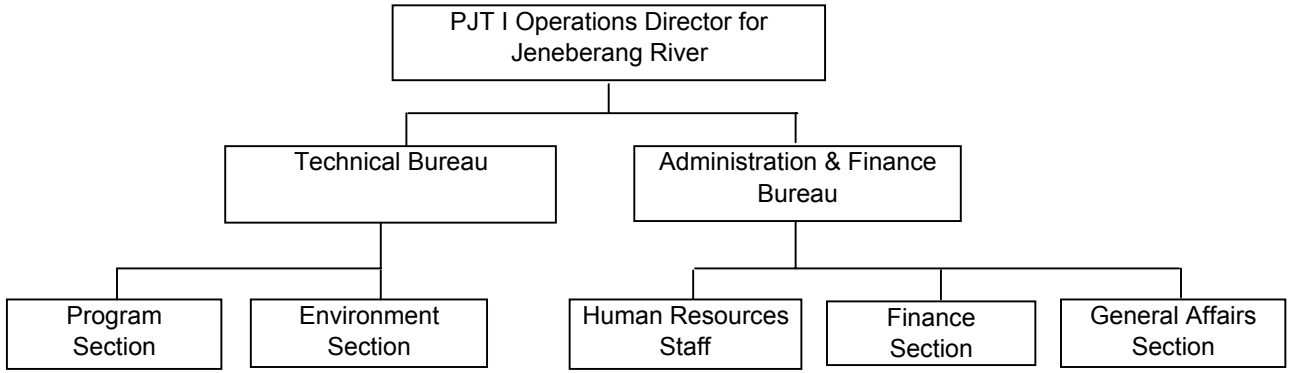


Overall total staff: **45 persons**

Notes:
1) Only essential tasks will be performed during the start-up period, that is O&M of the BiliBili Dam site including the Raw Water Transmission Main, and of the three major weirs downstream of the BiliBili Dam
2) Job titles of the long term organization have been retained for reference even where no staff have been allocated
3) All security operations in and around BIliBili Dam and PJT I Jeneberang office premises would be subcontracted

Figure 9.5 PJT Jeneberang as Extension of PJT I: Start-up - the First Two Years (1/4)

Technical and Administrative Support



Head of Operations Directorate	1	**Administration & Finance Bureau staff details:**	
Public Relations Coordinator			
		Head of Administration & Finance Bureau	1
Technical Bureau staff details:		Legal Advisor	
		Public relations Coordinator	
Head of Technical Bureau	1	Computer Operator / Typist	1
Head of Program Section	1	Head of Human Resources Section	
Engineering Staff	1	Administration Staff	1
Head of O&M and Environment Section		Head of Finance Section	1
Water Quality Analyst		Finance / Accounting Staff	1
Sampling Staff			
Engineering Staff		Head of General Affairs Section	1
Mwchanical/Electrical Engineer	1	Administration Staff	1
		Telecommunications	
Computer Operator/Typist		Mechanic	
Survey & Equipment Staff		Office Boy/Girl	1
Sub Total:	5	Security	[2] **Subcontracted**
		Drivers	2
		Sub Total:	10

Staff Total: **15 persons**

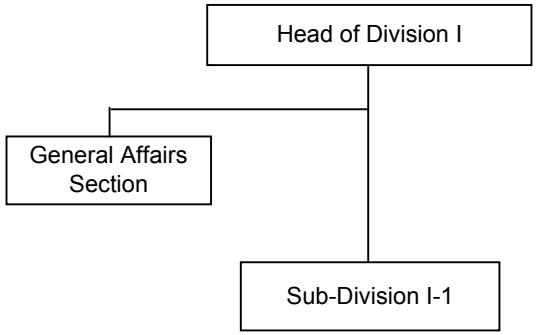
Note: For reference, all job titles in the long term organization are retained here, even where no staff are allocated

Figure 9.5 PJT Jeneberang as Extension of PJT I: Start-up - the First Two Years (2/4)

Water Services Division I

Location: Bili-Bili Dam Site

Infrastructure and Tasks:	*[**Note**: Shaded items will not be operated and maintained during the first two years]*
Bili-Bili Dam	O&M of Bili-Bili Dam: * Main, left wing & right wing dam * Inlet/Outlet structure * Flood control gate * Spillway * Diversion channel
Bili-Bili Dam Site and related operations basin-wide	O&M of Telemetry Hydrological Gauging Station * Telemetry gauging stations (11) * Warning stations (2) * Supervisory control station * Monitoring station O&M of Raw Water Transmission Main * PC pipes (16.0 km) * Steel pipes (0.25 km) * Valves with valve chambers (25 units) Flood forecasting & warning
Upper Jeneberang	O&M of Sand Pocket & Sabo Dams * Sand pocket dams (5) * Sabo dams (3) River conservation in the River Administration Area Collaboration with SS Dinas Forestry and others in watershed conservation in Bili-Bili Dam Catchment Area



Head of Water Services Division I 1

General Affairs Section Staff details:

Head of General Affairs Section	1	
Computer Operator / Typist / Secy.	1	
Security	[3]	**Subcontracted [staffing not correct]**
Driver	1	
Sub Total:	3	

Sub-Division I-1 [Dam O&M] staff details:		**Sub-Divn I-2 [Upstream River O&M] Staff details:**
Head of Sub-Division I-1	1	Head of Sub-Division I-2 / Civil Engineer
Hydrologist / water quality expert		Soil Mechanic / Engineer
Telecommunication engineer	1	Geologist
Computer Engineer		Reforestation specialist
Gate operator	4	Structural Engineer
Field Inspector / warning crew	1	Field Inspector
Computer Operator / Typist	1	Computer Operator
Driver	2	Driver
Sub Total	10	Sub Total:

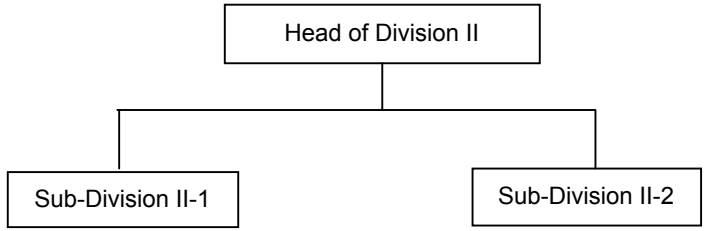
Division Total : **14** **persons**

Notes:
1) The boundary between Divisions I and II will be placed on the Jeneberang River just below BiliBili Dam. (except for Raw Water Transmission Main)
2) For reference, all job titles in the long term organization are retained here, even if they have no staff allocated

Figure 9.5 PJT Jeneberang as Extension of PJT I: Start-up - the First Two Years (3/4)

Water Services Division II

Location: Proyek Induk PWS Jeneberang, Jl. Monumen Emmy Saelan, Makassar



Infrastructure and Tasks	*[**Note**: Shaded items will not be operated and maintained during the first two years]*
Middle Jeneberang (weirs)	O&M of Bili-Bili Weir
	* Diversion weir (1 unit 69.0 m long)
	* Intake structure (1 unit)
	O&M of Bissua Weir
	* Diversion weir (1 unit 239.3 m long)
	* Intake structure (1 unit)
	O&M of Kampili Weir
	* Diversion weir (1 unit 91.0 m long)
	* Intake structure (1 unit)
Rubber Dam/ Long Storage	O&M of rubber dam
	* Rubber gate with control equipment
	* Bed protection with crushed stone
	* Revetment (316 m)
	O&M of long storage
	* Intake sluice gate
	* Flush gate to drainage channel (2)
	* Outlet box culvert
	* Tidal gate
Lower Jeneberang	O&M of river structures below Kampili Weir
	* Groundsill (2)
	* Drainage sluice gates (11)
	* River dyke (21.1 km)
	* Revetment (11.4 km)
	* Groyne (43)
	* Jetty
	River and watershed conservation below Kampili Weir

Head of Water Services Division II	1
Computer Operator / Typist	1
Driver	2

Sub-Division II-1 (Weirs O&M) Staff details:

Head of Sub-Division II-1 / civil engineer	1
Irrigation engineer	
Gate operator	6
Driver	1
Sub Total:	8

Sub-Division II-2 (Downstream O&M) staff details:

Rubber Dam / Long Storage Section	
Electrical/Mechanical Engineer	
Gate Operator	4
Downstream River Section	
Civil Engineer	
Hydraulic Engineer	
Hydrologist/Water Quality Engineer	
Structural Engineer	
Field Inspector	
Computer Operator	
Sub-Total	4

Division Total: **16 persons**

Notes: 1. The 14 river gates along the lower Jeneberang River will be operated by temporary staff living near the gates. Gate operation instructions will be given by BiliBili Dam Control (supervised by Head of Sub-Division I-1)

2. The work of the Downstream River Section should include the control of salinity in Long Storage by appropriate means.

Figure 9.5 PJT Jeneberang as Extension of PJT I: Start-up - the First Two Years (4/4)

CHAPTER 10

ADMINISTRATIVE AND FINANCIAL MANAGEMENT

10.1 Administrative Management

10.1.1 Framework of Administration

(1) Formulation of the Long-term Plan

In accordance with the Decree of Ministry of State-owned Enterprises (MSOE) KEP-102/MBU/2002 and MSOE (BUMN) master plan 2002 (which covers 2002-2006), the public corporation should prepare a long-term strategic plan that covers formulation of the aim and target to be achieved by the corporation during the coming 5 years. The aim of the corporation is, as stipulated in Government Regulation (GR) No.93/1999 (which includes articles of incorporation of PJT I and will also be applied to PJT Jeneberang), to fulfill human needs through efficient and sustainable water resource utilization, and to implement duties of river basin management.

The plan should also include historical background of the basin, vision, mission, objective, strategy, policy, constraints and program of implementation according to GR No.13/1998 on Public Corporation (this GR is now under revision). The long-term plan, which must be signed by the Supervisory Board and the Board of Directors, should be sent to State Ministry of State-owned Enterprise (SMSOE)[1] via Ministry of Public Works (MPW)[2] for approval.

The long-term plan is the basic management plan of the corporation. Succeeding work plans that would be prepared annually have to follow the approved long-term plan, particularly in financing and budgeting of the corporation. GR No.13/1998 stipulates that the long-term plan should include:

- Formulation of the long-term plan
- Evaluation of implementation of the previous long-term plan
- Current position of the corporation
- Assumptions used in formulating the long-term plan
- Determination of objective, strategy, policy and implementing program and relations among the elements

[1] MSOE was reorganized as SMSOE in November 2004. This Chapter uses both wordings; i.e. MSOE when referring to the organization before Novenber 2004 and SMSOE when referring to the present organization.
[2] MPW was renamed from Ministry of Settlement and Regional Infrastructure (MSRI) in November 2004. This Chapter uses both wordings; i.e. MSRI when referring to the organization before November 2004 and MPW when referring to the present organization.

MSOE Decree KEP-102/MBU/2002 stipulates the contents and procedure of formulating long-term plan. The current 5 year plan of PJT I (2004-2008) contains the following descriptions:

- Introduction (history, vision / mission, corporate culture, aim, and direction of development)
- Evaluation of the implementation of the previous long-term plan
- Corporate position (SWOT analysis[3] and corporate strategy)
- Long-term plans (assumption, objectives, targets, strategy, corporate policy, activity program, program-interconnected matrix)
- Corporate financial projection
- Action and recommendations

The PJT I long-term plan was sent to MSOE in October 2003 and officially approved in April 2004. In approving the plan, MSOE gave an instruction that the board of directors should approach to relevant institutions particularly MSRI and Ministry of Finance (MOF) so that financing from APBN could be afforded for the corporation's services categorized as PSO (public service obligation).

If PJT Jeneberang starts its operation from 2007 as the work area extension of PJT I, the current PJT I's 5 year plan must be revised accordingly. The procedure will be as follows:

1) Issuance of the board of directors' decree on formation of the planning team
2) Reference to the evaluation results of the previous year performance of PJT I, BUMN master plan, MSOE Decree KEP102/MBU/2002, the relevant ministry decrees on PJT Jeneberang, and PJT I internal guidelines such as No.QP/PJT/16 on the long-term plan
3) Collection of supporting data from the relevant institutions, such as data on production, tariff, revenue, O&M cost, investment, etc. to prepare a revised RJP (5-year budget plan)
4) Approval of the draft plan by the board of directors (that includes a director of PJT Jeneberang) and by the supervisory board members, and submission to SMSOE via MPW

RJP formulation process should involve all key staff of entire working unit so that the formulation is truly done by total corporation effort. Direct involvement of top management in formulating work targets, strategies, policies and implementing programs is very essential to show their accountability and responsibility.

For the supervision of RJP implementation through the supervisory board as the owner of business management, it is proposed that one of the supervisory board members will be a representative of the regional stakeholders of South Sulawesi.

(2) Formulation of Annual Work Plan

According to GR No.13/1998, the Board of Directors is required to prepare an annual work plan and budgetary plan of the corporation. MSOE instructed the details of formulation of the annual work plan through its Decree KEP-101/MBU/2002.

[3] Strength, weakness, opportunity and threat analysis

The annual work plan and budget plan shall cover programs of O&M work, production, budget, financial estimation, donation to small enterprises and cooperatives, audit schedule and other matters as specified by MSOE and MOF. The initial annual work plan (RKAP) must be forwarded for approval of SMSOE via MPW within 60 days prior to commencement of the fiscal year.

10.1.2 Implementation of Work Plan

Pursuant to the 5-year plan (RJP) and annual work plan (RKAP) approved by SMSOE, the management must implement the plan to accomplish the targets in every area by identifying constraints and making efforts to solve the problems. If it is found necessary and appropriate to revise the annual plan (RKAP), the board of directors may decide by a decree to revise the original work plan and approve the new work plan (RKOP).

Law No.19/2003 on State-owned Enterprise (SOE) stipulates that one of the purposes of establishing an SOE is to pursue profits based on principles of business management. According to MSOE Decree KEP-100/MBU/2002, PJT's performance is evaluated by three criteria: Finance, Operation and Administration. In financial evaluation, PJT is requested to earn a profit at 10% of return on equity ("A" rank - Healthy) or desirably 15 % ("AA" rank - Very Healthy).

A Directors' meeting is held every Monday morning at PJT I to discuss an agenda related mainly to the annual plan (RKAP) including production, O&M work plan, HRD, cash position, etc. The director of PJT Jeneberang should attend the meeting at least 2 times a month for the first 6-month period and once a month thereafter.

10.1.3 Corporate Monitoring and Review

Corporate monitoring and review is an important activity to ensure sound corporate management and efficiently achieve the planned targets and customer satisfaction. Management review is regarded as one of the main responsibilities of upper management and shall be documented for accountability to the supervising authorities as well as stakeholders.

Existing PJTs conduct corporate monitoring and review activity in the form of annual and quarterly reporting, regular board meetings (RD), and management coordination meetings (RKM). Monitoring and review within the existing PJTs will be a good reference to the PJT Jeneberang.

(1) Annual and Quarterly Reporting

PJT Jeneberang is required to prepare annual and quarterly reports in order to reveal the achievement level of planned targets, review all the activities and issues (qualitatively) and assess the overall corporate performance (quantitatively). These reporting works serve not only as an execution of accountability to the competent authorities, but also as internal monitoring

and management review to strengthen corporate management.

Achievement review of planned targets and assessment of overall performance are undertaken according to the system and quantitative indicators prescribed by the MSOE. Indicators subject to achievement review and performance assessment are listed below:

Indicators for Achievement Review and Overall Performance Assessment

Review Item	Indicator	Brief Explanation
Achievement review of planned target	- Production	By service category
	- Financial - P/L, B/S, CF - Investment - O&M expenditure	By service category, directorate, and unit
	- Staffing, HRD	
	- Other qualitative targets	Such as introduction of regulation, etc
Overall performance assessment 1) Financial aspect	- Return on equity - Return on investment - Cash ratio - Current ratio - Collection period - Inventory turnover - Total asset turnover - Own capital ratio	Comparison to the standard Data to be processed from the financial statements of the corporation to be prepared quarterly
2) Operational aspect	- Realization of water supply available	Estrangement of actual volume from the water distribution plan
	- Flood control	Issuance of Flood Alert Manual
	- Realization of irrigation water provision	Estrangement of actual volume from the water distribution plan
	- Number of times for river flushing	Comparison to prescribed number of times
	- Water quality management	Submission of monitoring report
	- Level of O&M services accomplished	Comparison to operational income and annual work / budget plan
	- Effectiveness of O&M	Comparison to O&M plan
	- ISO 9001 Management	Recommended surveillance interval
3) Administrative aspect	- Audit reporting	Submission within scheduled period
	- Corporate work & budget plan	Acceptance before fiscal year start
	- Quarterly reporting	Submission within scheduled period
	- Public relations: performance of SME support	Realization of fund distribution to SME and loan collection ratio

Source : Extracted from Annual Report of PJT I - 2003

Concerning overall performance assessment, point ratings are made for each indicator to assess the degree of achievement of performance. In PJT I, performance assessment is undertaken for respective indicators covering various aspects and combined into a single assessed value at the head office. For PJT Jeneberang, if it is established as a working area of PJT I, it is suggested that the performance of PJT Jeneberang be assessed separately so that it could directly feed back to enhance corporate management strengthening.

Overall performance assessment relies on quantitative indicators as much as possible. A thorough review shall be made of how the planned targets have been achieved and what effects have emerged from various activities including customer relations (both quantitatively and

qualitatively). The results of performance assessment will be presented in annual and quarterly reports covering the following items:

Reporting of Results of Performance Assessment

Report	Item	Sub-item
A) Annual report	a) Introduction	- Vision and mission - General policy and strategy - Changes in legal / institutional framework - Internal / external conditions
	b) Achievement review of planned targets	- Review for the entire corporation's target: Financial review Production review Organizational review - Review for each section/division's target, and progress of activities and programs
	c) Review of service activity	- Commercial service activity (e.g., water supply with revenue) - Public service activity (non-revenue service) - Non-water service activity - Public relations activity
	d) Review of internal management activity	- Personnel, HRD, technical development, Quality Management System*, and others - Follow-up actions / comments raised from inter-department meeting
	e) Customer / stakeholder relations	- Important claims and feedbacks - Results of customer satisfaction
	f) Issues and necessary efforts	- Issues to be solved - Improvement efforts and requests to the stakeholders
	f) Overall performance assessment	- Financial aspects - Operational aspects - Administrative aspects
B) Quarterly report Items and sub-items underlined will be reported to external stakeholders as appropriate	a) Introduction	- General policy and strategy - Changes in legal / institutional framework
	b) Brief achievement review of planned targets	- Review of the entire corporation's target: Financial review Production review Organizational review - Review of each section/division's target, activities and programs
	c) Brief review of service activity	- Commercial service activity - Public service activity - Non-water service/business activity - Public relations activity
	d) Brief review of internal management activity	- Personnel, HRD, Technical development, Quality Management System*, others - Follow-up actions for comments raised from inter-department meeting
	e) Customer / stakeholder relations	- Important claims and feedback - Results of customer satisfaction survey
	f) Issues and necessary efforts	- Issues to be solved - Efforts and requests to the stakeholders
	g) Quarterly performance assessment	- Financial aspects - Operational aspects - Administrative aspects

Note: * After acquiring qualification of ISO 9001 Quality Management System

The results of the above assessment will be used for feedback to the decisions on strengthening of corporate management:

- Improvement of corporate management system
- Revision of procedures / work instructions that are concerned with the services, products and O&M work
- Preventive and corrective actions to mitigate the potential risks
- Mobilization of resources necessary for the execution of decisions

(2) Monitoring and Review at Periodic Meetings

PJT Jeneberang shall run a monitoring and review system through internal meetings at management level. The meetings will monitor and review updated information on external / internal conditions, actual achievement of the planned targets and highlights of activities, all of which are to identify problems and constraints for the improved attainment of targets.

Main output from these monitoring and review meetings is decisions that lead to specific action to improve the corporate management and service quality, and prevent adverse outcomes. Against such actions, a monitoring scheme will then be prepared by determining those persons to be in charge, schedule, necessary resources and measurable indicators. Furthermore, the monitoring and evaluation results will be presented at the subsequent meetings to assess the effectiveness of the actions. Minutes of meetings and an evaluation report will be submitted to upper management level for their further review.

Internal meetings currently being held in the PJT I include the following:

Internal Management Meetings at PJT I

Meeting	Notes
Monthly Board of Directors Meeting (RD)	To mainly review: - External / internal conditions that may affect policy, strategy and management - Overall performance of the corporation and each directorate - Issues and efforts subject to the board approval Meeting arrangement : - To be held at the head office (PJT I) - Board of Directors to be invited
Monthly Management Coordination Meeting (RKM)	Function as a core review meeting to realize improved attainment of planned targets, deal with inter-sectional issues and coordinate actions To mainly review: - External / internal conditions - Detailed performance review of the corporation, each directorate, and relevant units - Selected / prioritized issues and efforts, related to corporate operation, that cannot be tackled by individual working units Meeting arrangement: - To be held at the head office (PJT I) - Directors, Heads of Bureau, Division, Internal Auditor and Corporate Secretary to be invited
Monthly Unit Coordination Meeting (RKU)	Function to prepare for RKM through sorting out and clarifying various issues and required actions before RKM To mainly review: - Issues and efforts, related to corporate operation, that cannot be tackled by individual working units Meeting arrangement:

Meeting	Notes
	- To be held at the head office (PJT I) - Heads of Bureau, Division, Internal Auditor, and Corporate Secretary to be invited
Monthly Central Management Evaluation Meeting (RTM-P)	Function to realize quality target and maintain Quality Management System (QMS) To mainly review: - Monitoring results and assessment on QMS - Customer and stakeholder claims, feedback, customer satisfaction analysis - Result of external / internal audits Meeting arrangement: - To be held at the head office (PJT I) - A few Directors, Heads of Bureau, Division, Internal Auditor, Corporate Secretary, and quality control staff to be invited
Monthly Unit Management Evaluation Meeting (RTM-U)	Function as the lowest level review meeting at each unit (division, sub-division, bureau) To mainly review: - Performance of the corporation and each associated unit - Monitoring results and assessment on QMS - Customer and stakeholder claims, feedback, customer satisfaction analysis - Result of external / internal audits Meeting arrangement: - To be held at each associated unit - All staff in each Bureau and Division / sub-Division to be invited

PJT Jeneberang, as part of PJT I's working area, is suggested to basically follow the PJT I meeting system. Among the above, it is recommended that the function of the Unit Coordination Meeting (RKU) be altered to better fit the situation in which the proposed PJT Jeneberang will be placed. Considering its remoteness from the head office and need for a more independent management system, RKU may be independently conducted with full-scope for management review (similar to RKM) with the attendance of Director and Heads of Divisions and Sections.

It is proposed that RKU in the PJT Jeneberang will also discuss a wide range of agendas such as: i) information on external / internal conditions, ii) performance review of the corporation, and iii) customer and stakeholder claims / feedback. Such independent monitoring and review activity within PJT Jeneberang will enhance the capacity of its corporate management and sense of responsibility for target realization. A few external observers from Dinas PSDA and district (Kabupaten) governments may join this review meeting to reflect feedback from local stakeholders in the routine corporate management and decision-making.

Table 10.1 shows an overall framework for monitoring and review at periodic meetings in the proposed PJT Jeneberang. Concerning the Board of Directors meeting, RKM and RTM-P, the Director and relevant management staff of PJT Jeneberang should attend the meetings at head office.

10.1.4 Internal Auditing

Law No.19/2003 on State-owned Enterprise (SOE) stipulates that each SOE should set up an internal audit unit. According to its organizational structure, PJT Jeneberang's operation is under the internal auditing system of PJT I head office. PJT I has an internal control unit (SPI) directly under the president director. The audit procedure is determined by the Decree of Board of Directors No.KP.32/KPTS/DU/91 on Guideline for Implementing Internal Control, which is

based on GR. No.93/1999 and MPW Decree No.56/PRT/1991 on General Policy regarding Management of PJT I.

At the beginning of each fiscal year, SPI formulates a work program for audit of the year (PKPT). Upon approval of the plan by the president director, SPI issues inspection letters (SPTP) to each relevant director and undertakes inspection through data collection, interview, observing, photographing and other methods determined in SPTP. After inspection, SPI drafts a report on the inspection results. After clarification of matters commented upon by the audited unit, SPI prepares a Report on Inspection Results (LHP) with recommendations and presents this to the president director. Audited units will further follow up the comments raised in LHP and report to the president director. Every quarter, SPI monitors the follow-up actions taken and reports the results to the president director.

The inspection objectives are related to finance and operation. The inspection identifies any discrepancy between the predetermined rules and actual works. When PJT Jeneberang is inspected by head office, a head of section other than the person responsible for the inspection should assist the head office inspector in cross-checking of the inspection. For PJT Jeneberang, the audit inspection should be regarded as a good opportunity to learn of the various experiences accumulated in PJT I.

O&M of the managed assets (mostly infrastructures) is the main activity of the water service division of the PJT Jeneberang. Management of the managed assets is important since the book value of managed assets is far larger than the owned assets even though the managed assets are not listed in the balance sheet. MPW Decree No. 180/KPTS/1996 on Administrative Guidance for State-owned Property managed by PJT instructs PJTs to conduct property bookkeeping, valuation and yearly reporting. To comply with this requirement, auditing includes the inventory assessment of physical assets.

An inventory of physical assets must include: a) verification of physical existence, b) revaluation based on depreciation and through direct observation, and c) reconciliation of the book records with the physical existence of the asset. PJT I has conducted physical existence verifications, but revaluation has never been conducted due to a lack of book value depreciation. This physical assets issue of PJT I shall be rectified by maintaining a sub-ledger of managed assets and calculating depreciation.

In summary, the internal audit for PJT Jeneberang would consist of the following:

1) To review and appraise the soundness, adequacy and application of policies, procedures, and standards on administration and accounting according to current guidelines of PJT I
2) To conduct a financial audit, compliance audit, and operation and management audit
3) To analyze and evaluate the findings from these audits
4) To provide auditor's opinions with advice to upper level management
5) To prepare audit reports and monitor actions taken for findings and recommendations from the audit

10.1.5 Public Relations Plan

(1) Present Condition of Public Relations

1) Dinas PSDA

The public relations function of Dinas PSDA is largely delegated to the Division of Guidance and Beneficiaries Management, which has an inter-departmental liaison section and consultation section. Under this Division, there are a variety of consultation activities including educational training to the farmers' community on irrigation management according to the new Water Law No.7/2004. It appears that Dinas PSDA still faces a difficulty of having a sense of accountability on its services to the community; therefore, no effective feedback of the community's needs for service improvement to the activity of Dinas PSDA exists.

2) JRBDP

JRBDP has the General Affairs Division, which is tasked with handling incoming information (such as complaints or claims by customer and community). However, there is no dedicated unit or staff primarily responsible for channeling such needs to the relevant working unit and handling the outward flow (dissemination) to the external community. An important lesson for the proposed PJT Jeneberang is the necessity of systemizing the function of continuous needs identification, feedback and accountability in the corporation.

3) PJT I

Although the structural unit itself is not prepared in the organizational set-up, PJT I has a public relations advisor working under a Management Secretariat. PJT I carries out a series of public relations programs, such as periodic survey of customer satisfaction (an important part of Quality Management System operation), and awareness-raising for environmental conservation and livelihood improvement.

One of the public relations programs is "financial and technical support to small and medium-sized enterprises (SMEs) and cooperatives (referred to as PUKK), which is conducted as a mandatory program for all SOEs in Indonesia. The financial contribution consists of loan provision with low interest rate and/or grant provision to any individual SMEs and cooperatives that wish to apply for such assistance. Performance of PUKK is evaluated every year based on the decree of MSOE No.KEP-100/MBU/2002.

(2) Consideration to be Given in Conducting Public Relations Activities

a) Share of roles / services between PJT Jeneberang and the local governments.

In conducting public relations activities, PJT Jeneberang shall coordinate with the

relevant local governments. Basically, PJT Jeneberang will take a leading role in public relations activities related to infrastructure O&M, while coordinated activities with local governments are required for awareness-raising programs.

b) Consideration to communities in upper and middle basins

Stakeholder consultation meetings held during the Study revealed that communities in the upper and middle basins have some doubt about benefits they have so far received from the Bili Bili dam development and also those they could gain from any subsequent river basin management. PJT Jeneberang shall bear this aspect in mind in conducting public relations exercises in those areas. PJT Jeneberang shall consider offering some benefits to those communities; e.g. provision of low-interst loan for SME and PUKK as stated above, financial support to communities' reforestation, and technical advice for other watershed conservation activities.

c) Customer and stakeholder participation

Alone PJT Jeneberang could not accomplish the overall duties required for river basin management and infrastructure O&M. The participation of customers and stakeholders is very important. PJT Jeneberang must encourage this participation. Further details are explained in succeeding sections.

d) Gender-balanced participation in river basin management

The participation of women in decision-making of water resources management is still very low even though they are actually involved in many daily activities affecting river basin condition; for example, horticulture planting, which can influence the level of soil erosion, management of foodstalls in the green belt area, garbage disposal, children's education on environment, provision of clean water for the households, etc. PJT Jeneberang will consider gender-balanced participation in river basin management.

e) Sand mining in the lower reach of Jeneberang River

Sand mining activities in the lower reach have already caused the degradation of river bed levels. In some parts of the river, river bed degradation over the last 20 years is now as much as 8 m. Miners should be acquainted with this hazardous effect through a public relations program.

(3) General Procedure of Stakeholders and Customer Management

The proposed general procedure for stakeholder and customer management is as follows:

1) One-door customer and stakeholder services

All customer and stakeholder management will be handled through public relations. Both inflow and outflow of information and complaints will be recorded and managed at one pool and distributed to the related divisions, bureau or sections. Responses and replies will be prepared by related sections, and the public relations coordinator will organize arrangements to provide external statements or responses. This simple procedure will enable ready access to the customers and stakeholders.

2) Public relations coordinator

The public relations coordinator will be responsible for public relations services; this function shall be handled by Administrative Bureau staff when the coordinator is not assigned in the initial stages. Knowledge and understanding of the participatory approach is one of the important qualifications for the public relations coordinator.

3) Public relations office

It is necessary to establish a public relations office or information chamber. A room at Bili-Bili dam control office is the most appropriate location as it is easily accessed by the stakeholders

(4) Activities of public relations

The objective of public relations activities is to establish and maintain a harmonic relationship with the customers and stakeholders, and to strengthen the corporate management base by making use of incoming information in an effective way. The public relations function with systematic structure will not only lead to a regional understanding of the corporation's role and activity, but will also strengthen the corporate management base.

10.1.6 Customer Management

Customers of the corporation, including PDAM, PLN, industry, plantation, farmer, fishery and public, will be the beneficiaries of water resources management. As a purpose of incorporation, Law No. 19/2003 on SOE Article 36 stipulates that the Perum (public corporation) shall deploy its businesses in a manner to provide benefits to the public through provision of goods and/or services of appropriate quality at a price affordable by the public based on the principles of sound management. The corporation's sound management will be strengthened by a strong customer base. Therefore, the upper management of the corporation should have knowledge of the customers' present situation and their requirements of the corporation.

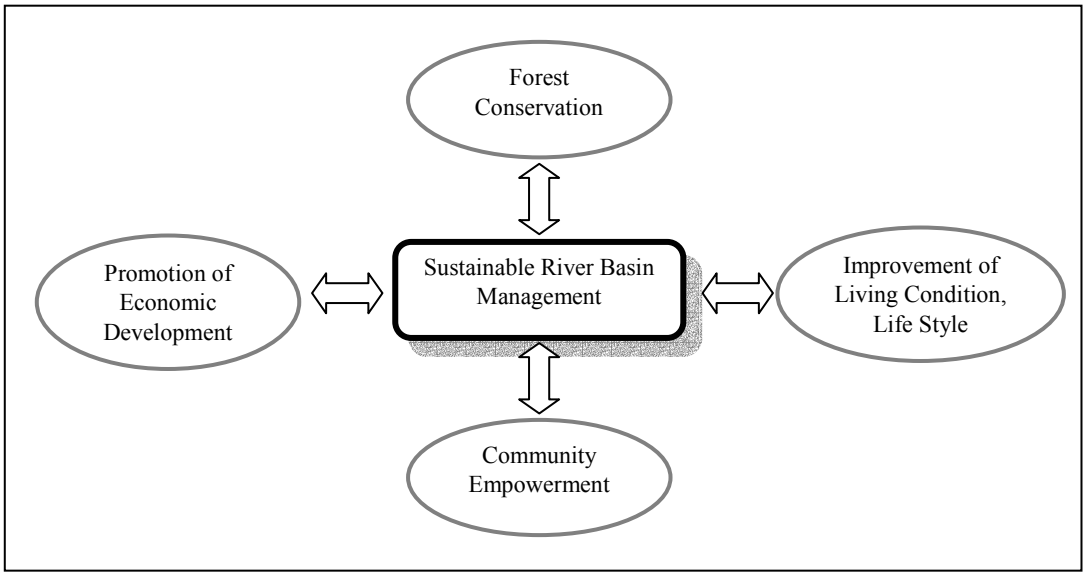
In order to continuously improve the service delivery, it is recommended that the corporation periodically monitor customer satisfaction, requesting information via a questionnaire on their satisfaction in terms of water quality and quantity, and service reliability. The evaluation results will be reported to each business division and administrative bureau through upper management. A questionnaire sample is presented in Table 10.2. In addition to this customer survey, it is

suggested that PJT Jeneberang periodically holds discussions with customers to identify their problems and needs.

10.1.7 Stakeholder Participation

(1) Concept

Stakeholder participation is one of the important aspects of the Jeneberang river basin management and needs to be actively enhanced by PJT Jeneberang. Stakeholders in the Jeneberang river basin include local governments, community groups such as local NGOs, industries, university, Dinas PSDA, Dinas of Forestry, Dinas of Mining, Dinas of Tourism, Dinas of Agriculture, and Dinas of Plantation at both provincial and Kabupaten levels. An objective of the stakeholder participation is to ensure harmony between the requirements of stakeholder needs (more resource utilization for economic and livelihood development) and requirements for sustainable river basin management (such as forest conservation).



Concept of Stakeholder Participation

(2) Promotion of Stakeholder Participation

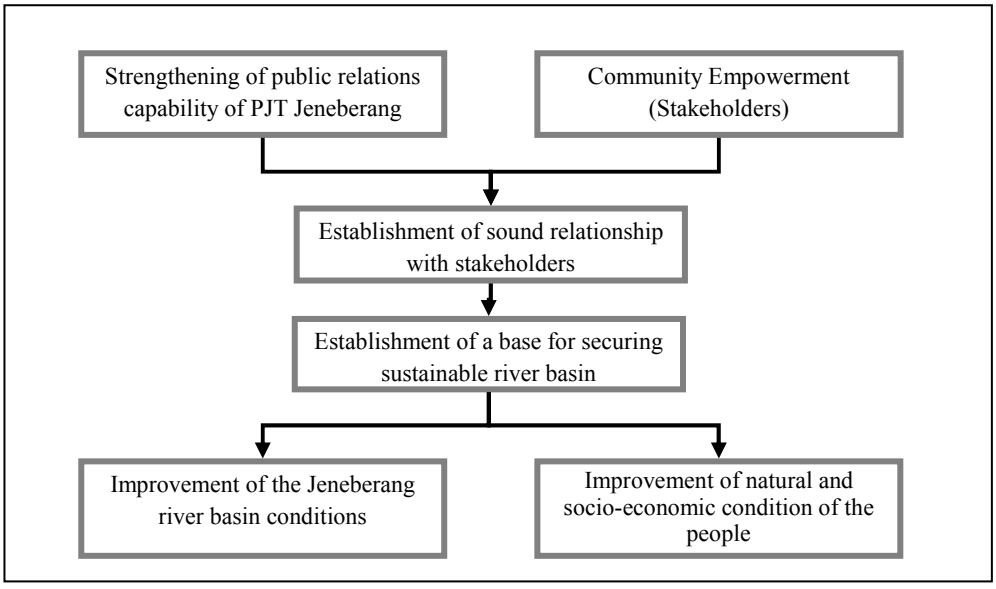
Stakeholder participation will be managed by the public relations coordinator of PJT Jeneberang (the administrative bureau, before the coordinator is appointed). Stakeholder participation should start with their awareness-raising in terms of their duties and possible contributions in river basin management. Responsibilities of the stakeholders, apart from Dinas of each sector, are indicated in the table below:

Responsibilities of Stakeholders

Stakeholders	Roles in River Basin Management
PJT Jeneberang	- Facilitate stakeholder participation - Disseminate accurate information on river basin management - Provide project/program information to stakeholders - Provide technical support for the actions of the stakeholders
Local governments	- Provide river basin information to community - Community empowerment through formal and non-formal education - Infrastructure development (small scale: water supply, waste management, rural road) - Participate in planning stage of the project - Provide ideas about the river basin management
Community groups (NGO, religious, women and youth group)	- Participate in planning stage of the project - Strengthen the linkage between local government and local people and information channeling - Provide technical assistance - Provide ideas about the river basin management
Community (informal leaders, general public)	- Participate in planning stage of the project - Provide ideas about the river basin management

(3) Strengthening of Public Relations and Stakeholder Participation

Stakeholder participation can be achieved both by strengthening of the public relations capability of PJT Jeneberang and by community empowerment. The logic is illustrated below.



Relation between Public Relation, Stakeholder Participation, and Improvement of River Basin Condition and Socio-economic Condition

(4) Specific Programs for Community in Upstream and Mid-Stream Areas

Based on the stakeholder workshops conducted during the Study, communities in the upstream and mid-stream areas still argue and raise questions on the benefits of Bili-Bili reservoir construction and river basin management. Some tend to think they are victims rather than beneficiaries.

It is important to make efforts to raise the awareness of the local community, especially in the mid-stream area and those areas surrounding the reservoir. Based on the results of the workshop, specific programs for the up- and mid-stream areas are suggested as shown in Table 10.3 and Table 10.4, respectively. The local communities and stakeholders in the upstream area are interested in nursery and tree planting and consider that tourism will be an alternative income source. In the mid-stream area, there is a tendency to compare the existence of water in Bili-Bili reservoir with their inadequate water supply.

10.1.8 Authority to be Delegated

Based on the study of guidelines / manuals of PJT I, details of which are described in Section 10.4, and discussion with PJT I management, it can be determined that financial and administrative management authority will be the same as those currently adopted by the head office and PJT Bengawan Solo. The present authorization of PJT I is summarized as follows:

Amount of Payment and Procurement Authorized by PJT I

(Unit: Rp. million)

	For division level	For head office
Payment authority		
- Advance payment	< 15 by Head of Bureau / Division	> 15 by Head of Finance Bureau
- Bill payment	None	< 5 by Head of Finance Bureau > 5 by Director of Adm. & Finance
Contract		
- Self-management work		
(Cost estimation)	< 50 by Head of Bureau/Division	> 50 by Head of Planning & Control Bureau
(Implementation)	None	< 100 by Head of Internal Affairs & Secretariat Section > 100 by Head of General & HR Bureau
- Construction Procurement	< 50 by Head of Bureau/Division	50-200 by Director of Operation >200 by President Director
- Consultancy Procurement	None	< 25 by Head of R&D Bureau/Head of Plan & Control Bureau > 25 by Director concerned
Goods and Other Service Procurement	None	< 25 by Head of HR Bureau/Head of Plan & Control Bureau 25-200 by Director of Adm. & Finance > 200 by President Director

Source: Extracted from guidelines of PJT I

The maximum authorization amount assigned to a director will be set at Rp. 50 million with a maximum advance payment of Rp. 15 million, as in the case of PJT Bengawan Solo. It is considered that the authorized amount is at a sufficient level for PJT Jeneberang. Authorization

to be given to PJT Jeneberang is summarized in the following table.

Authorization to be Given to PJT Jeneberang

Contract	Rp.50 million
Bill Payment	Rp.50 million
Advance Payment	Rp.15 million

10.1.9 ISO 9001: 2000 Management System

Preparation and effective operation of the above management system, structured by the corporate planning, monitoring and review, internal audit, and customer and stakeholder relation management, will be vital requirements for the corporation and a main responsibility of upper management at the same time. In this regard, adoption of International Standard Organization (ISO) 9001:2000 Quality Management System (QMS) is considered as one of the effective approaches to shape and strengthen the corporate management system.

ISO 9001 QMS specifies a series of requirements on documentation, management responsibility, resource management, customer relation and product realization processes, measurement and analysis, internal audit, and others necessary to corporate management activities.

Both PJT I and II have been certified with ISO 9001 QMS accreditation. Both corporations have set the quality policy and targets in their planning documents as supreme goals of the corporate quality management. To achieve those targets in accordance with the quality policy, both PJTs have prepared QMS documents comprising of procedures with job flowchart, work instructions, template forms, supporting guidelines and manuals. External documents such as laws, regulations and decrees concerned with the corporation's activity are also integrated as part of QMS documents.

It is also recommended that the proposed corporation acquire the certificate of ISO 9001 QMS. QMS should be regarded as a means of strengthening the corporate management system and activities ranging from corporate planning, monitoring and review, internal audit, customer and stakeholder relation management. If effectively designed and operated, the introduction of QMS will also help to clarify the functional relationship within each job and be a driver of continuous improvement for better service and product realization.

The proposed corporation may start preparatory work towards acquisition of the QMS certificate from the end of the start-up phase, say from the 6th year. The Technical Bureau should be responsible for the preparation of QMS development as a co-coordinator, while receiving technical support from the Quality Management Bureau of PJT I. Guidance seminars and training sessions on ISO 9001 QMS should be held for all candidate staff during the preparatory phase of the corporation.

10.2 Financial Management

10.2.1 Framework of Financial Management

An objective of incorporation is to support sustainable national and regional development by ensuring financial sustainability together with institutional and physical sustainability. Financial sustainability of the corporation requires capital adequacy, profit making and soundness of financial ratios.

(1) Requirements of the Existing Regulations

Purpose of incorporation

Law No. 19/2003 on SOE Article 36 stipulates that the purpose and objectives of a Perum (public corporation) shall deploy, based on the principles of sound management, the business of rendering benefits to the public through provision of goods and/or services of appropriate quality at a price affordable to the public.

Paid in Capital

According to Article 4 of the said law, the state's capital for the establishment of an SOE shall come from the Sate Budget, reserve capitalization or other sources. It also stipulates that a capital stake of the State in the establishment of an SOE with the fund coming from the State Budget should be determined by government regulation (GR).

According to the said Law, a new GR must be issued to authorize the investment of the state capital to PJT I for the establishment of PJT Jeneberang. At the time of establishment of PJT Bengawan Solo, for example, GR No.45/2002 on Additional Capital Investment to PJT I was issued.

GR No. 13/1998 on Public Corporation stipulates that the Finance Minister shall undertake the administration of the state capital investment of a public corporation.

Working Capital

GR No.6/1981, concerning Funding the Exploitation and Maintenance of Irrigation Infrastructures, authorized the water resources management agency to collect funds as compensation from the beneficiaries of the water and water resources as well as irrigation infrastructures[4] and from those whose activities have resulted in pollution to water and water

[4] This concept was recently modified in New Water Resources Law No. 7/2004 of March 2004; see Chapter 4 for detail

resources for their business.

GR No.93/1999 on PJT I authorized PJT I to collect and receive fees for funding O&M costs, and MSRI Decree No.342/KPTS/M/2002 concerning Authority of PJT I authorized to collect fees for funding O&M costs.

With the authority to collect and receive fees from beneficiaries in a direct or indirect manner, the corporation is expected to become gradually independent of funding support by the government for activities excluding for those for social purposes and public welfare and safety. These should be covered by government funding under the principle of PSO (Public Service Obligation).

10.2.2 Procedures Applied to the Corporation

(1) Funding Plan of Paid in Capital

Basic sources of capital to establish a corporation, to start running and to sustain growth are equity (owner's capital), debt (borrowed capital), retained earnings and contributed capital (grant). For PJT Jeneberang, capital investment will be made as follows:

1) Assets of JRBDP (Proyek Induk) are planned to be transferred to the corporation as owned assets, the value of which is assessed at Rp.3,438 million. The assets consist of office buildings with land and furniture, equipment and tools for O&M work. This is a capital investment in kind.

2) Fresh money is required for initial operation, which will be about Rp.6 billion to cover initial mobilization costs and start-up working capital. When PJT Brantas was established in 1990, the central government provided a capital loan of Rp.2.5 billion for initial funding, which was later converted to paid in capital without repayment. However, in case of PJT Bengawan Solo, which was started as a work area extension of PJT I, PJT I used its retained profits for initial operation in the river basin. The cash position of PJT I is becoming weak. During the late 1990s, the average cash balance was about Rp.20 billion, whereas since 2000 the average cash balance has decreased to Rp.10 billion.

(2) Funding Plan of Working Capital

The Corporation expects to collect fees from specific beneficiaries in the form of water resources management fees based on Beneficiary to Pay Principle. It also expects to obtain compensation from the government through APBN or APBD for public services where beneficiaries cannot be specified and funding under the concept of PSO is applicable.

(3) Cash flow

Liquidity is the life-blood of the corporation and lack of cash is the only thing that could force the corporation out of business. There is difference in finance structure between the corporation and government. Government cash flow mainly comes from taxes and other levies, whereas the corporation must generate cash flow from operations. Through the cost recovery mechanism from beneficiaries, the corporation can obtain working capital. Accordingly, the management has to make profits to generate cash flow to operate the corporation.

(4) Cost recovery system

PJT should be running as a self-supporting corporation independent of the state budget under a full cost recovery system. At present, however, the revenue source of PJT is limited to the surface water supply to PDAM, PLN and industry. The legislation has provided that water users, such as factories who use rivers for liquid waste, may be required to participate in supporting the O&M cost of water resources. The recent new Water Resources Law has determined that ISF would not be available for cost recovery.

Under these conditions, financial reform is required for PJT to achieve the target through introduction of the cost recovery principle supported by the related authority including regional government. The existing Tax and Levy System currently in force in water resources management is summarized as follows:

Existing Tax and Levy System Related to Water Resources Management

Water use	Beneficiary payer		Payee	
			Water use tax (PPAP)	***Water use fee (IPAP)***
Surface water	Specific water users	PDAM	Regional government	River basin management corp.
		PLN	Regional government	River basin management corp.
		Industry	Regional government	River basin management corp.
			Land & Building tax (PBB)	*Irrigation service fee (ISF)*
	Specific water users	Irrigation	Local government	Water users association (P3A)
	General users	Public	Local government	not applicable
Ground water			***Water use tax (PPABP)***	***Water use fee (IPABP)***
	Specific water users	PDAM	Regional government	not applicable
		PLN	Regional government	not applicable
		Industry	Regional government	not applicable
			Land & Building tax (PBB)	***Water use fee (IPABP***
	General users	Public	Local government	not applicable
Liquid waste			***Liquid waste disposal tax (PPLC)***	***Liquid waste disposal fee (IPLC)***
	Specific disposers	Industry	Regional government	Not introduced yet in South Sulawesi
			Land & Building tax (PBB)	***Sewage fee(Biaya Tinja)***
	General disposers	Public	Local government	Not introduced yet in South Sulawesi

Source: Study Team

(5) Revenue Plan

This Study classifies the revenue to the corporation into two categories, namely: (i) revenues from water supply services and other water-related services relevant to the O&M of infrastructures and river basin management, and (ii) revenue from non-water services[5] (or business) that will be developed through the corporation's own initiative.

Table 10.5 summarizes the revenue items of the former category (i). The services are mostly types of public service, which are the main tasks assigned by the government as obligatory duties of the corporation.

Table 10.6 summarizes the revenue items of the latter category (ii). These additional revenues from non-water services (businesses) will serve to strengthen the capacity of the corporation's revenue generation and achieve efficient utilization of natural resources that the river basin generates and human resources the corporation would have. Provided revenue from water provision does not sufficiently cover required O&M expenditure, additional revenue generated by non-water service may help realizing more adequate water resource management in the basin.

Taking an advantage of owning (or managing) non-reproducible assets / properties of value, the existing pubic corporations (PJT I and II) undertake a series of non-water services. Leaving a scale issue of basin, the proposed corporation for Jeneberang has also potentials of revenue generation along the basin and reservoir area in particular. However, non-water service needs set about by consulting to the possible resource (fund and human resources) allocation by the corporation.

Further detail of non-water service (business) is described in Supporting Report K.

10.2.3 Accounting Policy, Rules and Major Notes

(1) Policy and Rules

Law No.13/1998 instructs public corporation to comply with Financial Accounting Standard set forth in the Law. Accounting policy of PJT I is stipulated in Director's decree No. KP 001/KPTS/2000 based on MSRI Minster Decree No. 49/KPTS/M/2000 for Accounting Guideline. Accounting system of PJT I also complies with financial accounting standard issued by the Indonesian Accountant Association in 1999. Accounting is practiced based on accrual basis, which means that the revenue is recognized when invoice has been issued even though the payment is not received yet. Cost is recognized when it becomes the obligation of the corporation even though it is not yet paid.

(2) Methodology of Accounting System

[5] Service here is also meant to be a business activity like tourism / land development. In this report, non-water services are defined as any types of activity seeking fees or compensation from the consumer and user.

Accounting can be categorized according to the tense as follows:

1) Past accounting

Past accounting shall be done immediately after the financial activities, and at the fiscal year end to record the annual results of operation and to report to the related authorities as well as disclose present situation of the corporation to stakeholders. PJT I conducts this task by using ASGL computer system.

2) Present accounting

In order to enable efficient budget execution, the current accounting requires promptness and accuracy. Based on the current year's operation, the budget in the next year is formulated and allocated to each department by the end of the current fiscal year.

Cost allocation (or in other term classification into predetermined accounting items) should be made for budget control in the accounting system without movement of cash. PJT I carry out present accounting through cost allocation using database accumulated in the ASGL system.

For reference, cost accounting system contemplated by Balai PSDA is shown in Table 10.7 and Figure 10.1.

3) Future accounting

Future accounting is divided into medium-term and long-term accounting. Medium-term accounting includes finance planning for sustainable investment, such as planning of O&M work, tariff making, cash flow projection and funding for investment. Long-term accounting should be a strategic accounting to make a vision of the corporate management to appeal to the stakeholders and formulation of the master plan.

Accounting System

	Past Accounting	Present Accounting	Future Accounting
Main Purpose	Report and data base formulation	Budget execution and control	Investment and strategy formulation
Planning	Profit distribution after tax payment	Asset and Profit management under cost allocation	Long term and annual work plan, master plan
Implementation	Bookkeeping and account settlement	Cash flow management and payment verification	Tariff making and public relations

10.2.4 Financial Management and Budget Control System of the Corporation

In PJT I, Director of Finance & Administration Bureau has a task of budget planning and control with assistance of 3 sections; (i) Finance & Accounting Section, (ii) Management Accounting

Section and (iii) Budget Section, through cash flow management on weekly basis and budget allocation on monthly basis for the coming 3 months.

Authority for decision-making should principally be transferred to PJT Jeneberang because of the distance from PJT I head office. The amount authorized for the director of PJT Jeneberang is limited up to Rp.50 million; whereas even in this case the director should better have prior consultation to head office at the quarterly meetings at least for the first 2 years.

10.2.5 Sections for Financial Management

(1) Organization

In PJT I, financial management is conducted under Administration and Finance Directorate. According to the job description of PJT I, the Director of Administration and Financial Bureau has main tasks as follows:

1) Management, administration and financial control
2) Analysis and policy evaluation and realization of investment
3) Budget allocation and utilization
4) Tariff policy

Under the Director, there is a Head of Finance Bureau who manages 3 divisions;

- Budget division
- Financial accounting division
- Management accounting division

Cash management is carried out by budget division, accounting and ASGL operation by financial accounting division, and payment verification and budget control by management accounting division.

(2) Accounting System for Financial Management

A computerized accounting system will be installed in PJT Jeneberang with the same software being used by PJT I; i.e. ASGL (Accounting System General Ledger). This system was developed by PJT I with collaboration of the University of Brawijaya and a certified accountant in 1990 and has been revised for improvement since 1999. The system is running parallel with manual bookkeeping so that reconciliation can be made at key points such as daily journal, account receivable/payable and cash flow. Operational flow chart of accounting system presently used by PJT I is shown in Figure 10.2.

The accounting system to be introduced in PJT Jeneberang covers the following functions:

1) Basic accounting computation programs,
2) Computation of water charges and other charges by client, based on actual records of raw

water supply and other resources uses,

3) Updated status of collection of water charges and other charges,
4) Accounting record of actual O&M expenditures, classified by facility, work item and cost item (only direct cost items),
5) Inventory record of materials and equipment for O&M works.

10.2.6 Produced Documents and Reporting

According to accounting policy of PJT I in relation to the financial accountability, the corporation prepares financial statements as follows:

1) Interim financial statement containing;

- Balance sheet
- Profit/loss statement
- Cash flow statement
- Note to the financial statement

2) Annual financial statement containing;

- Balance sheet
- Profit/loss statement
- Cash flow statement
- Retained profit statement
- Note to the financial statement

B/S, P/L, cash flow statement, profit if available, and distribution statement should be prepared in time for reporting, monitoring, evaluation and control purposes. For this purpose, PJT I developed ASGL (Accounting System General Ledger) computer system. AS stated above, PJT Jeneberang will introduce the same system for independent accounting.

3) Periodical report

- Daily: Daily journal is produced by ASGL every day to verify daily transaction
- Weekly: Cash flow report is prepared by Budget Division and reported to Head of Finance Bureau
- Monthly: Financial report is prepared by Financial Accounting Division, signed by Head of Finance Bureau for reporting to Board of Directors.
- Quarterly and semiannually: Financial report is prepared by Financial Accounting Division. The report contains (i) executive summary, (ii) financial report and (iii) performance report. After resolution of Board meeting, the report is submitted to MPW and SMSOE with the president director's signature.
- Annually: Annual report is prepared by Management Accounting Division and approved by the Board of Directors and the Supervisory Board. It should be submitted to MPW and SMSOE with signature of all directors and supervisory board members.

10.2.7 Lesson Learnt from Previous Experiences

(1) Budget planning in PJT I

Each year's profit is planned in the long-term plan that should be approved by SMSOE in advance. Yearly budget planning starts by estimation of water supply revenue, which is calculated from water supply volume and tariff rate. Further, total revenue is estimated by adding projected revenues from non-water business. Then, planned profit (about 15% of the revenue, before tax) is deducted from the revenue. The remaining balance is then allocated firstly to fixed cost items. The major fixed costs consist of personnel cost (about 20% of the revenue) and general expenses including depreciation (about 10% of the revenue). The rest is allotted to cover variable costs; i.e. O&M expenditure. Thus, only a limited budget is made available for O&M works.

Since the tariff rate of raw water supply is controlled by the government at a relatively low level, existing PJTs are still not capable of attaining full recovery of O&M cost from water supply revenues. At present, the budget available for O&M work can cover only 30 to 40 percent of the required O&M norms[6]. As the result, the water resource facilities are not properly maintained and major rehabilitation work often obliged in the past.

Conceivable measures for rectifying the above situation will be either (i) increasing raw water tariff rates or (ii) government funding support for some of the corporation's services for which the government shall shoulder the costs under the principle of public service obligation (PSO).

(2) PJT I Bengawan Solo

The initial investment in fresh money by the central government was not provided for PJT Bengawan Solo when it was established. Instead, the Principal Project Office (PBS) committed to shoulder some O&M works on behalf of PJT to minimize their O&M expenditures[7]. This is not a proper way of O&M implementation as far as PJT is assigned as an agency responsible for the O&M work. The government shall provide necessary funds required for the establishment of PJT.

[6] Workshop for Institutional Evaluation of Water Resources Management Agency, PTPA and PPTPA, Semarang, 20-22 August 2002 PJT I & II

[7] Final Report for the Study under JBIC SAPS for 24 Infrastructure Rehabilitation Projects July 2001

10.3 Capacity Development Needs

10.3.1 Skill Requirements

(1) Skills for Administrative Management

Business planning skill

To be able to elaborate a planning document and business proposal, candidate staff belonging to Technical Bureau and Administration/Financial Management Sections (and those who will move to non-water business units at a later stage) shall be familiar with the basic skills, procedures and documentation of business planning. They are supposed to be involved mainly in preparation and compilation of the corporate long-term plan / annual work plan, and non-water business planning (tourism, land utilization, etc.). Business planning skill covers the following items:

- Internal factor analysis (customer / market adaptability, logistical and operational system, financial and organizational aspects)
- External factor analysis (legal, institutional, socio-economic, and stakeholder aspects)
- Vision and strategy building
- Program and goal planning (action plan, facility plan, procurement plan, scheduling, staffing, financial plan)
- Monitoring / evaluation planning
- Planning documentation

A series of classroom lectures on the above is proposed in parallel with actual planning work (through on-the-job training). Training provider (trainers) can be sourced from PJT I or other institutions. Acquisition of such skills will contribute to quality improvement of the corporate operation (i.e. river basin management plan).

Quality Management System Training

During the preparatory phase of the corporation, a series of guidance seminars and training sessions on ISO 9001 QMS should be held for all candidate staff to learn about QMS and expedite the certificate acquisition process after the operational start.

Guidance seminars on QMS will address the following particulars in order to raise familiarity of QMS at the initial stage and adequately comprehend the objectives and merits of its adoption:

- History and development process of ISO 9001 QMS
- Terms and definition of QMS
- "Appearance" of QMS and structure of quality documents
- Actual operation in PJT - case study I
- Question and answer, exchange of opinion

After the above socialization process, a training seminar on QMS will be held for the candidate staff to acquire information and the capability to prepare for QMS. Training seminars will cover the following particulars:

- Management responsibility in QMS and documents concerned (common to all staff)
- QMS requirements for resource management and documents concerned (common to all staff)
- QMS requirements for customer / stakeholder-related processes and documents concerned (for each relevant unit)
- QMS requirements for product realization process and documents concerned (for each relevant unit):
  * Design and development process
  * Purchasing and procurement process
  * Production and service provision process
  * Monitoring / measuring device controlling process
- QMS requirements in measurement, analysis and improvement, and documents concerned (for each relevant unit)
- Work schedule of the preparation activity in PJT Bengawan Solo - case study (common to all staff)
- Questions and answers, exchange of opinion

The above training will be provided for a sufficient duration to convince all candidate staff of the concept of QMS. Guidance and training providers can be sourced from PJT I or other institutions specialized in QMS. Acquisition of such knowledge and skills will contribute to enhancement of familiarity of job descriptions and processes, and ultimately to the performance of the corporation's operation (e.g. river basin management) in the future.

(2) Skills for Financial Management and Accounting

Financial Management Skill

Professional skill in corporate finance is required to establish and manage the new corporation. Trainees should have an academic background of at least university graduate level (S-1) in the faculties of finance or economics or have satisfactory experience in this field. Negotiation capabilities are required to deal with stakeholders. Personality is also important, but negotiating skills will be promoted through teamwork with PJTs' management and capable consultants.

The corporate performance depends largely on financial management in the areas of planning, implementing and monitoring under the guidance of PJT I head office. Financial management skills cover the following items:

- SWOT analysis ability for the long-term plan (RJP)
- Budget formulation for the annual work plan (RKAP)

- Financial analysis and evaluation
- Cash flow management
- Accounting and bookkeeping knowledge
- Depreciation
- Tax regulation
- Tariff calculation and negotiation

Certain items are covered by the training mentioned above. However, for ASGL accounting system and tariff calculation, separate on-the-job training is needed. Training providers can be sourced from PJT I and also other institutions.

Accounting Skills

Accounting operators need a D-1 grade qualification from an accounting college with knowledge of double entry bookkeeping as well as computer operating skills. The PJT I head office accounting operators require at least a D-3 grade academic diploma in accounting. Accounting skills would cover the following items:

- Accounting policy and methodology
- Financial statements
- Financial analysis and ratio evaluation based on guidelines
- Depreciation
- Salary system
- Withholding tax and tax payment
- Computer operation

A series of classroom lectures on the above will be proposed in parallel with actual planning work (through on-the-job training). A training provider can be sourced from PJT I or other institutions. Acquisition of such skills will contribute to quality improvement of the corporate operation (i.e. river basin management plan).

10.4 Guidelines and Manuals

Guidelines and manuals related to: (1) accounting, (2) reporting, (3) finance, (4) corporate management and (5) public relations are listed in Table J4.1 of Supporting Report J.

Basically, all PJT I's guidelines and manuals should be applied to PJT Jeneberang, except for the delegation of authority to the director as mentioned above.

Table 10.1 Proposed Frame of Monitoring and Review through Periodical Meetings for the Jeneberang Corporation

Meeting	Input Material and Agenda	Minutes, monitoring and follow-up on the decisions in the meeting	Notes
Monthly Board of Directors Meeting (RD)	1. Follow-up report of the decisions made in the previous meeting (progress and evaluation) 2. Information on external / internal conditions (institutional, legal, socio-economic and other major changes that may affect the policy, strategy and management of the corporation) 3. Performance review of the corporation, including; - Brief achievement review of RKOP / RKAP, quality targets (of the corporation and each directorate) - Highlights of service / non-service activity - Customer / stakeholder information 4. Issues and necessary efforts subject to the board approval	1. Minutes preparation - Administration / Finance Director in PJT I 2. Minutes distribution - Board of Directors	- To be held at the head office - Board of Directors to be invited
Monthly Management Coordination Meeting (RKM)	1. Monitoring result on the decisions made in the previous meeting (progress and evaluation) 2. Information on external / internal conditions 3. Performance review of the corporation, including; - Brief achievement review of RKOP / RKAP targets of the corporation, each directorate, and the relevant divisions / bureaus - Highlights of service / non-service activity 4. Issues and efforts, related to corporate operation, that cannot be tackled by individual working units 5. Result of Board of Directors meeting	1. Minutes preparation - Head of unit (by turn) 2. Minutes distribution - Board of Directors, Heads of Division / Bureau (including Jeneberang Directorate), Internal Auditor, Corporate Secretary 3. Responsible for monitoring of the decisions - Head of Internal Audit - Head of Technical Section (for Jeneberang matter) 4. Period of monitoring Once in a month, within at least 1 (one) day before RKM	- To be held at the head office - Directors, Heads of Bureau, Division, and Internal Auditor, Corporate Secretary to be invited - Recommended that at least Head of Administrative / Finance Section and one Head of Water Services Division attend with Director for Jeneberang Directorate
Monthly Unit Coordination Meeting (RKU)	1. Monitoring result on the decisions made in the previous meeting (progress and evaluation) *2. Information on external / internal conditions* *3. Performance review of the corporation (Jeneberang's working area), including;* - *Brief achievement review of RKOP / RKAP targets relevant to Jeneberang directorate* - *Highlights of service / non-service activity* *4. Customer and stakeholder claims, feedbacks* 5. Issues and efforts, related to corporate operation, that cannot be settled by individual working units	1. Minutes preparation - Head of Administration / Finance Section in Jeneberang Directorate 2. Minutes distribution - Board of Directors, Heads of Division / Section in Jeneberang Directorate, other relevant Bureaus of the head office 3. Responsible for monitoring of the decisions - Head of Technical Section in Jeneberang Directorate 4. Period of monitoring Once in a month, within at least 1 (one) day before RKU	- To be held at Jeneberang - Director for Jeneberan Directorate, the Heads of Section and Division to be invited *Oblique input and agenda is added to the normal scope of RKU, since full-scope and independent review for the working area of Jeneberang at site is recommended before attending the whole corporation review meeting.*

Meeting	Input Material and Agenda	Minutes, monitoring and follow-up on the decisions in the meeting	Notes
Monthly Central Management Evaluation Meeting (RTM-P)	1. Monitoring result on the decisions made in the previous meeting (progress and evaluation of the corrective and preventive actions undertaken) 2. Result of external / internal audits 3. Monitoring result and assessment on Quality Management System (QMS) - Achievement review of quality target - Issues including inappropriate product / service, non-conformities, needs of procedures / work instruction revision, identified by each RTM-U 4. Customer and stakeholder claims, feedbacks, customer satisfaction analysis 5. Evaluation report on the effectiveness and efficiency of QMS (only for the first RTM-P) 6. Other suggestions for improvement	1. Minutes Preparation - Head of Quality Management Bureau 2. Minutes distribution - Board of Directors, Heads of Division / Bureau (including Jeneberang Directorate), Internal Auditor, Corporate Secretary 3. Responsible for monitoring of the decisions - Head of Quality Management Bureau - Head of Technical Section (for the Jeneberang matter) 4. Period of monitoring Once in a month, at least in the 3rd week	- To be held at the head office - A few Directors, Heads of Bureau, Division, and Internal Auditor, Corporate Secretary, quality control staffs to be invited - Recommended that at least Head of Technical Section or one Head of Water Services Division attend with Director for Jeneberang Directorate
Monthly Unit Management Evaluation Meeting (RTM-U)	1. Monitoring result on the decisions made in the previous meeting (progress and evaluation of the corrective and preventive actions undertaken) 2. Monitoring result and assessment on QMS - Achievement review of quality target - Issues including inappropriate product / service, non-conformities, needs of procedures / work instruction revision 3. Result of external / internal audits 4. Performance review of the corporation (Jeneberang's working area), including; - Brief achievement review of RKOP / RKAP targets relevant to Jeneberang, and each belonging division / section 5. Customer and stakeholder claims, feedbacks 6. Other information / issues	1. Minutes Preparation - Head of Division or sub-division, and section 2. Minutes distribution - Director for, Heads of Division / Section in Jeneberang directorate, other relevant bureaus of the head office 3. Responsible for monitoring of the decisions - Head of division or sub-division, and section 4. Period of monitoring Once in a month, within at least 1 (one) day before RTM-U	- To be held at each belonging unit in Jeneberang - All the staff in each Section, and Division (or sub-Division) to be invited

Table 10.2 INDICATOR ON CUSTOMER SATISFACTION
RAW WATER SERVICES FOR INDUSTRY

Area : Water Resources Division ……
Water Resources Sub Division: …… Year: ……..…

No	Indicator description	Expectation Score			Perception Score		
		G	F	P	G	F	P
I	Tangible						
1	Customers expect that PJT I conducts water conservation effort (quantity & quality)	1	2	3	1	2	3
2	In order that reservoir/dam/gate/channel function, PJT I should be maintained properly	1	2	3	1	2	3
II	Reliability						
3	Customers expect that water debit (l/sec)/volume (m3) required can be fulfilled by PJT I	1	2	3	1	2	3
4	Customers expect that supply water by PJT I can be done according to schedule agreed	1	2	3	1	2	3
5	Record of water used by customers through Surface Water Abstraction Letter that is conducted with customer can be done in appropriate time	1	2	3	1	2	3
6	Customers expect that PJT I assign staff who have capability in communication	1	2	3	1	2	3
III	Responsiveness						
7	Customers want/expect that every occurrence in-proper product/services, PJT I as soon as possible shall inform to the customer in 1 x 24 hours at the latest	1	2	3	1	2	3
8	Customers expect that PJT I can fulfill addition of water requirement (momentary)	1	2	3	1	2	3
9	Customers expect that PJT I could follow up their complaints as soon as possible	1	2	3	1	2	3
IV	Assurance						
10	Customers expect that every PJT I officer who conduct communication in water services to the customer can assure them	1	2	3	1	2	3
11	Customers expect that every PJT I officer who comes to them are has well behaved and speak politely to the customer	1	2	3	1	2	3
12	Customers expect that every PJT I officer who comes to them should have capability to solve problem effectively	1	2	3	1	2	3
13	Customers expect that PJT I do its best to maximally fulfillment water requirement when needed	1	2	3	1	2	3
V	Empathy						
14	Customers expect that every difficulties faced customer shall get special attention from PJT I as soon as possible	1	2	3	1	2	3
15	Customers expect that PJT I can spends special time to conduct communication/information for 24 hours	1	2	3	1	2	3

Suggest/Comment (if any):

……
……
……

Note:
Expectation Value :is customer expectation on PJT I raw water services
Perception Value : is fact/actual PJT I capability on services customer according to customer perception

Customer expectation and perception regarding the PJT I services/capability, scored:
- Good/important
- Fair good/important
- Poor

……., ……
Customer

sign

Full Name

Table 10.3 Specific Stakeholder Participation Program for Upperstream Area

Main issue/ objective	Topic of action plan	Target groups	Output/effect/impact	Relevant Stakeholders
Reforestation and watershed management	Community Nursery	1. Specific tree group (Spatudea group) 2. Economic tree group (Coffee, cacao, fruits)	• Seedling production, supporting National reforestation program (GNRHL), community initiative reforestation • Supporting soil conservation, reduce erosion	Dinas of Forestry BPDAS BPTH Sulsel NGOs Fac of Agr & Forestry UNHAS PDAM, PLN
	Agro-forestry and land management training	1. Coffee-farmers group 2.Tea-farmers goup 3.Cacao-farmers group 4. Horticulture farmers group	• Suitable land management • Improvement of skill and knowledge • Better product quality • Reduce soil erosion • Increasing income of farmers	Dinas of Agric. Dinas of Plantation Leader of Farmers group Nittoh Teh Plantation Fac of Agr and Forestry UNHAS
Economic enhancement of local community	Community initiative tourism development	1. Handicraft group 2. Youth group for tourist promotion (brochure, camping site) 3. Food and restaurant groups	• Promoting Malino and surrounding area as tourist spot • Promoting characteristic of Malino • Increasing number of visitors	Dinas of trade and industry Dinas of Tourism Diplome school of tourism UNHAS PDAM, PLN
	Home industry promotion	1. Starfruit sweets group 2. Bread fruit chips production 3. Traditional coffee shops 4. Cookie and cake from local produced agriculture product	• Increasing job opportunity • Increasing of women's income • Encourage women participation • Encourage One village one commodity program	PKK , womens group, Fac of Agriculture UNHAS, Centre for appropriate technology UNHAS, Dinas of Cooperative PDAM, PLN
Bawakaraeng Disaster	Participatory warning system	1. Community at (debris flow) disaster prone area 2. Volunteers	• Ensure community safety • Empower community to minimize damage from (debris flow) disaster	Dinas of Social Satkorlak and Satlak ORARI Local Government (District sub Distric and village)
Steps of activities	1. Participatory needs assesment 2. Group forming;institutional capacity building; rules etc 3. Action plan formulation 4. Management training; 5. Participatory field observation and OJT (On the Job Training); skill training 6. Program implementation			

Table 10.4 Specific Stakeholder Participation Program for Middle-stream Area

Main issue/ objective	Topic of action plan	Target groups	Output/effect/impact	Relevant Stakeholders
Lack of water supply	Provision of domestic water	Women group PKK Youth Group	• Improvement of living condition • Supporting Clean river	Dinas of PSDA NGO Fac of Agr & Forestry UNHAS
Dissatisfy of environmental condition	Garbage as fertilizer	Women group PKK Farmers group Religious group	• Improvement of living condition • Supporting Clean river • Introduction of organic fertilizer	Centre for appropriate technology UNHAS Clean Tapioka Industry Dinas of Sanitation NGO
Low economic condition of community surrounding reservoir	Reservoir for surrounding community	Women group PKK Youth Group Religious group	• Promote event to attract tourism • Provide guide • Provide field trips for students	Local Government Dinas of Tourism Diplome school of tourism UNHAS
		Fishermen and farmers group	• Increased skill and knowledge on fish culture and aqua culture	Fac of Agriculture UNHAS, Centre for appropriate technology UNHAS, Dinas of Cooperative
Sabodam excavation	Brick manufacture-small scale induatry	Sand miners group	• Reduce the number of mining site at lower reach • Alternative income for sand miners	PIPWS Jeneberang Dinas of Mining Dinas of Regional Revenue Local industry at Makassar
Steps of activities	1. Participatory needs assesment/ provision of informations 2. Group forming;institutional capacity building; rules etc 3. Action plan formulation 4. Management training; 5. Participatory field observation 6. OJT (On the Job Training); skill training 7. Program implementation			

Table 10.5 Summary of Revenue from Water Supply and Other Public Services

Revenue item	Proposed Fee / Support	Responsible unit	Collection	Tariff Approver	Enabling legal frame
Commercial Services					
Municipal Water Supply	Water fee (a new fee is introduced in addition to the existing tax) per m^3 of supply measured at intake	Water Services Division	Prov. Revenue Office to collect through SP3AP / SKI procedure	Central Government and agreed by PDAM	New or revised legislation on Prov. Regulation No.8, 1991
Industrial Water Supply	Ditto, or per m^3 of pre-agreed intake quantity	Ditto	Ditto	Provincial Governor	Ditto
Plantation Water Supply	Water fee (a new fee is introduced in addition to the existing tax) per ha	Ditto	Water Services Division	Ditto	Ditto
Fishpond Water Supply	Water fee (a new fee is introduced in addition to the existing tax) per ha	Ditto	Ditto	Ditto	Ditto
Water Provision to Hydro Power	Water fee (a new fee is introduced in addition to the existing tax) per kWh of generation (recorded by PLN)	Ditto	Ditto	Central Government and agreed by PLN	Ditto
Non-water Services	See the section of non-water revenue plan				
Public Service Obligations (PSO)					
Flood Control (inc. flood plain & drought management)	Central and Regional Government budget support for the allocated cost required by the service	Water Services Division	Financed from central budget (or borne by commercial service beneficiary)	Central Government, based on annual budget request, where the actual cost demand is proposed	New Government Regulation on PSO
Irrigation Water Supply (O&M for irrigation facility)	Ditto	Ditto	Financed from central / regional budget		Ditto Also founded by Water Resources Law, Art. 78
Flush Water Supply (for the City canals)	Ditto	Ditto	Ditto	Ditto	New Government Regulation on PSO
River Water Quality Monitoring	Ditto	Sub-section of Environment under Technical Bureau	Ditto	Ditto	Ditto
Watershed Management	Ditto	Technical Bureau	Ditto	Ditto	Ditto
Compensation for operational deficits	Central Government budget support for the deficit as a result of operation	Administration & Finance Bureau	Ditto	Central Government	Ditto

Note: The corporation's rights to charge fee of "commercial services" shall be firstly authorized in the Minister's Decree, and further endorsed by Provincial legislations stated above. The rights to charge fee and budget (for PSOs) has been also addressed in the Draft Government Regulation on Corporatization of Water Resource Management: article 24 (subsidy) and 25 (fee)

Table 10.6 Summary of Revenue from Non-water Services/Buisnesses

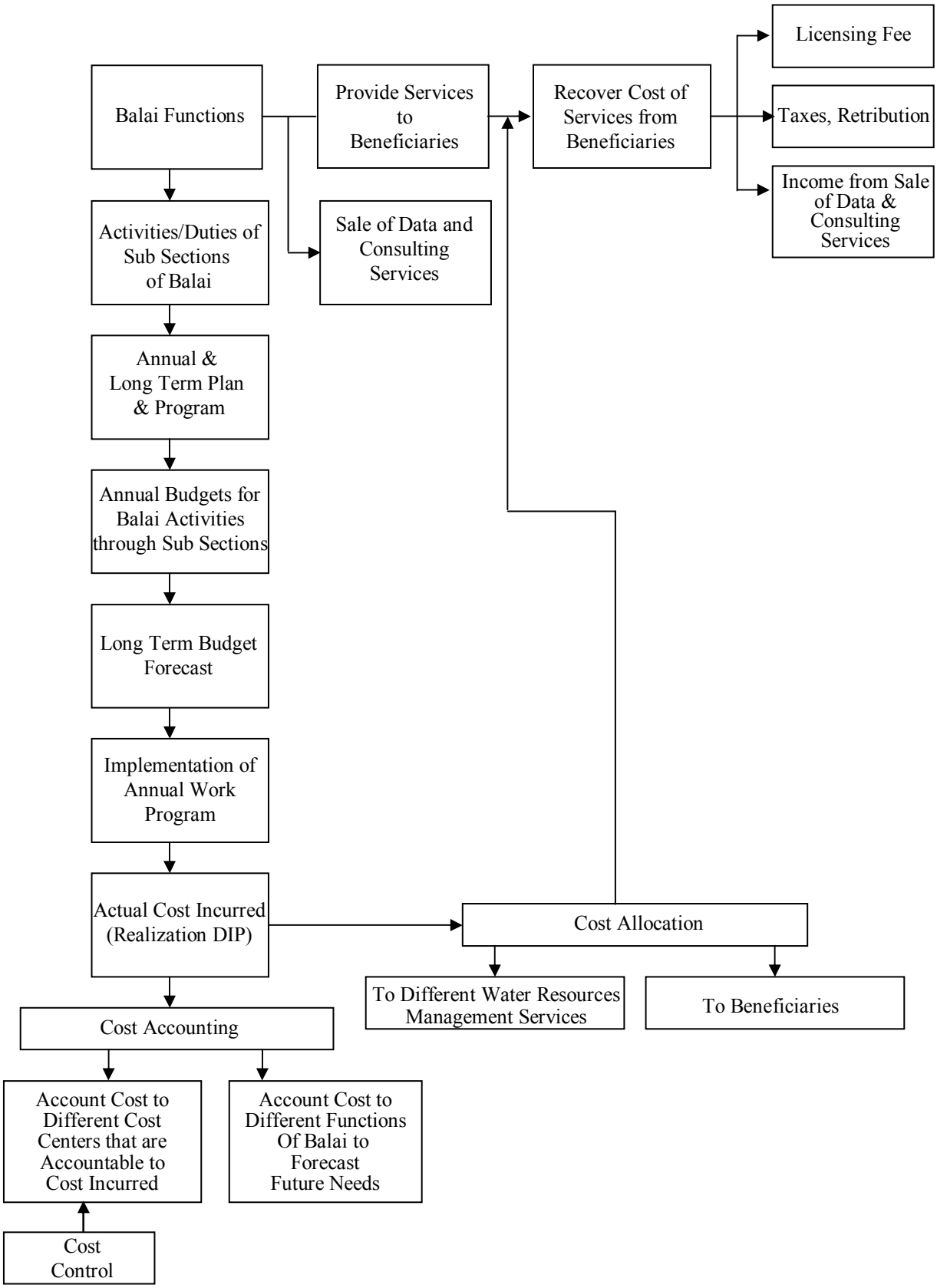
Revenue item	Proposed fee/charge/earning	Responsible unit	Collection	Starting year	Enabling legal frame
Commercial Services					
Recreation Park - *Fully chargeable to beneficiary*	Profit shared with private partner The park operation will impose visitor the followings; - Entrance and car parking fee - Space usage charge - Water sport facility use charge - Convention packet charge, etc.	Technical Bureau (Preparatory work) Unit of Non-water Business: UNWB (Operational management, after the park establishment)	Profit shared : UNWB Park revenue : Private operator	2009 (Preparation) 2012 (Investment) 2014 (Operation)	According to the prevailing regional regulation on tourism business Related business permit
Boat Rental - *Fully chargeable to beneficiary*	Profit shared with private partner Boat rental operation will impose user boat rental and excursion tour charge.	Water Services Division (Until UNWB is established) Unit of Non-water Business (after establishment)	Profit shared : Water Serv. Divi. / UNWB Rental revenue : Private operator	2005 (Operation) 2007 (Profit sharing handed over)	ditto
Dredging and Sales - *Fully chargeable to beneficiary*	Profit shared with private partner, or wholesale market prices of sediment material	Technical Bureau Water Services Division	Water Service Division	2010	C-class mining permit (for selling)
Reservoir Fishery Management - *Fully chargeable*	Fishery water ground use fee per m^2 of water ground, based on the ground use agreement	Water Services Division (Site management service)	Water Service Division	2009	New or revised legislation on Prov. Regulation No.8, 1991
Construction / Equipment Lease - *Fully chargeable to beneficiary*	Contract amount (construction) Lease fee (equipment lease)	Unit of Non-water Business	UNWB	Long-term action	Related business permit
Quasi-public Services					
Land Use / River Area Management - *Partly chargeable to beneficiary*	Land use charge per m^2 (farm land, pub. structure) per m (public utility cable, pipe) per unit / month (advertisement)	Water Services Division	Water Service Division	2009 (Enforcement and collection)	New or revised legislation on Prov. Regulation No.5, 1999 Rrov. Regulation No.7, 1994
C-class Mining Management - *Partly chargeable to beneficiary*	Sand mining management fee per m^3 of production volume, depending on the kind of material	Technical Bureau (Tech. recommendation) Water Services Division (Site management service)	Water Service Div. or District Government (at check points)	2008 (Enforcement and collection)	New or revised legislation on Prov. Regulation No.7, 1993, and Gov. Decree No. KPTS 78/III/'94
Waste Water Monitoring - *Partly chargeable*	Waster water monitoring fee per m^3 of waste discharge volume	Technical Bureau (Environmental sub-Bureau)	Environmental Sub-Bureau	2009 (Enforcement and collection)	New or revised legislation on Prov. Regulation No.7, 2003

Table 10.7 Balai PSDA Activities and Cost Accounting

No	Balai Activity/Service	Outcome	Beneficiary	Cost Chargeable for Service	Cost Accounting for Contract	Cost Allocation for Recovery
1.	Maintenance of up to date hydrology database	1. Hydrology data available for all types of users/uses	- Public - Balai PSDA & Govt. Agencies - Private Institution - Consultants	- Free - Free - Charge (cost of copying) - Charge (cost of copying)	✓ ✓	 ✓ ✓ ✓
2.	Maintenance of GIS	1. GIS for basin and infrastructure for WRM and regulation	- Balai and other government agencies	Free	✓	
3.	WQ Monitoring and support to pollution control	1. Long term and incidental WQ data	- Public - Private institution - Govt. Agencies (Bappedalda)	Free Polluter Pays Free	✓ ✓	 ✓
4.	River Infrastructure Management	1. Well maintained river system for water delivery 2. Support for flood management 3. Control on sand mining (Gol. C)	- Public (Water Users) - Private Inst. - Public - Public	Charge to water allocation and irrigation -do- Free Fee (Iuran)	✓ ✓ ✓	✓ ✓ ✓
5.	Water Allocation	1. Optimize water use 2. Increase production 3. Assured supply for drinking water & other priority 1 water users	- Water Users - Public - Water Users - Public - PDAM - Private Institution	License Fees Free License Fees License Fees	✓ ✓ ✓ ✓	✓ ✓ ✓
6.	Flood Management	1. Technical support for flood control 2. Engineering support for flood fighting	- Public - Govt. institution (involved in flood control) - Public	Free Free Free	✓ ✓ ✓	
7.	Irrigation Management (Inter-District System)	1. Equitable water allocation 2. Increased production 3. Maintenance of Irrigation Infrastructure (assets)	- Irrigators (Public) - Public - Government Institution	Service fee Free Free	✓	✓
8.	Balai Operation and Administration	Institutional efficiency	Balai/Government	Distributed as joint cost	✓	✓

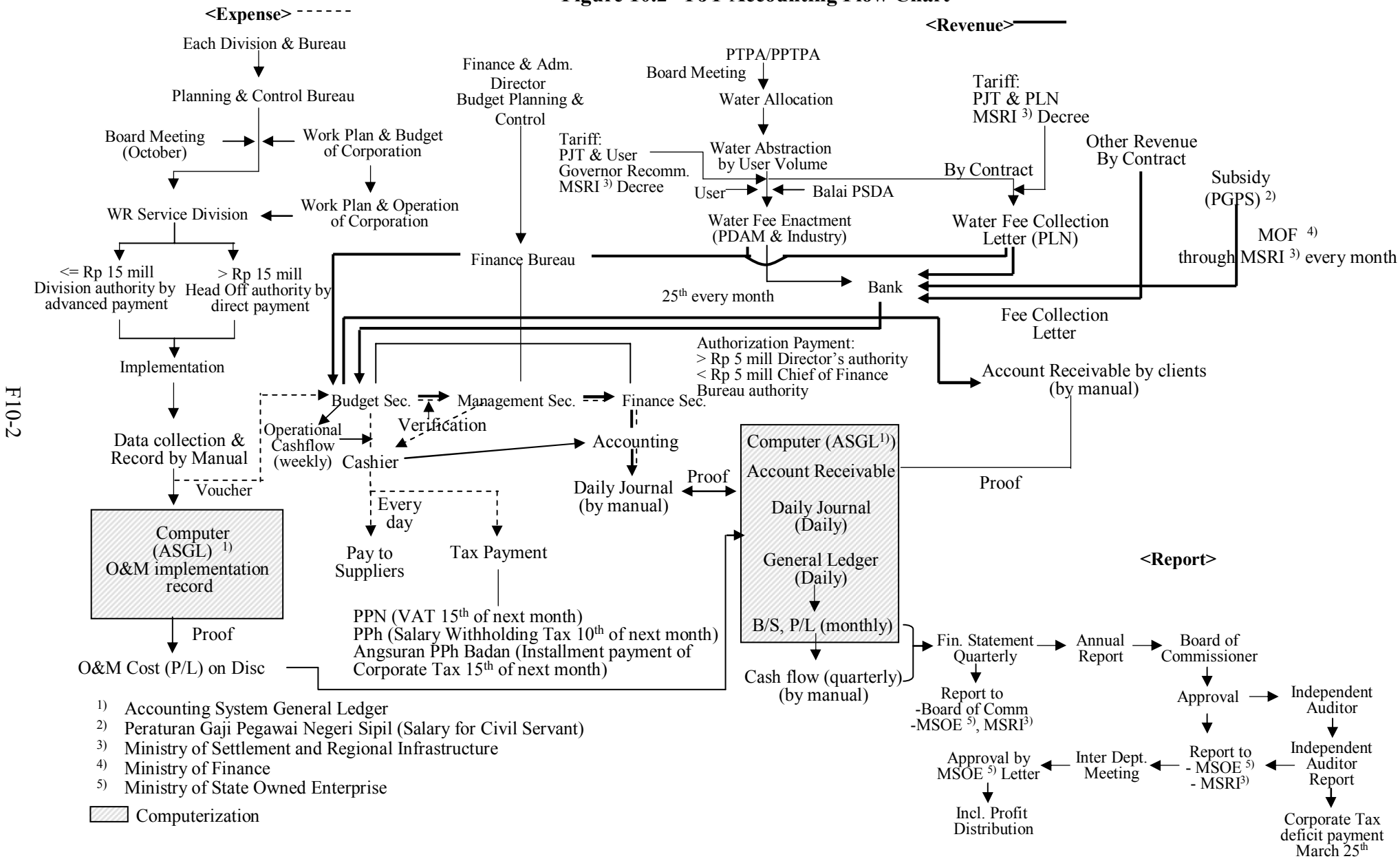
Source : Final Report Vol. 1 BWRM JIWMP and IWIRIP

Figure 10.1 Balai PSDA Budgeting, Cost Allocations and Cost Accounting



Source : Final Report Vol. 1 BWRM JIWMP and IWIRIP

Figure 10.2 PJT Accounting Flow Chart



CHAPTER 11

HUMAN RESOURCES DEVELOPMENT PLAN

11.1 Introduction

This chapter outlines existing human resource development (HRD) programs in Central and Regional Government, and the Jasa Tirta Corporations (PJTs). It also proposes (i) an HRD framework for PJT Jeneberang to deal with the routine training and development of PJT Jeneberang employees and (ii) the establishment of this function in PJT Jeneberang. It is not concerned with the initial capacity development of the Corporation as a whole, which is described in Chapter 13.

11.2 Existing HRD Programs

The Study Team did not find evidence of a coherent HRD program for PNS employees in the WR sector. However, within the PJT Corporations the process for assessing staff and arranging staff training appears to be systematic and may be effective. Kimpraswil (now MPW[1]) runs a number of training courses in various aspects of WRM. In addition, there is the core HRD program for Civil Servants (referred to in the next sub-section), which is thought by some to have little direct relevance to WRM. This section briefly surveys the present position. Also included is a summary of some HR aspects of the implementation of PJT I Bengawan Solo, because of its relevance to the Jeneberang corporatization.

11.2.1 Central and Regional Government

The core HRD program (equivalent to Training and Education) for Civil Servants in Indonesia is specified in Government Regulation No. 101 of 2000. The Program comprises three sub-Programs: for Leadership, Functional Positions and Technical Positions. Each sub-Program has four levels or echelons from I to IV, which correspond broadly to structural positions in the Civil Service.

A quantitative assessment of this Program performed in 2001, found that:

(i) A massive variation in utilization of trainers (the lowest was 2%) existed between the 95 central and regional government agencies and SOEs reviewed;
(ii) Most education / training "interventions" involved more than 25 persons;
(iii) Many interventions did not have clear objectives and intended outcomes;
(iv) Only 1% of interventions focused on "training of trainers";
(v) Provincial training was focusing not on capacity building (technical and functional training) in the context of decentralization but on pre-service and structural training.

[1]In this report, MPW is used for all present or future references, and MSRI (or Kimpraswil) for references earlier than October 2004.

As already mentioned, this Program is seen by some to be not directly relevant to the work of regional WRM managers and technical staff: the reason may be item (v) above.

It is not known whether the position has improved since 2001. Lessons for PJT Jeneberang training include the need for: small classes, clear objectives and intended outcomes, a greater stress on training trainers, and more technical and functional education and training at the province level.

In the housing, water and urban / rural development sector, Kimpraswil held 299 training courses in 2003 for 24,042 employees of which 49 courses (16% of total) and 1,347 employees (6% of total) were for the WR sector[2]. Purely in terms of numbers of organizational groups, the ratio of WR courses to total courses appears reasonable.

11.2.2 PJT Corporations

(1) PJT I – Brantas

PJT I employs two methods of human resource development (HRD): in-house training and external courses. A combination is often used whereby a person who has been trained externally returns to train PJT I staff in-house.

Every year, each PJT I unit is said to review the training needs of its staff and to select individuals for specific types of training according to a standard procedure. Successful applicants are placed in a one-year program of internal and external training according to availability of courses and within budget limits. Such training can be given at any staff level from senior management down. Training facilities used can be in Malang, Surabaya, Jakarta and overseas, although most training is provided in Surabaya. About 200 staff (40% of total) are said to receive some sort of training, internal or external, every year.

(2) PJT I – Bengawan Solo

Senior staff for the Bengawan Solo directorate were selected and appointed from the Bengawan Solo River Basin Development Project (Proyek Induk Pengembangan Wilayah Sungai (PIPWS) Bengawan Solo), the project work of which is reducing. These people, after the necessary permission from DGWR had been obtained, are understood to have been selected by PJT I with input from the Ministry of State-owned Enterprises and elsewhere. This joint selection process meant that PJT I did not get all the staff they wanted from those who applied to transfer. (This situation should not be repeated for PJT Jeneberang. It is particularly important that the Director and heads of divisions and bureaus should be selected and appointed with the full agreement of the PJT I Board of Directors (BOD). In addition, it should be made clear to these senior staff that, even if appointed by top level Ministry officials, they are to work according to the responsibilities and authorities delegated by the PJT I BOD. If this is not the case in every detail, PJT I BOD cannot be held responsible for any weaknesses in the performance of PJT Jeneberang.)

[2] 29 of these courses were concerned with irrigation

The implementation of the Bengawan Solo Directorate is said by PJT I to have been difficult and time consuming for PJT I senior staff. Intensive training was needed at all levels: initially one month on-the-job (OTJ) training in Brantas basin for lower level staff, operating infrastructure for example, and two weeks OTJ training for middle level staff, plus additional time for induction. Considerable PJT I management time was spent in supervising activities in Bengawan Solo and in travelling.

The implementation of technical, financial and administrative systems and procedures proved a complex and onerous process. A PJT I Brantas accountant is currently working for PJT I Bengawan Solo and, according to PJT I, is likely to remain there.

Systems and procedures were transferred gradually over a period of two years according to carefully calculated priorities. All those to be transferred have now, it is understood, been transferred even though not yet fully applied.

The retraining of older staff, especially within the more competitive and cost conscious environment of a PJT, proved one of the more arduous tasks for the existing PJT I management. For Jeneberang and other new corporations, this experience should provide valuable lessons: in particular the need to appoint only staff of the appropriate age, caliber and motivation. If this requirement is not met, a huge and largely unnecessary burden is placed on the PJT responsible for training and development.

(3) PJT II

Each year every PJT II unit is said to review (through unit heads) the training needs of its staff and to select individuals for specific types of training according to a standard procedure. Successful applicants are placed in a one-year program of internal and external training according to availability of courses and within budget limits. Such training can be given at any staff level.

11.3 HRD Framework Proposed for PJT Jeneberang

In this section a routine human resources development (HRD) framework for PJT Jeneberang is outlined.

It is assumed that staff have already been selected and recruited according to the numbers and jobs required by present workload, and strictly according to individual job descriptions and employee specifications (see Table 11.1 for a proforma job description / employee specification). Each member of staff should be provided with a well prepared job description / employee specification. These will have been created by management well before start-up and should be regularly updated to take account of changes.

11.3.1 Human Resources Development (HRD) Defined

HRD comprises both training and development and these are defined here.

Training, in both formal and ad hoc forms, should take place continually in any organization and involves everyone in management or supervisory positions. Training aims to improve specific knowledge or skills and will show benefits in the short term. Training may also be unconsciously given, for instance, by personal example.

Development is a more fluid concept than training and has a longer term horizon. It emphasizes personal "growth" of employees and improvement of their "potential" to move towards promotions and preparation for (higher) management positions. Therefore development concentrates on general rather than specific skills, such as leadership skills, self-awareness, confidence, and writing skills. It may also include exposure to techniques of goal-setting, policy and procedure development, communication and motivation.

Development can be oriented to the individual ("personal development") or to groups of employees ("team development") to work together effectively in teams.

Continuous development, or training and development throughout working life is now needed to deal with continuous change experienced almost everywhere. Knowledge and skills acquired must be frequently updated to match changing needs.

11.3.2 HRD Policy

A statement of policy on HRD for PJT Jeneberang will be needed[3]. Such a policy should include statements on:

(i) Corporate commitment to continuous development of staff;
(ii) Self-development as a responsibility of every member of staff;
(iii) Corporate commitment to staff appraisal, to recognize and reward improved performance, and to use enhanced skills operationally;
(iv) Methods of communication of corporate aims and objectives to all staff;
(v) Agreed procedures for performance appraisal;
(vi) Options, procedures and processes for career development and progression;
(vii) Facilities provided for learning during work time, including paid or unpaid leave for this purpose.

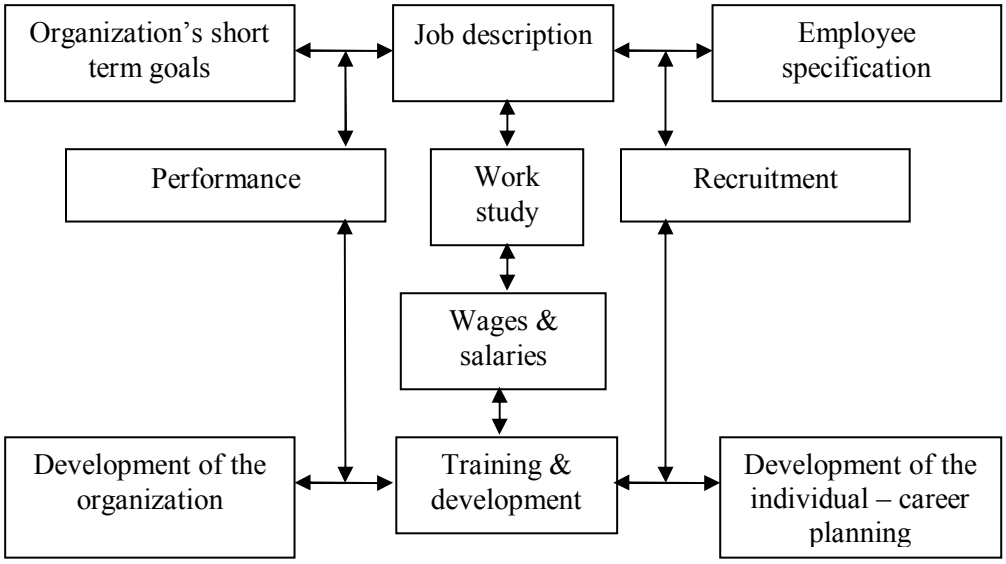
Top management in PJT I and in PJT Jeneberang must be committed to HRD policy and should request and be given feedback on its implementation. The policy document and its implementation should be regularly discussed with workforce representatives.

As far as can be determined, PJT I has no such policy document. There are, however, some policy statements within the General Procedure for Training (QP/PJT/07) although not identified as such.

11.3.3 Training, Development and HR Planning

[3] It is hoped that PJT I's present attitude to training and development of staff is not a reflection of the space devoted to it in the 2004-2006 Work Agreement between PJT I and the two staff unions. In this Agreement, there are four short uninformative clauses dealing with "Education, Advancement and Training/Skills". It is instructive to compare this entry with the space devoted to discipline, penalties and dismissal: some 5 pages or 10 times the quantity of text.

The role of training and development in the objectives and plans of PJT Jeneberang within PJT I is roughly illustrated by the following diagram:



The diagram shows that HRD should be central to PJT J's development especially in the early years. This has been well illustrated in the Bengawan Solo River basin over the past two years. Information required from those responsible for HR planning includes: staff numbers, qualifications, skill levels and locations. This is then related to details of the organization's future requirements to show needs for recruitment as well as training and development planning. By including training in HR planning the lack of suitable staff to recruit from elsewhere can, to some extent, be overcome.

Training is directly linked to organizational development, promotion and career structure, succession planning, job evaluation and salary structure.

11.3.4 Identifying Training Needs

Training needs can be *reactive* (e.g. to correct substandard performance) or *proactive* (to prepare employees for new or changed work). In retraining, the two types of needs can coexist.

Reactive training is the identification of existing weaknesses and reacting to remedy them. These weaknesses prevent the achievement of objectives and can be identified by various symptoms, such as output problems, poor quality control, high labor turnover, absenteeism, accidents, grievances, interpersonal conflict, customer complaints, ineffective use of staff specialists, poor supervision and management practice, misunderstood or unknown objectives, and others. (These symptoms may, of course, require solutions other than training.)

Proactive training is the preparation of employees to handle expected future changes, both inside and outside the organization. This is usually, but not always, a longer term matter, more oriented towards development. Changes that may require a proactive training response include: product type and demand (e.g. in PJT Jeneberang, the development of non-water businesses to

generate more net revenue), work processes and procedures, technology, legislation, financial factors, political issues, and business expansion or contraction.

Alternatives to training should always be considered, such as better (more appropriate) recruitment, staff movement, counseling and job redesign.

Training needs of all employees should be regularly assessed (against job and career requirements), from their appointment onwards, using standard TNA procedure (some details are provided in Supporting Report M). Occasionally, a needs survey should be carried out for special purposes, e.g. to identify particular industrial relations or leadership problems.

Once training needs have been determined, one or more training programs should be identified each with a series of objectives. Objectives should be realistic, measurable and specific, and be communicated to trainees.

11.3.5 Designing or Choosing Training Programs and Selecting Staff

Where possible, training needs would be met by established programs, either already in-house or externally provided. Staff should be selected for training according to agreed and objectively applied criteria, including an assessment for "trainability". Care is needed to ensure that internal and (especially) external training is responding to identified needs. Checklists and guidelines should be used when either designing or choosing programs or courses "off the shelf".

11.3.6 Instruction Methods

Off-the-job or classroom training in-house should be undertaken (i) bearing in mind the five learning stages (taking in, holding on, storing, retrieving and using), (ii) according to well-established guidelines, and (iii) ensuring the use of techniques to motivate trainees, reinforce learning, and give feedback to trainees on their performance.

OTJ training can be handled in several ways. The "on-the job presentation" is more suitable when only a few employees are involved and tasks are relatively simple; employees can practice immediately in the trainer's presence and this promotes feedback and discussion.

Programmed instruction replaces a "live" trainer with a written set of instructions, programs and information modules, although a trainer may be present. The trainee then works through the written material and that is the training process. There are many variants for this widely used type of training, for example:

(i) With or without the presence of a trainer,
(ii) In groups of trainees or individually,
(iii) Audio-, video-, or computer-based training.

Careful preparation of material, pilot testing and adequate supervision of the training process are vital for success.

11.3.7 Evaluating Training and Development

Training and development should be cost-effective: investment costs should be balanced by the benefits of improved performance. The implication for trainers is to devise objective measures of the results of training (increased productivity, better output quality, changes in behavior and so on). These should be established before course delivery and rigorously applied after training is complete.

11.3.8 Training Administration

The quality of the trainer both as preparer of training materials and as presenter is the main determinant for a successful training module, course or program. Good personal and inter-personal qualities are also important. Trainers may be full time professionals or capable line managers or other staff co-opted for the course or program in hand: there are arguments for both arrangements. PJT I, which will be largely responsible for managing HRD in PJT Jeneberang, is understood to adopt the second arrangement. However, those part-time trainers who show aptitude tend to spend more of their time as trainers.

Supervisors and managers, even if not undertaking training themselves, would be involved in such tasks as: assessment of training needs of their staff, assisting with course selection and design, motivation and encouragement of employees to undergo training, evaluating results of training, and employee counseling. This implies that supervisors and managers should themselves be trained in these skills.

HRD planning and execution can only be effective if a functional HR (training and development) information system exists. The HR database (which would include comprehensive data on employees and education / training resources), must be accurate, up-to-date and able to provide information quickly when needed.

11.3.9 Employee Development

The "development" of employees as defined in Section 11.3.1 above is a complex subject and outside the scope of this report, though included in the title of this chapter. The main feature of such development is that the impetus should originate from the person concerned rather than the organization. The role of management is therefore to encourage employees to develop themselves both in the job and outside it, providing information, appraisals, feedback, facilities and a "climate" that favors employee self-development.

11.4 Existing Manuals and Guidelines for HRM in WRM Agencies Relevant to the Jeneberang River Basin

This section reviews existing manuals and guidelines for human resource management[4] (HRM) in agencies either operating now in the Jeneberang River basin or that will operate there as part of the PJT Jeneberang. This section focuses primarily on PJT I data, because this data is more relevant to the new corporation. Information on existing documentation of technical, financial

[4] Human resource management (HRM) = human resource development (HRD) + personnel (or HR) administration.

and administrative systems and procedures is provided in Chapters 7 (technical) and 10 (financial and administrative).

11.4.1 Central Government

The foreign-funded Proyek Induk PWS Jeneberang, responsible for developing (and currently operating and maintaining) river infrastructure in the JRB, was set up under the jurisdiction of Central Government (Kimpraswil). Therefore the project follows central government systems and procedures, although currently SS Dinas PSDA shares the management of the Project with MPW.

The "institutional" guidelines and manuals employed by Proyek Induk are said to be limited to:

(i) The Ministerial Decree 110/KPTS/D/2002 which lists main tasks for each subproject group[5] and the support groups responsible for planning, technical and administrative services. There are no job descriptions for individual managers and employees;
(ii) Two slim volumes explaining criteria and procedure for grading jobs in all Government projects;
(iii) Two volumes (Books I & II) titled "State Administration System in the Indonesian Republic". These apparently explain the national system of training and examining Government employees, and are said by some to have little practical relevance to the day-to-day tasks to be undertaken by JRBDP staff (but see comment in Section 11.2.1 above).

11.4.2 Regional Government

Taking the South Sulawesi Dinas PSDA as the representative WRM body at provincial level, the institutional and administrative (that is, non-technical and non-financial) work of the Dinas PSDA is said to be specified partially in various documents including:

(i) Governor's Decree No. 214/2001 establishing the Dinas PSDA;
(ii) Individual job descriptions based on the above decree, which are said to be established for most sub-dinas and the Administration Division;
(iii) Procurement procedure is specified in a separate President's Decree No. 80/2003 that applies to all Government agencies;
(iv) Inventory control is specified in the National Treasury Inventory System (IKMN) and is applied to all Government units;
(v) Forms used for other personnel or administrative tasks usually lack supporting manuals, for example, performance evaluation which is said to be done annually.

At kabupaten level, assuming Kabupaten Gowa to be typical, there are said to be no procedure guidelines or manuals for institutional and administrative systems and procedures. Relevant regional (provincial and kabupaten) regulations are said to be the main documented source of such information.

[5] PPSA = Proyek Pengembangan & Pengelolaan Sumber Air (Project Development & Management): includes watershed management and water resource conservation.
PAB = Proyek Penyediaan Air Baku (Raw Water Supply)
PBPP = Proyek Pengendalian Banjir & Pengemanan Pantai (Flood Control & Coastal Protection)

11.4.3 PJT Corporations

(1) PJT I

While most organizational and human resource management (HRM) systems and procedures are fairly well documented in instructions, these are not normally organized into formal manuals.

The current position is analyzed in Table 11.2. This table shows:

(i) The normal subject areas for policies and procedures in the management of organization and human resources, together with the main content of each required procedure (in column 2);
(ii) The present availability of PJT I documents describing the procedure and the present information produced (e.g. present salary scales, terms of employment and so on) (in column 3);
(iii) The content of the PJT I documents identified in (ii) (in column 4);
(iv) Comment on the procedure document(s) and, in particular, whether or not a detailed written procedure exists suitable for staff training purposes (in column 5),
(v) A rough assessment of the effort required to transfer the documentation to the Jeneberang River basin (no change; relatively easy; relatively difficult; new document(s) required) (in column 6). Two figures are sometimes given for the assessment: the first assumes no improvement to existing PJT I documentation; the second estimates the work needed to upgrade documents, usually to include a detailed written procedure showing "how to" undertake the given task. If the decree, procedure or guideline will not be transferred to PJT Jeneberang, this is also stated.

The Study Team considers that the documented procedures (ISO and non-ISO) included in Table 11.2, which will be transferred to PJT Jeneberang, are sufficiently detailed to act as training aids, as long as they are supplemented with trainers in the early operational stages of PJT Jeneberang's start-up. Training should be given initially by classroom lectures, exercises and tests *before* operations formally begin, and by OTJ training once PJT Jeneberang is operational. All routines that have to be frequently repeated should be specified by detailed instructions and flow charts, and there should be a set of policy statements for each procedure, not the case at present.

Most instructions are given in PJT I Directors' Decrees, PJT I Regulations, procedure statements, and guidelines. There is one Internal Training Manual - Guide and Syllabus (Pedoman Pelatihan Internal) that lists a selection of subjects under different headings for training employees but contains no reference material to be actually delivered by the trainer. Individual trainers (who are normally line managers or supervisors acting as part-time trainers) are required to prepare their own material, which may or may not be available for subsequent trainers to use.

Job descriptions and employee specifications (JDESs) have recently been prepared for every head of division, bureau, sub-division and section in PJT I, including PJT Bengawan Solo. These are not prepared according to normal practice, in the opinion of the Study Team, but can

still be used as a guide by job holders as they contain some of the information needed. (A proforma job description and employee specification can be found in Table 11.1) However, apart from the unusual layout, the responsibilities listed in the JDESs are not sufficiently detailed, and there are no limits to financial and other authorities provided. Some financial limits for procurement are stated in a separate PJT I Directors' Decree, and other decrees state other authorities such as for signing documents, and issuing technical and other statements. Finally, there should be a JDES for the PJT Jeneberang Operations Director (a draft JDES can be found in Supporting Report M).

Other procedures, as PJT I has acknowledged, are not fully documented. These include:

(i) Personnel records and management information (more user-friendly guidance is needed than the operating instructions for the computerized system);
(ii) Criteria and procedure for outsourcing staff;
(iii) Processing (honorable) leavers (although this is referred to in the Work Agreement).
(iv) The systematic assessment of training needs.

In addition:

(v) As already mentioned, there should be more comprehensive training reference material than is provided in the Pedoman Pelatihan Internal. This would be a longer term project and would need detailed contributions from the relevant trainers;
(vi) Comprehensive written procedures could not be located for (a) staff planning and budgeting, (b) operating the salary and allowances system (although some procedures exist in the General Guideline on Salary System), (c) no specific procedure for preparation/maintenance of policies and procedures (although QP/PJT/02 specifies the control of documents in general), and (d) no specific procedure for maintenance of terms and conditions of employment;

The main actions considered necessary for PJT Jeneberang appear in Section 11.5 below.

(2) PJT II

Organization structure and unit functions and tasks are specified in the relevant Directors' Decree, No. 1/425/KPTS/2001.

Manuals and more detailed work instructions are said to be available for most administrative systems and procedures, including human resource development. One or two work instruction samples in Bahasa were shown to the Study Team and the format examined.

11.5 Manuals and Guidelines Proposed for PJT Jeneberang

Section 11.4.3(1) above outlines and broadly assesses the organizational and HRM procedures that are currently documented in PJT I and identifies those that are not. It also makes the general point that existing written procedures could be used as training aids, but that none could be used on their own as stand alone training documents. They should be supplemented by some trainer support, at least in the early stages. These could be used in PJT Jeneberang with little or

no modification. (Some minor general improvements to existing procedure statements are recommended in Volume 4 (Guidelines and Manuals) Chapter D (Human Resource Management. A listing of the procedures and documentation estimated to be transferred to PJT Jeneberang is also given.)

11.5.1 Transfer of Procedures to Jeneberang

It is estimated that the following organizational and HRM procedures will be progressively transferred to PJT Jeneberang during the last 6 months of 2006 and the first year after the start of operations at the beginning of 2007. They will be documented in PJT I Director Decrees, procedure statements and associated guidelines and manuals:

(i) Some staff planning and budgeting, to be performed by managers;
(ii) Staff recruitment and placement; processing leavers;
(iii) Recording / calculating work time for paying employees (Note that all job evaluation, grading, pay scale creation / operation, allowances / benefits operation, computation of monthly pay, and pay accounting, will be done in Malang, at least for the first two years);
(iv) Creating / maintaining personnel records and management information;
(v) Assessment of staff for training; identification / proposal of staff for training in PJT I or externally; OTJ training;
(vi) Staff performance appraisal and recommendation for promotion;
(vii) Disciplining and recommending employees for dismissal;
(viii) Processing staff applications for holidays and special leave;
(ix) Outsourcing staff;
(x) Health and safety precautions (Note that health insurance will be arranged in Malang).

PJT Jeneberang's operations, accounting and administration will be monitored and evaluated from Malang (by the Internal Audit Unit). This will be done in PJT Jeneberang with the collaboration of the Head of Administration and Finance Bureau for non-technical matters, and Head of the Technical Bureau for technical matters.

11.5.2 Recommendations Regarding Procedures to be Transferred

Of the above ten groups of procedures, the following are considered to need more comprehensive explanatory documentation (procedure descriptions and flow charts) than is currently available:

(ii) Processing leavers;
(iv) Creating and maintaining personnel records, and use of management information;
(v) Assessment and identification of staff for training; guidelines for OTJ training;
(ix) Outsourcing staff.

Items (ii), (iv) and (ix) should be completed under this Study and would be included in Volume 4, Chapter D.

Job descriptions and employee specifications (JDESs) for all posts identified in the PJT Jeneberang start-up organization (see Chapter 9 of the Main Report) should be prepared based

on the proforma document in Table 11.1 and the draft JDES shown in Table M2.2 in Supporting Report M.

In addition and as mentioned above, more detailed training reference material is considered necessary for consistent quality and relevance in training delivery.

11.5.3 PJT I Contract Team Response to Study Team Requests

The PJT I contract team has responded after being notified of the Study team's requests and suggestions, reproduced above in Sections 11.4.3(1) and 11.5.2 above. The PJT I team's response was that:

(i) The (very large) electronic file of the personnel record system, up to now inaccessible, would reveal a missing procedure for non-technical users of the system. This would be brought to Makassar on 23 November 2004;

(ii) Procedure for outsourcing personnel is adequately covered by two documents, Director Administration & Finance Letter No. KP.001/SPPH/DA/2003, and Director Administration & Finance Official Memo Number KP.047.1/MD/UM/DA/2003. *(The Study team considers that one written procedure is better than two other dissimilar documents that do not address the wider issue of criteria for out sourcing / subcontracting different types of jobs);*

(iii) Termination of Work Relation for non-permanent personnel is regulated in the Work Agreement Letter (SPK) Article 3 on Work Relation *(The Study team considers that there should be a separate procedure for employees leaving employment as for starting employment, and that this should apply to all types of employee.)*.

Items (i) to (iii) will be followed up with PJT I.

The PJT I Team also made several commitments as follows:

(iv) To formulate upcoming training material for HR more systematically *(The Study team requires more elucidation here);*

(v) Internal Training Manual will be formulated in more detail referring to Positional Competence *(The Study team considers that PJT I should commit to providing detailed reference notes for each training session)*;

(vi) Existing job descriptions will be revised according to the Study team's suggestions;

(vii) Each procedure and manual guideline will be completed with a preface that explains the policy for the issuance of the procedure / manual;

(viii) Existing written procedures (staff planning and budgeting, salary and allowances (remuneration) system, preparation / maintenance of policies / procedures, periodic employee health condition medication) will be improved *(The Study team considers that only the first of these is a priority item as the remainder are not being transferred to PJT Jeneberang)*

Items (iv), (v) and (viii) will be followed up with PJT I.

All procedural instructions should be prepared in a standard format and should be placed in a loose leaf ring binder manual dedicated to HRM work. Similar binders would be needed for financial / administrative and technical procedures.

11.6 Capacity Development

As part of a contract "to prepare a financial management system and related procedures" for PJT Jeneberang, PJT I delivered a 5-day course on "Institutional and Human Resources Management" at the beginning of November 2004[6]. The 12 participants were all employees of the PIPWS Jeneberang project, which is expected to provide most, if not all, of the staff for PJT Jeneberang.

The course material included:

(i) The PJT I organization and its relationship with the Jeneberang River basin;
(ii) Corporate Regulations, the Joint Work Agreement with the two Staff Unions, and the standing of the Staff Unions within PJT I;
(iii) Employee status and its definition; establishment planning; employee recruitment; rights of the employee and PJT I;
(iv) Employee compensation: salary system; calculation of employee compensation; merit payment system; employee assessment;
(v) Career enhancement: career levels from recruitment to pension; education advancement; competence standard;
(vi) Employee training; training requirements and procedure;
(vii) Employee discipline: obligations and prohibitions; penalties;
(viii) Workers' Insurance;
(ix) Employee severance: types of procedures and compensation pay;
(x) Work safety and health.

This course seemed a useful introductory overview to the PJT I HRM system. It should be repeated about one year later to staff who have been selected for specific positions in PJT Jeneberang, after the legal establishment of PJT Jeneberang and at the beginning of a period of preparation for the start of operations.

More intensive training and development is scheduled for the second half of 2006, sufficiently close to the start of operations to be still familiar when PJT Jeneberang managers and staff begin to undertake actual work procedures. Some OTJ training is also planned for the first quarter of 2007.

The objective of this training would be to educate the PJT Jeneberang managers and lone member of the HR Section in the basic skills, documentation and procedures of HRD. At the end of the class work and practical exercises, managers should have a detailed understanding of all the important aspects of HRD and their central role in it, be able to draft HRD policies

[6] Other 5-day courses given at the same were: "Financial Management and Accounting System General Ledger" (8 participants) and "Water Resources Management" (22 participants).

(which they will do), outline training syllabuses and programs. At the end of the OTJ training, the lone HR staff member should be able to undertake all the procedures required of him / her, and should have a detailed knowledge of all external training establishments in South Sulawesi, elsewhere in Indonesia, and overseas. The main educational progressions and establishments should also be dealt with on this course.

Heads of divisions, bureaus, sub-divisions and sections, and the lone HR member should attend classroom lectures and practical exercises on such topics as:

(i) Definition and role of HRD personnel training and development and HRM / HRD policy;
(ii) Staff planning, recruitment, training and development system;
(iii) Identifying training needs; designing training programs and selecting staff; instruction methods;
(iv) Evaluating training and development; training administration and MIS.

The class work would last for 21 working days (30 calendar days) and could be in three tranches during the last quarter of 2006. The work should include the critical appraisal of existing documents and the development of improvements, including any recommended in this Supporting Report M that has not been implemented.

In addition to the class work, a further 21 working days of OJT training have been allocated after PJT Jeneberang starts operating in 2007.

The trainer would be a suitably qualified PJT I expert (or experts) retained for 75 calendar days in three tranches. It is recommended that he / she should be assisted by a suitably experienced academic from (say) Hasanuddin University, who could provide additional insights and maybe wider experience.

More detail can be found in Chapter 13.

Table 11.1 Possible Proforma Job Description / Employee Specification

Position:

Reports to:

Immediate subordinates:

Purpose of job:

Specific responsibilities:
[all main responsibilities - in sufficient detail for practical application]

Common management responsibilities:
- Maintenance of organization structure and efficient staffing levels
- Development of subordinates
- Delegation of authority to subordinates to undertake their responsibilities [where not already specified]
- Coordination of supervised groups
- Cooperation with related groups
- Appraisal of subordinates' performance for training, promotion
- Use of advisers where necessary
- Communication with superiors and subordinates
- Development of improved processes and procedures
- Public / community relations
- Aware of, and conforming to the legal and social environment

Particular cooperation / coordination with:

Limits to authority [or any other limitation]:
It is assumed that each job holder has sufficient authority to perform their tasks. Where this not so, limits are specified. Such limits can include:
- Recruitment [up to what level – within budget / more than budget]
- Expenditure commitment [e.g procurement of goods and services – up to what amount: within budget / more than budget]
- Advance payment [up to what amount: within budget / more than budget]
- Giving public statements
- Issuing technical recommendations
- Signing documents
- Other

Job holder specification:
- Qualifications required:
- Experience required: [years, types of experience]
- Particular personal characteristics required:

Table 11.2 Required and Actual PJT I Policies And Procedures[1] For Organization And Human Resources Management[2]

No	Name and Content of Required Policy/Procedure	Availability of Relevant Documents[3] in PJT I	Content of Relevant Documents	Comment and Action Required / Recommended[4]	Ease of Transfer to Jeneberang[5]
1	Organizational Planning and Development: - based on initial and updated goals, objectives and strategies, structuring and charting the organization.	KP.039/KPTS/DA/02 KP.046/KPTS/DA/04 KP.018/KPTS/DA/02 KP.019/KPTS/DA/02 KP.020/KPTS/DA/99 KP.121/KPTS/DA/04 KP.122/KPTS/DA/04 KP.127/KPTS/DA/02 AP/PJT/01	Divisional organization Authority limits for procurement Authority to issue technical recommendations Authority to give public statements Signing authorities Divisional organization Subdivisional organization (Brantas) Subdivisional organization (Bengawan Solo) [latest decree] Vision, mission, list of BOD decrees on PJT I organization etc	No detailed written procedures for process	Will not be transferred
2	Job Analysis and Planning: - identifying job and skill needs. Structuring jobs. Preparing / maintaining job descriptions and employee specifications.	KP.138/KPTS/DA/2003 KP.222/KPTS/DA/2004 [signed Oct. 2004]	Contains 22 groups of summary job descriptions. Contains division/bureau, sub-division/section "job descriptions"[6].	No job description for Director (eg B/Solo Operations) Main comments on this document appear in this footnote[7] No detailed written procedures for process.	Will not be transferred

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[1] Entries on this table refer mainly to procedures. Related policies, if they exist, are to be found in BOD Decrees, not easily linked to procedures. Occasionally, policies are found in procedures (as QP/PJT/07).

[2] All procedures will apply to PJTI Jenberang; only some, as indicated, will be used or performed in PJTI Jeneberang.

[3] Included in this column are: PJT I Board of Directors Decrees (BODD - beginning KP.), ISO procedures (beginning QP/), non-ISO procedure (beginning MP/), guidelines *(pedoman)*, manuals (collections of guidelines / procedures / instructions), work agreements, significant contracts.

[4] Action required or recommended is emphasized with grey shaded text, only for procedures which will be transferred to PJT Jeneberang

[5] This column indicates very roughly the ease of transfer of PJT I documents to PJTI Jeneberang: 0 = no change; 1 = relatively easy; 2 = relatively difficult, 3 = new documents needed. Where two figures appear, the first refers to existing PJT I documents; the second to an improved or more detailed document (in particular setting out detailed written procedure for undertaking the task(s).

[6] "Competence Standard for Structural [i.e. management] Positions" (CSSP)

Table 11.2 Required and Actual PJT I Policies And Procedures[1] For Organization And Human Resources Management[2]

No	Name and Content of Required Policy/Procedure	Availability of Relevant Documents[3] in PJT I	Content of Relevant Documents	Comment and Action Required / Recommended[4]	Ease of Transfer to Jeneberang[5]
3	Staff Planning and Budgeting: - based on actual / planned workloads, determining staff numbers by job / grade and computing budgeted cost.	KP.129/KPTS/DA/2004 KP.045/KPTS/DA/2003 KP.100/KPTS/DA/03 [Related KPs exist for other units] QP/PJT/22 Guidelines	PJT I staff establishment PJT I staff establishment Employee establishment for Water Services Divns (Brantas) giving position title, numbers of required staff/title, education level needed and staff numbers for each level. Discussion (annual) with BOD of proposed employee establishment and inputting to RJP/RKAP	No detailed written procedures for process.	2 1 1 1 0
4	Recruitment and Leavers: - staff selection and appointment. Processing leavers	QP/PJT/06 Contract (staff) Letter from Division / Bureau Kep.57/PHI/PK/04	Planning, recruiting, posting staff Employee contract Request for staff by bureau / division chiefs (memo) Joint Work Agreement with Unions (2) on Terms and Conditions of Service. Short summary on various types of leaver.	Fairly good ISO procedure Detailed written procedure needed for staff leaving for honourable reasons although some information is available in Work Agreement	1 3 0 0 0
5	Pay and Benefits (Salary and Allowances); Payment System:	KP.195/KPTS/DA/04 KP.138/KPTS/DA/03	Salary scales only "Guideline for Career Development": selection of staff for 'class' &	No BOD policy decree Selection of staff for 'class' and 'grade' is not really career	Job evaluation, job grading, pay scales,

[7] 1) More detailed "Responsibilities" than the brief "Job Description" are needed to be useful. 2) Information under "Job Skills" should be listed under "Common Management Responsibilities". 3) Entries under "Specific Job Skill" are the same as those under "Job Description" and should not need repeating. 4) There are no authority limits, implying that the job holder has unlimited powers.

[8] Grading / class system seems too complex and duplicative. Text in both documents not always clear and could be simplified. Performance reward system is complex and, in addition, subjective in many of its numerous components. The question must be asked: is the cost of administering such a reward scheme balanced by the benefits (especially for lower level staff)?? Layout of some tables could be improved, e.g. the basic salary structure (a very 'flat' structure offering unusually low incentive to move from one grade to the next higher grade).

Table 11.2 Required and Actual PJT I Policies And Procedures[1] For Organization And Human Resources Management[2]

No	Name and Content of Required Policy/Procedure	Availability of Relevant Documents[3] in PJT I	Content of Relevant Documents	Comment and Action Required / Recommended[4]	Ease of Transfer to Jeneberang[5]
	- overall compensation policy. Evaluating and grading jobs. Operating and maintaining pay scales, pay reviews, probation, pension scheme. Allowances and benefits. Reimbursing travel and other expenses	KP.104/KPTS/DA/92 Kep.57/PHI/PK/04√ General Guideline on Salary System in PJTI, 2004[8] MP/PJT/05	'grade'; list of job titles & summary job descriptions. Pension contributions and list of names only. As Row No. 4 Recording / calculating work time for paying employees	development[9]. No detailed written procedures for whole process. Some summary procedures exist in the General Guideline on Salary System. Minor modification of existing procedure may be required	allowances / benefits, computation of monthly pay, pay accounting, will not be transferred. 0/1
6	Personnel Records and Management Information: - preparing / maintaining employee records of personal details, service, attendance / absence, work performance, training & development, disciplinary action, etc. Providing staff information for management	Staff records available – computerized and in hard copy. Also technical instructions for inputting personal data to computerized database. Manual [only available in hard copy]	Personnel information available from database for management decisions on various issues. Describes operation of computerized system only	Written procedures required for HRM or other non-technical users of the system.	1 / 2
7	Career Management - Staff Training & Development: - Training Needs Analysis (TNA); selection of staff for training; selection of external courses, seminars, workshops, conferences etc; preparation of internal	QP/PJT/07 [GR 101/2000 on Training Programme for Civil Servants] Pedoman Pelatihan Internal (Internal training manual – guide and syllabus) Career Development Guidelines	General procedure for training [with some policy statements] Lists a selection of training topics and elapsed times for training employees [See Row No.5]	Should be expanded, to cover e.g. detailed TNA procedure and costing and budgeting. Provides no reference material for training. Training material is the responsibility of trainers. This decree is more about	0 / 2 0 / 2 Will not be

[9] 'Career Development Guidelines' is a misnomer since most of this document consists of procedures for moving from one 'class' or 'grade' to the next higher (or lower).

Table 11.2 Required and Actual PJT I Policies And Procedures[1] For Organization And Human Resources Management[2]

No	Name and Content of Required Policy/Procedure	Availability of Relevant Documents[3] in PJT I	Content of Relevant Documents	Comment and Action Required / Recommended[4]	Ease of Transfer to Jeneberang[5]
	courses; delivery of on-the-job training; monitoring & evaluation of training given; training trainers; costing and budgeting for training and development	(KP.138/…/2003) Kep.57/PHI/PK/04	 [See Row No.4]	mechanics of 'class' and 'grade' adjustment than career development. Very brief on HRD	transferred 0
8	Performance Appraisal and Promotion: Setting objectives / targets. Annual (or more frequent) interviews and performance assessment. Deciding and implementing promotions	General Guideline on Salary System in PJT I, 2004 Career Development Guidelines (KP.138/…/2003)	Some procedural guidelines on performance appraisal in Salaries Manual chap VI, clause 19 et seq. Some guidelines on promotion criteria	No separate manual on performance assessment and promotion. No separate BOD decree	0 / 2 1 / 2 Whole PA&P process has to be socialized
9	Discipline and Dismissal: - disciplining and dismissing employees for infringements of rules and regulations	MP/PJT/24 Kep.57/PHI/PK/04	General procedure for disciplinary sanctions. As Row No. 4.	Should have penalty points table (although the table is available in Work Agreement) No BOD Decree on this topic Good on discipline / dismissal.	0 / 1 0
10	Holidays and Special Leave: - applying for / granting / taking annual holiday, sick and maternity leave, study leave, etc	MP/PJT/13 Kep.57/PHI/PK/04	General procedure on applying for official leave As Row No. 4		0 0
11	Monitoring and Evaluation: - selected monitoring and evaluation of HRM decisions, processes and outcomes	Kep.32/PRT/1991 MP/PJT/14	Guideline for Implementing Internal Control in PJT I	[Why not ISO procedure?] No detail on M&E targets, frequency or methodology	Will not be transferred. PJTI J will be M&E'd from Malang
12	Outsourcing staff: - deciding and obtaining staff on contract	MD.047.1/UM/MD/DA/03 Outsourcing contract	Contract format and jobs that can be outsourced, subcontracted, etc. Contract	Detailed written procedures required for process.	0 / 2
13	Health and Safety and	Kep.57/PHI/PK/04√	As Row No. 4		0

[10] = Organic

Table 11.2 Required and Actual PJT I Policies And Procedures[1] For Organization And Human Resources Management[2]

No	Name and Content of Required Policy/Procedure	Availability of Relevant Documents[3] in PJT I	Content of Relevant Documents	Comment and Action Required / Recommended[4]	Ease of Transfer to Jeneberang[5]
	Insurance: - actions and precautions to ensure the health and safety of employees in the workplace. Medical and accident insurance	QP/PJT/12√ 519.1/13-08/0704 KP.009/BA/DA/2004 Idem (19.4)	Procedure on handling safety and health at work. ASKES [Govt. staff health insurance for permanent[10] employees] JAMSOSTEK [Non-permanent[11] staff health insurance]		0 Will not be transferred Will not be transferred
14	Preparation / Maintenance of HR Policies and Procedures	QP/PJT/02 AP/PJT/01	Document control only No procedure identified	No procedure identified	Will not be transferred
15	Preparation / Maintenance of Terms and Conditions of Employment			No procedure identified	Will not be transferred
16	Duty:[12] - duty travel rules and procedure of reimbursing travel expenses	MP/PJT/20 KP.164/KPTS/DA/03 KP.165/KPTS/DA/03	General procedure on overseas duty travel Stipulation on Duty Travel (guideline) Stipulation on Duty Travel (tariff)		1 1 1
17	Pension scheme:[13] -	SK104/KPTS/DA/92 *or* KP104/KPTS/DA/92 (?) KP.049/PK/DA/2000 JKW/016/KPG/2000 KP.050/PK/DA/2000 MLG/01/1407 451/13-08/0603 KP.40/PK/DA/2003	fund contribution and benefit Pension fund management system DPLK BNI [Permanent employees] Deposito BNI JAMSOSTEK [Outsourced employees(??)]	Includes amounts to be paid by PJT I and employee	Will not be transferred

Notes: 1. General minor fault on all flow charts: no document / attachment references.

[11] = Non-organic
[12] Covered by Financial Expert.
[13] It is agreed that pension scheme procedures should be ignored for PJTI Jeneberang, except in the calculation of staff costs.

CHAPTER 12

CORPORATION ESTABLISHMENT AND OPERATION PLAN

12.1 General

This Chapter describes the basic concepts of the establishment and operation of Jeneberang Public Corporation and the framework plan of river basin management work to be conducted by the Corporation.

12.2 Basic Principles and Policies of River Basin Management

12.2.1 Basic Principles of River Basin Management

Basic principles of river basin management are properly proposed in previous studies[1&2], which are deemed to be the principles commonly recognized by the concerned agencies. The descriptions given in the previous studies are quoted as follows:

(a) The objective of river basin management is essentially to accomplish effective water resources utilization, management and conservation.

(b) River basin management is to be carried out based on the principles of sustainability, effectiveness, equality, accountability, and self-reliance (self-financing ability).

(c) River basin management is to be carried out in an integrated, comprehensive and sustainable manner with due consideration of environmental conservation, which should be planned based on a principle of "one basin, one management" with due observance of the decentralized government system in the spirit of regional autonomy.

(d) Activities for river basin management include:

- Water Quantity Management: development of water resources infrastructure, water use permits, water allocation, and water distribution
- Water Quality Management: control of water quality, effluent discharge permits, and water pollution control
- Flood and Drought Management: flood prediction, flood control, flood contingency measures, drought prediction, and flood and drought relief
- River Area and Environment Management: control of the use of river alignment land

[1] Review of Feasibility Study on Water Resources Management in Jeneberang River Basin, Aug. 2002, PJT I
[2] Review of Incorporation of Jeneberang River Basin Unit, Oct. 2003, University of Hasanuddin

(river area), increase of aquatic biota in river area, tourism and water sports promotion

- Watershed Management: water resources conservation (vegetation, terracing, etc.), erosion and sedimentation control as well as land use control
- Water Resources Infrastructure Management: proper operation of the infrastructure, preventative, corrective and emergency maintenance, as well as observance of dam's safety instruments.

This Study will adopt the same understanding as listed above.

12.2.2 Basic Policies of River Basin Management

The basic policies of river basin management quoted in the same previous studies are listed below.

(a) River basin management is undertaken in a holistic, planned and sustainable manner to fulfill the needs of improving people's livelihood as well as protecting the environment for the maximum benefit of people as provided in Article 33 paragraph (3) of 1945 Constitution.

(b) River basin management is undertaken in a decentralized manner and based on watershed approach.

(c) River basin management is undertaken on the principles of participation and consultation with the community at each level, in order to promote growth of common commitment among stakeholders.

(d) River basin management requires promoting the participation of private sector and communities in order to gradually relieve the Government from its burden of river basin management work.

(e) Communities benefiting from the river basin management must in stages (directly or indirectly) support the river basin management costs based on the principles of cost recovery.

(f) River basin management is as far as possible undertaken by utilizing a corporate body formed as State-owned Enterprise (SOE), Regional Enterprise (RE), Cooperative and Private Sector Business.

(g) Incorporation will be applied for the river basins that have been developed and will be feasible for exploitation, where the socioeconomic conditions allow the beneficiaries to contribute to and participate in the management of the river basin, or for the river basins that have not been fully developed but have large development potential. Balai PSDA is established for the river basins where the socioeconomic condition is still in an undeveloped state.

The above policies for river basin management are also taken into account in this Study.

12.2.3 Aim and Objective of River Basin Management by Corporation

The incorporation of river basin management aims to attain the management of water resources in the river basin in the most optimum way in line with the national development plan, and to encourage the participation of private and public sectors, thus reducing in stages Government expenditure from the state or regional budgets.

The River Basin Management Corporation is to manage the river basin in a sustainable, professional and self-supporting manner by applying sound principles of business and public service norms harmoniously with the participation of the community and private sector. This will be done by conducting river basin management based on the following concepts:

(a) Provide reliable and trustworthy services

(b) Be responsive to the expectations/demands of stakeholders

(c) Involve stakeholders in decision-making

(d) Allow the participation of the public and private sectors in various river basin management activities

(e) Create a standardized river basin management system

(f) Apply the principles of business feasibility

In operational aspects, the River Basin Corporation will pursue the following:

(a) Attainment of full recovery of O&M costs through revenue income and reasonable return on investment cost

(b) Cultivation of professional managers and application of proven and standardized management system.

(c) Gradual reduction of dependence on Government budget through developing commercial and semi-commercial business activities, while maintaining public services for the social interests as well as the welfare and safety of the general public.

(d) Expansion in stages of the incorporation system with priority on watersheds/river basins that have been developed or have not been completely developed but have large potential and/or are strategic to national economic development.

(e) Support of sustainable regional and national development by ensuring the sustainability of the river basin, which will comprise:

- Technical sustainability (equilibrium between requirements and provision, equilibrium between used expenditures and supporting capacity)
- Financial sustainability (cost sufficiency)
- Institutional sustainability (management ability to conduct proper planning, management and operation)

- Social sustainability (ability and willingness to conduct positive social control)
- Economic sustainability (support to economic development internally and externally)
- Environmental sustainability (free from negative impacts in the long term)

12.2.4 Strategies of Corporation's Operation and Management

Previous studies also depicted four principal strategies of operation and management of River Basin Corporation as follows:

(1) Sustainability

The River Basin Corporation, established on the basis of laws and regulations, has functions and tasks of managing the river basin and related water resources infrastructure to serve the public. The activities should be continuous and remain unchanged over the long term.

(2) Neutrality

The River Basin Corporation will not be engaged in a particular business that may create dualism in interests (as a service provider and as a user) in order to avoid favoring a single sector of users and to provide fair and equal services to all beneficiaries.

(3) Professionalism

The River Basin Corporation is able to perform the tasks of managing the river basin based on sound river basin management techniques; is able to develop a river basin management system that is adaptive to the demands of improving public services; is responsive to customers' demands; and is accountable to the owner, shareholders and stakeholders in the management of the Corporation (in respects of assets, finance, operation and administration).

(4) Self-Reliance

With the authority to collect and receive fees from beneficiaries (in a direct or indirect manner), the River Basin Corporation will gradually become independent of Government-funded support (APBN/APBD) for activities other than those related to social purposes or public welfare and safety. The Corporation will create the participating opportunities for the private sector and public in river basin management activities based on sound principles of business. The Corporation may be given the authority to make such decisions within the framework of authorities.

12.3 Basic Concept of Corporation's Duties and Functions

12.3.1 Roles and Duties of Corporation

Based on the principles and policies of river basin management stated in Section 12.2 above, the Study developed the basic concept of the Corporation's duties and functions, as summarized in Table 12.1. Further details of respective items are described in the earlier Chapters 7 to 11.

Table 12.1 assumes the Corporation will expand its activities in three phases: (i) start-up phase, (ii) development phase and (iii) expansion phase. Details of this concept are described in the following sections.

Table 12.1 is self-explanatory, but the following points are noted in relation to aspects specifically proposed in the Study:

(1) Rivers to be managed by the Corporation

In total, 29 rivers (one main stream, fourteen 2nd order rivers and fourteen 3rd order rivers) were identified on 1:50,000 maps. Of these rivers, it is proposed that the Corporation will manage five rivers in the initial operation period. The criteria for selecting five rivers were twofold: the first was the selection of rivers where major water resource infrastructure exist, and the second was those rivers having sub-basin areas equivalent to more than 10% of the total basin area (762 km^2). The 10% figure is an arbitrary criterion, but the resulting runoffs both during low or flood flows are regarded as providing a significant proportion to the basin's water resources management.

The remaining rivers will be managed by Balai PSDA since the Jeneberang basin is virtually a trans-Kabupaten basin. In this way Balai PSDA can delegate the authority of management to Dinas PSDA Kabupaten, especially Gowa, if the latter can bear the cost of river management work.

(2) River Administrator

The concept of 'river administrator' is proposed in this Study. The river administrator is the person (or agency) with the authority to issue permits and licenses relevant to the use of rivers and water, and also the one bearing final responsibility for river basin management work.

In the case of Jeneberang river basin, the river administrator is proposed to be the Governor of South Sulawesi Province under authorization by the Minister of Public Works. This is irrespective of whether the basin is a National Strategic River Basin to be managed by the State (in this case, the authority is delegated by the Minister of Public Works to the Governor) or a trans-Kabupaten river basin to be managed by the Province.

(3) Issuance of Permits and Licenses

The issuer of permits and licenses (e.g. water permit, effluent disposal permit, C- category mining permit, fishery permit, river land use permit, etc.) is the river administrator. The administrator can delegate authority to technical level agencies assigned as 'regulators' for respective sectors of river basin management.

The administrators include Dinas PSDA (for river and water resource), Bapedalda (for water quality and river environment), Dinas Forestry (for watershed conservation), Dinas Mining (for groundwater and C-category mining) and Dinas Fishery (for fishery) at provincial level. If appropriate, the Provincial Dinas can delegate the authority to issue permits and licenses to Kabupaten Dinas, but on condition they report to Provincial Dinas in order to maintain unified basin management.

The regulators are responsible for corrective measures and also for the enforcement of laws including the imposition of penalties (fines and sanctions) in case of any illegal activities.

(4) In-stream and Off-stream Management

The Corporation will manage five rivers (see (1) above) and related infrastructure. The management of the river itself is basically limited to in-stream management; however the Corporation will provide technical assistance and collaboration of off-stream management in relevant sectors.

Representative works of in-stream and off-stream management are listed as follows:

- In-stream management: responsive to water allocation and distribution, water quality and effluent monitoring, O&M of river infrastructure, and river area management
- Off-stream management: technical collaboration for watershed conservation, flood plain management, drought area management, disaster relief, and other sector management in the basin

12.3.2 River Basin Management Services by Corporation

Within the framework of duties and functions outlined in Table 12.1, the Corporation will provide various services related to river basin management and infrastructure O&M. The details are described in Chapter 7 while the principal items are summarized in Table 12.2.

12.4 Schedules Toward the Establishment and Operation of Corporation

12.4.1 Organizational Form of Jeneberang River Basin Management Corporation

As described in Chapter 9, MPW (formerly Kimpraswil) has studied three options regarding the organizational form of corporations, including four new corporations to be established in

Jratunseluna, Serayu-Bogowonto, Way Sekampung-Way Seputih, and Jeneberang. The three options studied include:

- Option I: Corporations to be established under two main corporations (PJT I for eastern regions and PJT II for western regions), with Jeneberang under the umbrella of PJT I
- Option II: Corporations to be established under three main corporations (PJT I, PJT II and new PJT III in central Java), with Jeneberang under the umbrella of PJT I
- Option III: Establishment of a National Corporation, where existing PJT I and PJT II are restructured and Jeneberang is one of seven river basin management branches under the National Corporation

MPW finally adopted Option II in November 2004, in which the Jeneberang Corporation is established as an extension of the working area of PJT I at the start-up stage. This also allows the possibility of future reform into an independent public corporation, either state- or province-owned. This MPW proposal is now being awaited approval of MSOE, MOF and SEKNEG as of November 2004.

The option of starting as a PJT I work area extension has more advantages when compared with the option of commencing as an independent corporation, due to the following outlined below:

Comparison of Options of Corporation's Organizational Form at Start-up Phase

Item	Start-up as Extension of PJT I Work Area	Start-up as Independent Corporation
Legal Aspect	Need only a Keppres for establishment	Need new PP for establishment, which will require a longer time and procedures until establishment
Technical Aspect	PJT I provides technical guidance including various O&M manuals and procedures	Have to procure guidance services with payment
Institutional Aspect	Minimum size of organization, led by a Director	Need for a Board of Supervisors, Board of Directors and a larger number of administration staff, which is a cost burden for a relatively small organization at the initial stage
Financial Aspect	Least cost solution, as identified in a previous study (see Supporting Report P)	Larger cost requirement due mainly to costs for guidance services and more staff
Organizational Management	Can use operational know-how accumulated by PJT I	Have to procure guidance services with payment

Note: Keppres: Presidential Decree, PP: Government Regulation

12.4.2 Anticipated Schedule Towards the Establishment of Corporation

The Study Team understood that a sufficient lead time should be assumed, of the order of 1 to 2 years, for (i) legislation of various regulations and decrees at central government level to enable the establishment of the Corporation and (ii) subsequent legislation at Province-Kabupaten level to enable its actual operation in the field.

If legislation for (i) above is achieved, the organizational setup of the Corporation would be possible. This would be initiated with an office setup, appointment of a Director (in the case of PJT I work area extension) and assignment of key staff.

However, the actual operation of O&M services in the field would only become possible for the Corporation after it is legally authorized to deploy its activities. This would include collection of revenue, supported with the issuance of the relevant Provincial and Kabupaten decrees and various mutual agreements among stakeholders. These are possible after legislation of (ii) above is made effective.

Furthermore, funding for the establishment, mobilization and initial operation of the Corporation will need many procedural steps, which would take around one year.

The Study Team exchanged views on the anticipated schedule with DGWR, JRBDP and Dinas PSDA. From these it was noted that there are many uncertain factors affecting the schedule and a definite schedule is difficult to predict at the present stage.

The Study team tentatively developed an anticipated schedule towards the establishment and commencement of operations of the Corporation, as outlined in Table 9.1 of Chapter 9. The schedule assumes the following milestone achievements:

- Establishment of Corporation: Towards the end of 2005
- Completion of all required legislation: Towards the end of 2006
- Commencement of Operations: Early 2007

It is noted that this schedule is still preliminary and subject to further change depending on the actual progress of legislation and budgetary arrangement works. The definite schedule should be defined as early as possible so that all concerned agencies have a common target towards the establishment of the new Corporation. The Study Team hoped the schedule could be fixed by the middle of January 2005 (at the time of discussion of Draft Final Report) in order to also determine the Phase III study schedule at that time. But the definite schedule has not been decided as of March 2005

12.4.3 Schedule Towards the Commencement of Operation

(1) Organizational Set-up

Mobilization of new Corporation (PJT Jeneberang) can be commenced in 2006 after it is legally established. The activities will include the following:

(a) Office setup at an existing JRBDP office; it is assumed that this would be the present dam monitoring office at Jalan Monumen Emmy Saelan in Makassar

(b) Assignment of key staff for initial mobilization work (about 15-20 people)

(c) Assistance in legislation and socialization, including water fee setting

(d) Preparation of detailed annual work plan and budget plan

(e) Finalization of corporate and river basin management system so that it could be defined after the operation starts in 2007. The system proposed in this Study should be a basis of the finalization work.

(f) Procurement of initial O&M operation resources: those items needed for initial mobilization work in 2006 are to be procured at the beginning of 2006 and the remainder for operation by the end of that year.

Among the above activities, (a), (b), (d), (e) and (f) can be conducted by PJT Jeneberang itself. It is important that PJT Jeneberang also take a positive role to proceed with activity (c) by coordinating with MPW and Dinas PSDA. Any delay in (c) would defer the commencement of operations.

Funding for these activities, roughly estimated as Rp.4.2 billion, would be procured from PJT I's own funding source or from an interest-free loan made available by the Government.

Figure 12.1 shows a time schedule of these activities.

(2) Operation Schedule

It is proposed that PJT Jeneberang will initiate the essential services relating to raw water supply and expand the service activities gradually during an initial two-year period (2007-2008). A conceptual timetable is shown in Figure 12.1.

(a) Recruitment of staff

Most present O&M personnel of JRBDP will be transferred to PJT Jeneberang without a change in their tasks. However, PJT Jeneberang will take the initiative in selecting qualified personnel. The number of staff will be maintained for the initial two years (2007-2008) so as to minimize the cost burden and to carry out a concentrated HRD program for a limited number of staff.

The number of staff will be gradually increased during the next three years (2009-2011) by additionally recruiting from JRBDP, Dinas PSDA and other sources.

(b) Establishment of management system

This activity is to install and implement the management system for actual operation of the organization. Various training programs will be implemented to strengthen both internal management and external relation capacity.

(c) Take-over of Infrastructures

The management of most major infrastructure related to water distribution will be transferred from JRBDP to PJT Jeneberang at the commencement of PJT Jeneberang's operation. The management of other infrastructure (such as Sabo dams, levees, drainage gates, hydrological stations, and other minor river structures) will be transferred individually towards 2009.

(d) River basin management services

In the first two years (2007-2008), priority for PJT Jeneberang's operation will be given to water quantity management and O&M of major infrastructure, who's management is to be transferred. Since knowledge of most of these works are retained by present JRBDP staff, the services in this category can be mobilized in a short period.

PJT Jeneberang will gradually expand activities towards 2009 to cover other service areas, such as water quality management, flood and drought management, river area management and watershed conservation. For these duties, the initial two years will be a preparatory period to conduct pre-studies, establish work systems through coordination with other agencies, train personnel, and procure resource materials/equipment. Notwithstanding, PJT Jeneberang will provide essential services needed by stakeholders, such as flood control operation at the reservoir and dissemination of flood and drought information, even during the initial preparatory work period.

(e) Fee collection

It is foreseen that fee collection from PDAM and PLN can be agreed before the commencement of PJT operation (i.e. during the process of legislation of basic water tariffs). Also, agreement can be reached with industries, since the number of industries is not high (only one sugar factory is at present listed).

Fee collection from other sources can also be mobilized within the initial two years (at the longest). Revenue items are listed in Section 12.4 below and the collection schedule is as shown in the profit-loss projections in Section 12.5.

12.5 Financing Source for Corporation Operation

12.5.1 Revenue from Service Fees

Of the proposed services (refer to Section 12.3.1), the items producing revenue are envisaged to be fees from raw water supply, water use for hydropower generation, effluent discharge monitoring, and a few items generating non-water service fees (e.g. service fee for C-Class mining and land use in river utilization area). The fees will be contributed by respective beneficiaries and based on beneficiary-to-pay and/or polluters-to-pay principles.

The conceivable fee items are listed in Table 12.3 together with other income sources.

12.5.2 Funding Support by the Government

(1) Irrigation O&M Cost

As noted in Chapter 4, New Water Law No.7/2004 clearly prescribes the government obligation for O&M of irrigation facilities (except for tertiary systems) and also no charge for the costs of the water resources management service for agricultural activities of people (except for O&M cost for tertiary systems).

Accordingly, this Study understands the following principles may be set out:

(a) Irrigation O&M cost shall principally be paid by farmers as beneficiaries, based on beneficiary-to-pay principle

(b) Due to farmers' limited ability to pay, the government overtakes the obligation for O&M costs. This would also be applied to the O&M cost incurred by the PJT Jeneberang. The compensation of costs to the PJT Jeneberang will be in the form of either subsidy or service fees under the concept of public service obligation (PSO).

(2) Funding support for Public Services

PJT Jeneberang will provide a wide range of technical services required to support public welfare and livelihoods without revenue.

PJT Jeneberang will need funding support from the Government to cover the cost of such non-revenue generating public services (e.g. water quality monitoring, flood and drought management, etc.). It is expected that the Government shall introduce the concept of 'Public Service Obligation (PSO)', based on which the PJT Jeneberang is entitled to receive fees for such public services from the Government.

From the viewpoint of the owner of the PJT Jeneberang (i.e. Government as 100% equity holder), it is important to determine how to encourage the PJT Jeneberang to carry out such public services positively. The introduction of the PSO concept is a strong instrument for such encouragement.

(3) Government Loan for Operating Fund

As described in Section 12.5 below, the PJT Jeneberang will require financing to meet working capital needs for the initial operation period. The Government shall provide an interest-free (or low-interest) loan to the corporation for use as an operating fund. The PJT Jeneberang shall repay the loan within a prescribed period.

(4) Government Grant for Major Rehabilitation and Development Works

For a foreseeable period, PJT Jeneberang will not have the financial capacity to bear costs associated with major rehabilitation works, replacement of major equipment, and development of

new infrastructure. Such works, if they are to be implemented by the PJT Jeneberang, shall be subsidized by the Government.

12.5.3 Income from Non-Water Business

PJT Jeneberang will develop non-water businesses with the purpose of increasing income to the corporation. Potential business items are listed in Table 12.3. The detailed features are described in Supporting Report K.

12.6 Corporate Financial Plan

12.6.1 Tariff Setting

(1) Allocation of Operation Cost by Service Category

The Study estimated the operating cost of PJT Jeneberang by service category in the following manner:

(a) Direct cost of O&M work was first estimated for respective categories of infrastructure and service items. The direct O&M cost is Rp.4.71 billion in total, as estimated in Subsections 7.8.1, 8.4.4 and 8.6.3.

(b) O&M cost of Bili-Bili dam/reservoir, a major joint facility for multi-purpose use, was allocated to four beneficiary sectors (i.e. flood control, irrigation, water supply and hydropower) by applying a justifiable expenditure method based on benefit value, as introduced in the "Concept for Calculation of Water Use Fee[3]". Initially, the benefit values of four sectors were derived by reviewing the latest project evaluation reports on Bili-Bili multi-purpose dam (see Table 12.4), and the O&M cost allocation ratio of the joint-facility calculated as below (see Table 12.5).

Ratios of Allocation of O&M Cost of Joint Facility (Bili-Bili Dam, etc.)

Joint-facility Allocation Ratio	Flood control	Irrigation	Water supply	Hydro Power
	31.1%	25.6%	29.6%	13.7%

(c) O&M cost of the joint-facility (Bili-Bili dam, reservoir and related facilities such as sabo dams) was then allocated to the four major service sectors in proportion to the above allocation ratio. O&M cost for specific facilities such as riparian structures, irrigation intake weirs, water supply related facilities, and so on, was left to the corresponding services, according to their purpose.

(d) Similarly, the costs of various management activities (such as river conservation, drought, flood, water quantity, water quality and watershed management) was allocated initially to

[3] Draft, Secretariat Pokja RKSP, MSRI, February 2002.

directly related services, and then to the four main services outlined above[4].

(e) Apart from direct O&M costs, indirect operation costs (such as indirect personnel cost, general expenses) and required margin[5] were assessed as Rp. 4.27 billion (see Table 12.5). The indirect cost was allocated to respective service categories in proportion to the direct O&M costs estimated in (a) to (d) above (see Table 12.5).

(2) Allocated service cost

Through the above processes, the operation cost required for each service category was obtained as summarized below:

Allocated Service Cost

(Unit: million Rp.)

Service item	Service cost allocation ratio	Allocated service cost (and tariff) in 2004 price	Allocated service cost (and tariff) in 2007 price *
1) Public Service Obligation (PSO)	56.0 %	Rp. 5,034	Rp. 6,229
a) Flood Control	24.7 %	Rp. 2,224	Rp. 2,752
b) Irrigation Water Supply	27.1 %	Rp. 2,431 (Rp. 102,751/ha)	Rp. 3,008 (Rp. 127,149/ha)
c) Flush Water Supply	2.2 %	Rp. 198	Rp. 245
d) River Water Quality Monitoring	0.8 %	Rp. 72	Rp. 89
e) Watershed Management	1.2 %	Rp. 109	Rp. 135
2) Commercial Service	39.2 %	Rp. 3,523	Rp. 4,359
a) Water Supply	32.3 %	Rp. 2,902 (Rp. 38.6/m^3)	Rp. 3,591 (Rp. 47.8/m^3)
b) Water Provision to Hydropower	6.9 %	Rp. 621 (Rp. 8.0/kWh)	Rp. 768 (Rp. 10.0/kWh)
3) Quasi-public Services	4.8 %	Rp. 431	Rp. 534
a) River Area Management	2.6 %	Rp. 233	Rp. 289
b) C-class Mining Management	1.4 %	Rp. 127	Rp. 158
c) Waste Water Monitoring	0.8 %	Rp. 71	Rp. 87

Note: * Applying an escalation rate of 7.36 % per annum

Regarding commercial services (water supply and hydropower) and the irrigation water service, the base tariff (defined as the tariff able to recover the allocated cost of each service) is calculated by dividing the cost of each service by production volume or benefiting area. The results of initial tariff derivation are also shown in the table above (see also Table 12.5).

Tariffs for industry, plantation and fishpond water supply are separately derived in the following manner (see Table 12.5):

a) Industrial water: derived by applying a multiplier based on a ratio between current average PDAM consumer tariff (as base case) and tariff applied to large unit customers (industries)

b) Plantation and fishpond water: derived by applying multipliers based on production value

[4] Concerning watershed management cost, for example, 20% of total cost is assumed to be initially allocated to the watershed management service. The remaining cost is allocated to main services (flood control, irrigation water, municipal water supply, and hydropower) according to allocation ratio of joint-facility, because watershed management activity contributes to stable realization of these services through maintenance of water catchments.

[5] Margin is calculated so that the corporation is able to ensure a 15% Return on Equity (as indicated by MSOE).

of irrigated paddy (as base case) and those of plantation (sugarcane) and fishponds

Estimated basic tariffs are summarized below:

Basic Tariffs for Industrial, Plantation and Fishpond Water Supply

Sub-services	Multiplier as a result of comparison	Tariff in 2004 price	Tariff in 2007 price *
Municipal Water as a whole		Rp. 39/m^3	Rp. 48/m^3
- Industrial Water (city)	Multiplier factor: 3.70	Rp. 143/m^3	Rp. 178/m^3
- Industrial Water (others)	Multiplier factor: 1.70	Rp. 66/m^3	Rp. 82/m^3
Irrigation Water (irrigated paddy)		Rp. 102,751/ha-year	Rp. 127,149/ha-year
- Plantation Water	Multiplier factor: 0.53	Rp. 54,040/ha-year	Rp. 66,872/ha-year
- Fishpond Water	Multiplier factor: 3.87	Rp. 398,083/ha-year	Rp. 492,607/ha-year
Hydropower Water Use		Rp. 8.0/kWh	Rp. 10.0/kWh

Note: * Applying an escalation rate of 7.36 % per annum

(3) Considerations for Tariff Setting

(a) Raw water supply to PDAM System

Comparison with existing tariff in PJT I service area

The current tariff for municipal water supply in PJT I Brantas service area is set at Rp. 40/m^3. According to PJT I, this tariff rate is not sufficient to cover the full O&M cost. PJT I proposes a much higher rate to its customers (PDAMs) based on its own calculation (cost allocation) method. The base rate in the Jeneberang region is estimated as Rp.39/m^3 at 2004 prices, which is almost equal to the current PJT I tariff.

Household affordability to pay

In Makassar, around 46% of total households are piped from the PDAM system, and a middle class family is generally able to access piped water. The current average PDAM water supply tariff for household consumers is Rp.1,279/m^3. If the raw water base rate of Rp.39/m^3 is added, the household tariff will rise to Rp.1,357/m^3[6]. At this rate, households must spend some Rp.36,000 for piped water based on a monthly average household consumption of 26.5 m^3/month (in 2004).

Average monthly household expenditure in Makassar is estimated at Rp.1,210 thousand at 2004 levels. This monthly payment of Rp.36,000 accounts for 2.97% of average household expenditure and is deemed to be within an affordable range if the affordability-to-pay for piped water is set at 3.0% of household monthly expenditure. Even if raw water rate is adjusted up to Rp. 46/m^3, water expenditure remains within 3.0% of total expenditure.

(b) Water supply to plantation and fishpond

[6] It is tentatively assumed that the financial loss due to 50% water conveyance loss at the side of PDAM be recovered through additional charge to the end-users.

Comparison with existing tariff of PJT

Tariffs of Rp. 54,040/ha-year (for plantation) and Rp. 398,083/ha-year (for fishpond), in 2004 prices, are proposed in the Jeneberang basin. Existing PJTs have not charged such fees nor proposed the tariffs. In the Jeneberang basin, only Takalar Sugar Factory currently abstract water into its own sugarcane plantation. Fishpond users are not clearly identified, although the scale is considered to be minor.

(c) Water utilization by PLN

Comparison to the existing tariff of PJT

The base tariff for water utilization for hydropower generation was derived as Rp. 8/kWh at 2004 prices according to the O&M cost analysis in (2) above. This compares to the rate applied in PJT Brantas of Rp. 25.1/kWh (as of 2004) and the rate actually proposed by PJT I of Rp. 29.6/kWh, which is based on its own calculation (cost allocation) method.

This relatively large difference between the Jeneberang and Brantas rates is explained by the features and objectives of the multi-purpose dam. Bili-Bili multi-purpose dam was primarily designed for flood control and irrigation, with hydro-generation placed as a subordinate operation. Discharge for hydropower generation is therefore given the least priority. Hydropower has no specific storage volume in the reservoir. These are factors of a lesser burden of dam/reservoir O&M costs by the hydropower.

PLN's affordability to pay

Compared with the total energy production (including purchase) of PLN Regional Office of South and Central Sulawesi, energy generated by Bili-Bili hydropower plant accounts for only a minimal proportion (77.2 GWh out of 2,355.3 GWh as of 2002). Even if a similar base rate to PJT Brantas is applied, additional expenditure incurred for PLN through payment of a raw water fee (amounting to Rp. 1.9 billion) accounts for merely 0.1% of total expenditure of the regional office (Rp.1,720 billion) and 0.3% of Makassar sub-office (Rp.639 billion as of 2002).

(4) Revenue from Public Services

Public services rendered by the corporation include: i) flood control, ii) irrigation water supply (O&M for irrigation intake weirs), iii) flush water supply (for diluting the drainage channel in Makassar City), iv) river water quality management (periodic sampling, laboratory analysis of river water and reporting to the regional authorities), and v) watershed management (technical/financial cooperation to the regional Dinas Forestry and communities). These are basically non-revenue generating services.

Service costs for public services amounts to almost 56% of total O&M costs. Accordingly, if the PJT Jeneberang's operation relies only on commercial service fees (for raw water supply and

hydropower) based on their base tariff, recovery capacity against normal O&M cost only reaches around 39% (the remaining 5% belongs to quasi-public service costs) (see Table 12.5).

Among the public services, service costs for flood control and irrigation water are substantial, accounting for around 92% of the public service cost. Reviewing the experience of existing PJTs, however, they have difficulties in adequately financing such public services, because beneficiaries and the government have not borne the necessary O&M expenditures.

Accordingly, growing attention has been paid to the discussion on Public Service Obligation (PSO) for the water resource management sector. Under the PSO principle, if particular services are regarded as being obligatory by the government, the government section concerned shall be responsible for financing such services.

Concerning O&M of irrigation facilities, new Water Resources Law No.7, 2004 - Article 78-(3) mentions that construction and O&M of primary and secondary irrigation systems shall be financed under the responsibility of central and regional governments according to their authorities. Under the law, the farmers as direct beneficiaries will not be required to shoulder the service cost for irrigation facility O&M. Accordingly, the central government (if according to the authority over the Jeneberang River and its irrigation system) or regional government will be requested to finance irrigation water service costs on behalf of farmers.

O&M cost for flood control may be regarded as an item covered by the PSO principle. On one hand, an objective of establishing the public corporation is to reduce the cost burden on the government by introducing the beneficiary-to-pay principle. A unique aspect in the Jeneberang basin is that beneficiaries of municipal water supply and hydropower generation, living in the lower reach, are also the beneficiaries of flood control. Taking this aspect into account, there may be an alternative possibility of charging the flood control O&M costs to those beneficiaries. This will be examined as one of the alternative scenarios of tariff setting.

(4) Other Government Support

(a) Compensation for Operational Deficits

This component of government support is also regarded as one form of PSOs. In this study, however, assistance for the initial working capital (in the form of a non-interest loan) will be sought upon the establishment of support for operational deficits after operation is in place.

(b) Funding Support through Subletting of Construction Work

As for the cases of PJT Brantas and Solo, the Principal Project Office (Proyek Induk) can financially support the corporation through indirectly subletting construction and/or rehabilitation works. However, the PJT Jeneberang will not have the capacity to execute such subletting work for the foreseeable period (in terms of available equipment and human resources). Therefore,

revenue support through sublet work will not be likely in the short term.

12.6.2 Profit and Loss Projection

(1) Raw Water Tariff Alternatives

The study examined the following three alternative scenarios of water fee rate setting:

Case-1: Beneficiary-to-pay Principle

This alternative assumes the cost of river basin management services shall be borne by beneficiaries as far as they can be defined. The following are taken into account:

(a) Beneficiaries of water supply and power supply living in the lower basin area are also the beneficiaries of flood control services provided by PJT Jeneberang. They may be requested to bear the cost of flood control services.

(b) Beneficiaries of irrigation water supply are farmers in the irrigation area, who shall bear the cost of intake weir O&M services provided by the Corporation. According to the new Water Law, this obligation is assumed by the government. The cost shall be borne by the government under the concept of PSO.

Case-2: Corporation to be financially self-reliant within five years

This alternative assumes the Corporation is able to charge water fees, which would make the Corporation profitable in the 5th year after commencement of operations.

Case-3: Affordability-to-pay Principle

This alternative assumes that the rates shall be set after considering affordability-to-pay of the beneficiaries. Since the level of affordability-to-pay is difficult to determine, the rates currently applied in the PJT I service area were adopted as a guideline.

Estimated water fee rates are summarized below:

Water Fee Rate assumed in Alternative Cases

(Price at 2004)

Customer	Unit	Case-1	Case-2	Case-3
PLN	Rp./kWh	17	14	25
PDAM	Rp./m^3	**59**	**47**	40
Industry	Rp./m^3	66	66	80

Note: Rates shown in bold seem to exceed or are very close to the limit of affordability-to-pay of average households (estimated as Rp.46/m^3)

(2) Water revenue

- PLN: Hydro electricity generation volume is estimated to be 77.174GWh/year through the

projection period.

- PDAM: Production volume is projected according to the following estimation:

Water extraction at intake (Unit:m^3/s)

Year	2003	2010	2020
PDAM Makassar (dry season 6 months)	1.97	2.30	4.14
(rainy season 6 months)	1.47	1.80	3.64
PDAM Gowa (12 months)	0.19	0.36	0.80

- Industry and Plantation: Takalar Sugar Factory is only one industry for revenue projection at present. Demand for drinking and industry water for factories is projected as 380 m^3/day based on actual intake in 2003; it is projected to increase at 3.45% p.a. based on the projected GRDP in the region, including other prospective industries. Plantations associated with the factory used 14,400 m^3/day over 500 ha in 2003. Water demand is not projected to increase thereafter.

(3) Public Service Revenue

Irrigation O&M cost is calculated based on tariff per ha. The tariff was projected to cover O&M of weirs and allocated O&M cost of Bili-Bili dam. In addition, public services rendered by the corporation may include flushing water supply (for diluting the drainage channel in Makassar City), river water quality management, and watershed management.

Under the projection, the government payment for irrigation O&M and others are expected as follows:

(Unit: Rp.million)

Year	2007	2008	2009	2010	2011
Government Payment for Irrigation O&M	1,532	1,750	2,188	2,310	2,431
Other PSOs	379	379	379	379	379
Total	1,911	2,129	2,564	2,689	2,810

(4) Non-water Revenue

Boat rental business at Long Storage

This plan will be commenced in 2005. Revenue will be realized as follows:

Rp. million in 2004 prices	2007	2008	2009	2010	2011
Revenue (profit shared)	Rp. 6.4	Rp. 6.5	Rp. 6.7	Rp. 6.9	Rp. 7.2
Expenditure	Internalized in the routine O&M cost of the corporation				

Sand mining management

It is estimated that the mining service fee will not be immediately introduced nor accepted at the same time as the corporation's establishment. Accordingly, revenue from sand mining management is likely to be realized in 2008. With the mining service fee already proposed,

revenue is estimated as below:

Rp. million in 2004 prices	2007	2008	2009	2010	2011
Revenue (service fee)		Rp. 196.2	Rp. 206.1	Rp. 240.2	Rp. 275.7
Expenditure	Internalized in the routine O&M cost of the corporation				

Own dredging and sales

It is targeted that the corporation will annually dredge 300 thousand m^3 and sell as much of the product as possible. Assuming that every dredging works are undertaken based on a profit-sharing scheme (sharing ratio of 8:2 between private sector and Corporation), revenue from 2010 is estimated as below:

Rp. million in 2004 prices	2007	2008	2009	2010	2011
Revenue (profit shared)				Rp. 106.4	Rp. 106.4
Expenditure					
- Permit acquisition cost				Rp. 28.0	Rp. 9.3
- Internal management cost	Internalized in the routine O&M cost of the corporation				

Note: The above assumes that Corporation will get 20 % of total revenue according to the profit sharing ratio

Reservoir Fishery Management

Given the tariff of the service fee (Rp.2,000/m^2/year), revenue is estimated as below.

Rp. million in 2004 prices	2007	2008	2009	2010	2011
Revenue (profit shared)			Rp. 7.0	Rp. 8.4	Rp. 10.1
Expenditure	Internalized in the routine O&M cost of the corporation				

Land use management

Revenue from non-agricultural land lease is set as 50% of the annual revenue from farmland. Given annual increases in land lease area of 5%, total revenue is estimated as below.

Rp. million in 2004 prices	2007	2008	2009	2010	2011
Revenue (profit shared)			Rp. 11.4	Rp. 12.0	Rp. 12.6
Expenditure	Internalized in the routine O&M cost of the corporation				

Wastewater monitoring

With the base fee rate of Rp. 293.2 per m^3 of discharge (rate in 2007, to be increased every three years by 20%), revenue from this service is estimated as below.

Rp. million in 2004 prices	2007	2008	2009	2010	2011
Revenue (profit shared)			Rp. 76.5	Rp. 95.9	Rp. 101.2
Expenditure	Internalized in the routine O&M cost of the corporation				

The financial projection of the above non-water revenues is presented in Tables K4.2 to 4.4 in the

Supporting Report K.

(5) Expenditure

- Direct O&M cost

O&M cost is estimated for each facility and river management work based on field reconnaissance, interview surveys and actual status of river infrastructure. The cost consists of direct personnel cost, materials, equipment and other direct cost items.

- Indirect cost

Personnel cost includes salary, family allowance, pension, work allowance, performance bonus, tax, health allowance, religious allowance, uniform and extra meals. Total personnel cost covers 45 permanent employees in the first year, which gradually increases to 76 towards the beginning of 2011. Personnel cost rate is projected to increase by 3% per annum. Indirect personnel cost is estimated by deducting the direct personnel cost from the total personnel cost.

Traveling cost consists of the costs of transportation, accommodation and allowances incurred for duty travel. Traveling cost is projected to increase by 3% per annum.

General affairs include office expenses such as electricity, water, telephone, facsimile, fuel, photocopying, stationary, computer supplies, guest receiving expenses, PBB, etc.

Marketing cost is assumed at 1% of revenue.

Depreciation is calculated based on the value and usable period of the owned assets and the investment plan assuming a straight line method in accordance with the accounting policy of PJT I. Initial mobilization cost is included in assets and depreciated in 3 years.

Public relations costs are estimated based on the frequency and methods of contact with stakeholders and public campaigns with reference to PJT I.

HRD costs are projected based on number of personnel and education in PJT I and outside training institutions.

Supervisory board cost includes salary and duty travel for meetings. Supervisory board cost is projected to increase by 3% per annum.

R&D cost is projected based on personnel cost for business development studies, preparation of river basin management master plan and research relating to water resources management.

Capacity development cost was projected based on the Study described in Chapter 13.

12.6.3 Rules of Profit Appropriation and Dividend

GR No.13/1998 stipulates that 45% of net profit shall be allocated for:

1) General reserve, which shall be accumulated at least to double the amount of paid-in capital
2) Social service and education
3) Production bonus
4) Donations to pension fund
5) Support and donations to small enterprises and others

All net profit after subtracting the above shall be deposited to the National Development Fund.

12.6.4 Result of Projection

Based on the revenue and cost projections, profit before/after tax was calculated according to tariff alternatives (see Subsection 12.6.1(1)). The results are as follows (see Table12.7 to 12.9 for detail):

Profit before Tax (Price at 2004)

	Year	2007	2008	2009	2010	2011	2015	2020
Case 1	Rp. million	616	1,231	488	487	825	3,133	4,749
Case 2	Rp. million	-215	383	-205	-216	59	2,126	3,446
Case 3	Rp. million	211	797	196	172	403	2,293	3,392

The recommendation of the Study team is Case 3 for the following reasons:

1) Case 1 (Table 12.7): PJT Jeneberang is able to have a profit-making operation from the first year. The tariff rates set forth are ideal in terms of attaining full cost recovery based on beneficiary-to-pay principle. But it seems impractical under the present situation as the PDAM tariff is beyond the affordability-to-pay of households.

2) Case 2 (Table 12.8): Tariff rates are set with a target of attaining PJT Jeneberang's self-financing ability within 5 years. A difficulty in this Case is that the raw water tariff to PDAM would over the limit of the affordability-to-pay of households.

3) Case 3 (Table 12.9): PJT Jeneberang can obtain a profit from the first year of operation. The raw water tariff rate to PDAM is within the range of households' affordability-to-pay.

12.6.5 Five-Year (Mid-term) Financial Operation Plan

A five-year financial projection was made for the above Case 3 based on current prices, assuming a price inflation rate of 7.36% per annum.

(1) Profit and Loss Calculation

Profit and loss estimates are outlined below (details are shown in Table 12.10):

(Unit: Rp. million)

Year	2007	2008	2009	2010	2011
Profit & Loss before Taxes	299	1,141	416	558	1,007

(2) Balance sheet projection (see Table 12.11)

Balance sheet projection was made according to the accounting guideline and practice of PJT I. The following are taken into account:

- Owned assets are listed in Table 12.12.
- Accounts receivable and accrual revenue of processed work but not invoiced are assumed to be equivalent to revenue for 1.5 months and 1 month, respectively.
- Inventory will be controlled to a minimum level equivalent to 10% of O&M cost for one month.
- Fixed assets include the owned assets transferred from the central government, and initial investment, which must be covered by borrowing of loans.
- Accounts payable is assumed to be 15% of O&M cost.
- Equity is central government's capital stake, invested initially as capital in kind by way of assets transfer, and later adding reserve and profit.

(3) Cash flow analysis (see Table 12.13)

Cash flow analysis was made based on cash generation from operational, investment and financial activities.

(4) Sensitivity analysis

Sensitivity tests were conducted assuming that production and/or tariff collection would not be in line with the targeted schedule. The following three cases were examined:

- Sensitivity Test 1: Water revenue remains at 75% in the first year and will increase in stages to 100% in the fifth year
- Sensitivity Test 2: Water revenue remains at 50% in the first year and will increase in stages to 100% in the fifth year, and
- Sensitivity Test 3: No payment of PSO for irrigation O&M and other public services

Results of Sensitivity Tests

Year	2007	2008	2009	2010	2011	Total
Sensitivity Test 1	-1,074	18	-401	113	1,007	-337
Sensitivity Test 2	-2,447	-1,105	-1,217	-332	1,007	-4,095
Sensitivity Test 3	-2,065	-1,688	-3,245	-3,559	-3,613	-14,170

The above table indicates that deviation from the proposed scheme is very sensitive for all the three cases analyzed above. Especially, the PJT Jeneberang will fall in financially a very difficult situation in the case of Sensitivity Test 3.

12.6.6 Fund Requirement

(1) Fresh money

Fresh money is needed to provide starting working capital needed to pay wages and to meet overheads. This amounts to at least Rp.1.2 billion, which represents 2 months of cost to be paid in 2007.

(2) Loan

Approximately Rp. 4.8 billion will be required to cover the cost of initial organizational setup. A 7-year loan is planned to procure this fund as well as fresh money fund stated in (1) above. This amounts to Rp.6 billon in total, which will be repaid in 5 years after a 2 year grace period. In case PSO funding support is not provided, an additional loan is needed to cover the deficit.

(3) Inter-office Account from PJT I Head Office

Whenever PJT Jeneberang needs cash, it must be supplied by PJT I head office. The cash position of PJT I has recently become weak. During the late 1990s, average cash balance was about Rp.20 billion, whereas in the 2000s it has decreased to Rp.10 billion.

12.6.7 Evaluation of Major Financial Ratios

Financial ratios were evaluated according to Decree of MSOE No.100/MBU/2002. Major financial ratios in the 5 year plan are assessed as follows: (see Table 12.14 for detail)

Major Financial Ratios

Item	Desirable condition	2007	2008	2009	2010	2011
		Value	Value	Value	Value	Value
Return On Equity (ROE)	15 %	7 %	23 %	8.4 %	11 %	19 %
Return On Investment (ROI)	18 %	17 %	24 %	20 %	23 %	31 %
Cash Ratio	35 %	229 %	178 %	158 %	171 %	191 %
Current Ratio	125 %	517 %	254 %	230 %	247 %	275 %
Collection Periods (CP)	60 days	13 days	12 days	12 days	12 days	12 days
Inventory Turn Over	60 days	0.4 days	0.4 days	0.6 days	0.6 days	0.5 days
Total Asset Turn Over (TATO)	120 %	79 %	85 %	114 %	143 %	176 %
Ratio Total Equity and Total	40 %	36 %	40 %	42 %	49 %	58 %

Every ratio assessed above is acceptable, but this is on a premise that initial working capital is provided by a loan or interoffice account from PJT I head office and government-funding support is provided for irrigation O&M and other PSO service items.

Table 12.1 Basic Concept of Corporation's Duties and Functions (1/3)

Management Item		Phasing of Expanding Corporation Management Activities		
		Start-up Phase (2007-2008, 2 Years)	**Development Phase (2009-2011, 3 Years)**	**Expansion Phase (2012 onward, 15 years)**
1	**Target of Achievement in Respective Phases**	(Strengthening of Internal Capacity) ● Develop institutional and technical capabilities to attain effective and sustainable RB management ● Establish regional legislation and agreements additionally required to effectively implement the RB management activities	(Strengthening of External Relation) ● Develop adequate ways of public relation with all stakeholders including creation of consensus for water charges ● Develop revenue incomes	(Strengthening of Self-financing Capacity) ● Consolidate income resources, including PSO fees and non-water businesses, so that Corporation becomes financially sustainable
2	**Priority of Management Policy in Respective Phases**	● Develop institutional and technical capability sufficient for providing professional services acceptable to beneficiaries and other stakeholders ● Develop consensus of major stakeholders to contribute RB management costs based on beneficiary-to-pay principle ● Consolidate the concept of PSO (Public Service Obligation) with enactment of relevant laws	● Establish RB management system on a principle of participation of communities at all levels in order to call for their positive commitment ● Consolidate consensus of all stakeholders regarding payment of water management fees for all service items	● Develop non-water businesses in order to expand income sources other than raw water supply ● Create environment of participation of private sector in RB management activities in order gradually to relieve the Government burden of RB management
3	**Organizational Form of Corporation**	● As extension of working area of PJT I, subject to final decision by MPW (ex Kimpraswil) with agreement of regional governments	- ditto left -	● Ditto left for a foreseeable future, subject to reform in future as an independent corporation, either state-owned or province-owned, after achievement of self-financing ability
4	**Rivers to be Managed**	● Jeneberang main stream (1st Order River) + 3 selected 2nd order rivers and 1 selected 3rd order river (out of 1-main stream, 14 - 2nd order rivers and 14 - 3rd order rivers) (see Table S9.2 for detail) ● In this start-up stage, priority would be given to Jeneberang Main Stream where major infrastructures exist	● Expand working area gradually to cover all selected 2nd order and 3rd order rivers by the end of this Development Phase	● Manage all rivers listed left, with gradual increase of managed rivers to cover eventually all rivers (29 rivers in total) in the basin as the Corporation's financial capacity increases
5	**Assets to be Managed**			
	(1) Managed assets	● All infrastructures built on managed rivers, including 17 major facilities (see Table S9.2)	- ditto left -	- ditto left -
	(2) Owned Assets	● Lands, buildings, and other fixed assets transferred from state assets (those presently managed by Proyek Induk PWS Jeneberang) ● Vehicles and heavy equipment transferred from Proyek Induk PWS Jeneberang	● Purchase of additional vehicles and heavy equipment needed for proper river basin management (to be planned depending on actual requirements)	- ditto left -, including equipment and facilities needed for non-water business development
6	**River Basin Management Organizations**			
	(1) Classification of river basin	● Regarded as 'strategic river basin' under jurisdiction of State (after enactment of Keppres on Strategic RB), or trans-Kabupaten river basin under jurisdiction of Province (before enactment of Strategic RB)	- ditto left -	- ditto left -
	(2) River administrator	● Provincial Governor delegated by Minister of Public Works. River Administrator will be the final decision maker including issuance of water use permits and other licenses ● A representative of Provincial Government will be assigned as a member of Supervisory Board of Corporation main body	- ditto left -	- ditto left -

Table 12.1 Basic Concept of Corporation's Duties and Functions (2/3)

Management Item	Phasing of Expanding Corporation Management Activities		
	Start-up Phase (2007-2008, 2 Years)	**Development Phase (2009-2011, 3 Years)**	**Expansion Phase (2012 onward, 15 years)**
(3) Regulator at technical level (Agency responsible for law enforcement)	● Dinas PSDA for river and water management ● Bapedalda for water quality and river environmental issues, also act as PROKASIH coordinator ● Dinas Forestry Services for watershed conservation ● Dinas Mining Services for river sand mining and groundwater use	- ditto left -	- ditto left – (Note: It is proposed for inter-ministerial discussion that regulation of groundwater and sand mining would be under the jurisdiction of MPW in the future)
(4) Operator / service provider for O&M of infrastructure	● Corporation will manage rivers listed in 4. above and related infrastructure (Note: Management of river itself is basically limited to in-stream management, while however Corporation will provide technical assistance and collaboration for off-stream management in the relevant basins) ● Dinas PSDA Kabupaten for infrastructure on other 2nd & 3rd order rivers within the Kabupaten, assisted by Balai PSDA and Corporation ● Cipta Karya of Kota Makassar for city canals and Pampang drainage pump station/retention basin, assisted by Corporation ● Balai PSDA for trans-Kabupaten irrigation canals, and Dinas PSDA Kabupaten for in-Kabupaten canals, including water allocation management ● As water users, PLN will operate Bili Bili power plant, PDAM and other water users operate water supply intakes owned by them	- ditto left -	● Ditto left for a foreseeable future
(5) Infrastructure development, renewal and major rehabilitation work	● Proyek Induk PWS Jeneberang (JRBDP) or Dinas PSDA Province/Kabupaten depending on type of project	- ditto left -	- ditto left -
(6) Coordinator	● PPTPA supported by PTPA, which will assess and coordinate issues arising in connection with water use and conservation, acting as advisor to river administrator	● Provincial and river basin level Water Resources Council to be established under new Water Resources Law (reform of PTPA and PPTPA)	- ditto left -
7 **River Basin Management by Corporation (se Table S12.2 for detail of operation)**			
(1) Water quantity management	● Hydrological observation ● Assessment and recommendation of water use permits ● Water allocation and distribution	- ditto left -	- ditto left -
(2) Water quality management	● Periodical flushing of Makassar city canals to dilute polluted stagnant water in the canals	● Commence water quality monitoring at 8 key stations on rivers, with reporting of the results to Bapedalda/Dinas PSDA ● Monitoring of effluent discharges at identified pollutant sources, with reporting of the results to Bapedalda Assessment / recommendation of effluent discharge permits ●	● Expansion of water quality and effluent monitoring stations ● Recommend to Bapedalda the method of water quality improvement and pollution control, based on data accumulated by this stage

Table 12.1 Basic Concept of Corporation's Duties and Functions (3/3)

Management Item	Phasing of Expanding Corporation Management Activities		
	Start-up Phase (2007-2008, 2 Years)	**Development Phase (2009-2011, 3 Years)**	**Expansion Phase (2012 onward, 15 years)**
(3) Flood management	● Propose flood management system, such as flood forecasting, warning, dissemination, evacuation, and relief measures, in collaboration with Dinas PSDA / Balai PSDA and SATKOPLAK-PAB	● Implement the proposed flood management measures in collaboration with the concerned agencies ● Repair of damage on river facilities due to floods	- ditto left -
(4) Drought management	● Establish rules of water allocation and distribution during drought, drought dissemination system and drought countermeasures	● Elaborate drought prediction method, including development of a simulation model ● Participate in drought relief activities in collaboration with concerned agencies	- ditto left -
(5) River area management	● Prepare inventory of infrastructure of water resources infrastructures and land use in the river area	● Monitor land use in river area and green-belts around reservoir ● Monitor C-Category mining (sand mining) activities, with recommendation of control measures	- ditto left – ● Propose measures for conservation of aquatic biota in river areas
(6) Watershed management	● Study watershed condition and formulate a conservation program particularly from viewpoint of sediment yield reduction	● Monitor basin condition particularly in regard of sediment yield ● Provide technical and financial contribution to concerned agencies and communities	- ditto left -
(7) O&M of infrastructures	● Operation of facilities in a manner of ensuring reliable water supply ● Maintenance of facilities, consisting of preventive, corrective and contingency maintenance works	- ditto left -	- ditto left -
(8) Contribution to regional economic development	(No financial capacity has been build in this phase)	- ditto left -	● Establish a revolving funding system for providing financial assistance to small-scale home industries and communities' watershed conservation activities
(9) Formulation of plans	● Formulation of long-term plan (master plan), covering both RB development and management, assisted by Proyek Induk PIPWS Jeneberang (JRBDP)	● Updating of plans as required	- ditto left -

Note: RB: River basin, PJT: Perum Jasa Tirta (Water Service Public Corporation) , PROKASIH: Clean river campaign program, WQM: Water quality monitoring, PTPA: Provincial Water Resources Management Committee, PPTPA: River Basin Water Resources Management Committee

Table 12.2 Summary of Proposed River Management Plan (1/3)

Sector	Present Conditions	Present Issues	Plans Proposed in the Study	Major Products in the Study
Water Quantity Management	**Water Supply and Demand Balance** ➢ The existing water resources facilities of Jeneberang River still reserves the sufficient water supply capacity, which could promise full supply for the present water demand against 10-year drought. ➢ The existing water resources facilities would hardly promise the full water supply for the future water demand after 2018 onward against even 5-year drought due to increment of municipal water demand.	**Water Allocation** ➢ Water requirement to the source of Jeneberang River has never been updated since it had been programmed during the detailed design of Bili-Bili Dam in 1996. ➢ Any official permission by the Provincial Governor has never been issued to almost all of the present water use of Jeneberang River, in spite of stipulation of the Provincial Regulation. ➢ Some of water users in Jeneberang River, the village irrigation in particular, have not been registered yet. **Water Distribution** ➢ There does not exist any definite institutional setup to coordinate and decide the daily water distribution. ➢ The current monitoring system for the river flow regime and the water abstraction volume is insufficient due to defects of hydrological gauging facilities and non-updating of H-Q rating curves.	**Proposals on Water Allocation** ➢ The water use permit (WUP) should be officially granted to the present water requirements of 489.31 million m^3/year, which has been customarily accepted by JRBDP and Dinas PSDA ➢ The existing water resources facilities should promise the full water supply to the above WUP holders against the following drought levels: – Drought of 5-year return period for irrigation use – Drought of 10-year return period for all water requirements other than irrigation use ➢ The Public Corporation should continue to update the inventory of WUP including name of water users, their intake points and their granted water abstraction volume. **Proposals on Water Distribution** ➢ The Public Corporation should monitor river flow discharge at eight critical points and the water abstraction volume at six principal river intake points. ➢ The Public Corporation should continue to update the H-Q rating curves at the proposed river flow monitoring points. ➢ The Public Corporation should establish the definitive procedures of daily water distribution with referring to the proposed procedures in the Study.	**Water Allocation** ➢ Inventory of updated water users and their water requirement as of 2004. ➢ Water supply-demand balance from 2004 until 2020. **Water Distribution** ➢ Definitive procedures of daily water distribution. ➢ Revised Bili-Bili Dam reservoir operation rules for daily water distribution.
Drought Management (as part of water quantity management)	**Past Droughts** ➢ There were three major drought years (1972, 1982 and 1997) in the past 30 years. Such droughts may recurrent in the future ➢ There was no incidence of drought after Bili-Bili reservoir was put in service in 1999.	**Drought Management** ➢ There is no definite drought management system and procedures.	**Proposals on Drought Management** ➢ The priority of water supply should be given to the water requirement of municipal water and river maintenance flow in the drought year. ➢ The Public Corporation as the operator of Bili-Bili dam should continue to update the reservoir operation curve in accordance with the latest water requirement. ➢ The Public Corporation should set up the stepwise procedures of reservoir operation in drought year with referring to the proposed procedures in the Study.	**Drought Management** ➢ Revised Rule Curves of Bili-Bili dam reservoir operation for drought management ➢ Stepwise procedures for drought management ➢ Simulated necessary reduction rates of irrigation water supply in drought years
Flood Management	**Present Flood Control Capacity** ➢ The present flood control facilities could cope with the probable flood of 50-year return period. ➢ Jeneberang River has never caused flood overflow after completion of Bili-Bili Dam.	**Countermeasure against Over-design Flood** ➢ There does not exist any definite countermeasure against the extra-ordinary scale of flood of more than 50-year return period.	**Flood Warning, Evacuation and Fighting System** ➢ The Public Corporation should enhance the flood evacuation and fighting system in cooperation with "Implementation Unit for Disaster Management (SATLAK PB)" which involves Mayor of Makassar City, the commander of regional military administrative unit (DANREM), the head of provincial police (KAPOLA) and the relevant local communities. ➢ The Public Corporation should develop and disseminate the flood risk map, which shows the location of the flood evacuation centers and the evacuation routes. ➢ The Public Corporation should enhance the system for the post-flood technical/financial support from the central government through coordination by the Governor of South Sulawesi, who is the member of "National Coordination Board of Disaster Management (BOKORNAS PB)".	**Flood Warning, Evacuation and Fighting System** ➢ Locations of the proposed hydrological gauging stations for flood warning and evacuation. ➢ Critical flood discharges and water levels to initiate each steps of flood warning and evacuation ➢ Required work activities at each of flood warning levels ➢ Institutional setup plan for flood evacuation and fighting ➢ Extent of potential flood inundation area

Table 12.2 Summary of Proposed River Management Plan (2/3)

River Area Management	**Administrative Boundary** ➢ The cross-sectional outward boundary of the river area is clearly specified by the relevant regulations. ➢ However, there does not exist clear longitudinal administrative boundaries for JRBDP and other potential administrative entities such as Balai PSDA and the local government. ➢ Illegal activities such as sand mining, construction of houses, and land exploitation are often seen in the river corridor of Jeneberang River. **Sand Mining in the Lower Reaches of Bili-Bili Dam** ➢ The present sand mining volume along lower Jeneberang River below Bili-Bili Dam is more than two times of natural sediment yield. **Sediment Runoff in the Upper Reaches of Bili-Bili Dam** ➢ The gigantic-scale of collapse of quay occurred on the caldera of Mt. Bawakaraeng on 26 March 2004 producing a tremendous volume of sediment runoff.	**Control of Illegal Activities in River Area** ➢ The regular inspection/control on the illegal activities in the river area are now hardly implemented. **Degradation of Riverbed in the Lower Reaches of Bili-Bili Dam** ➢ The serious degradation of riverbed level is now in progress in the lower reaches of Bili-Bili Dam due to the excessive sand mining. ➢ Some of the existing river infrastructures are seriously damaged due to the degradation of riverbed. **Accumulation of Sediment in Bili-Bili Dam reservoir** ➢ About 90% of the dead storage capacity of Bili-Bili dam would be filled up, within the next five years, by the sediment runoff from the collapse of quay on the caldera of Mt. Bawakaraeng, unless a certain countermeasure is undertaken.	**Administrative Area of Public Corporation** ➢ The river management area of the Public Corporation should be limited to the mainstream and its major tributaries with a channel length of 190km in total, which corresponds to about 65% of the whole river system. ➢ The Public Corporation should update the inventory of land ownership, classification of land use and other relevant information in its river management area. ➢ Any land use in the high water channel of the river area should be subject to approval of the Public Corporation. ➢ The Public Corporation should monitor and control the excessive land exploitation in the private land located within the boundary of the river area. ➢ Any logging activities, construction activities and land exploitation around circumference of Bili-Bili dam reservoir specified as the administration area should be subject to approval of the Public Corporation. **Control of Sand mining Activities in the Lower Reaches of Bili-Bili Dam** ➢ Any renewal of mining license in the lower reaches of Bili-Bili dam should be frozen. ➢ The Public Corporation should promote the mining activities at the potential mining sites proposed in the upper reaches of Bili-Bili dam. ➢ The Public Corporation should monitor the tendency of degradation of riverbed through river channel survey at the every end of rainy season. **Prevention against Sediment Runoff from Collapse of Quay on Caldera of Mt. Bawakaraeng** The Public Corporation should monitor the sediment runoff from Mt. Bawakaraeng to facilitate the implementation of the urgent countermeasures by JRBDP.	**Activities in River Area** ➢ Inventory of land use in the river area. ➢ Inventory and location map of the present sand mining sites. **Proposed Sand Mining Sites in the Upper Reaches of Bili-Bili Dam** ➢ Balance between the sand mining volume and sediment runoff volume. ➢ Proposed sand mining sites in the upper reaches of Bili-Bili dam.
Water Quality Management	**Water Quality Condition** ➢ Present river quality appears not to meet Class I water which is designated to be usable as raw water for drinking water supply, BOD exceeds the standard value ➢ High turbidity of river water due to excessive sediment runoff from Land collapse area at Bawakaraeng **Pollution Sorces** ➢ Potential source of water pollution/contamination are as follows: - Domestic and industrial pollutant sources along the river - Upstream agricultures - Deterioration of upper watershed due to decrease of forests - Sand mining activities	**Water Quality Monitoring** ➢ Water quality monitoring has been conducted by several agencies. But they are of ad-hoc and intermittent basis, not along with an integrated program coordinated by concerned agencies. **Pollution Control** ➢ So far, no proactive enforcement of laws against inadequate or illegal wastewater disposal **Data Management** ➢ Data so far accumulated are kept in different way of filings by each agency	**Water Quality Monitoring** Public Corporation shall undertake the following tasks: ➢ Conduct river water quality monitoring at 8 proposed locations ➢ Release river maintenance discharge as required for maintaining the river water quality ➢ Report the results of monitoring and recommend corrective measures to Bapedalda through Dinas PSDA ➢ Assist Bapedalda in formulating and conducting an integrated water quality monitoring activity in the basin **Wastewater Pollution Management** Public Corporation shall undertake the following tasks: ➢ Monitor periodically effluent quality at pollutant sources in addition to factories' own 3-monthly reporting currently in practice ➢ Identify pollutant sources as a part of river patrol survey ➢ Analyze the collected data and propose the necessary corrective measures as required ➢ Report the results of data analysis and recommend corrective measures to Bapedalda through Dinas PSDA ➢ Submit technical recommendation regarding the issuance of effluent discharge permits on demand of Bapedalda ➢ Assist Bapedalda in formulating and conducting an integrated water pollution control activity in the basin ➢ Collect effluent discharge fee as service cost of the above activities **Data Management** Public Corporation shall undertake the following tasks: ➢ Keep in custody all collected data in a data base system established in the Corporation ➢ Exchange data among all other agencies to share the information ➢ Coordinate to Bapedalda in establishing a provincial data management system	**Water Quality Monitoring** ➢ Propose location of water quality monitoring by the Public Corporation ➢ Proposed parameters of water quality monitoring **Water Pollution Control** ➢ Concept of water pollution control operation **Operation Cost** ➢ Estimate of Corporation's operation cost for services related to water quality mnitoring and pollution control

Table 12.2 Summary of Proposed River Management Plan (3/3)

			➢ Disseminate the relevant information to public through Corporation's annual report, public information leaflet or web-site	
Watershed Management	**Present Activity** ➢ Forestry Service is implementing 5-year master plan consisting of land rehabilitation in public forest, reforestation, forest management, supply of seedling, check dams and recharge wells ➢ Communities in upper area are very willing to conservation and rehabilitation of forestry resources if supported by the government	**Decrease of Forest Area** ➢ During these 10 years, forest area has much decreased due to conversion to horticulture cultivation and settlement. Forest area needing early reforestation is estimated as some 2,000 ha equivalent to 10 % of toatal forest area. **Increasing Trend of Sediment Yield** ➢ Aside from the Bawakaraeng issue, sediment yield from other parts of basin appears increasing. Measures for reduction of the yield is increasingly important.	**Measures for Reduction of Sediment Yield as a Most Imminent Program** ➢ Reforestation ➢ Forest exploitation and management based on economic incentive method ➢ Improved land use practices ➢ Structural measures by least cost method **Services to be Provided by the Public Corporation** ➢ Reforestation and Forest Management: (a) Donation of seeds and seedlings to Dinas Forestry and communities, and (b) Provision of technical recommendation regarding priority area of reforestation / forest management ➢ Improvement of Land Use Practices: (a) Donation of fund for land use practice improvement work, and (b) Provision of technical recommendation regarding priority area of land use practice improvement ➢ Structural Measures for Sediment Yield Reduction: (a) Donation of fund for sediment yield control work, and (b) Planning, design and construction supervision service of structural works in assisting Dinas of local government ➢ River Environment Conservation: (a) Periodical inspection of condition of river course to identify any adverse issues as part of river patrol survey, (b) Implementation of corrective measures as required as part of river channel maintenance work ➢ Fishery Resources Conservation: (a) Monitoring of fish culture activities in the Bili Bili reservoir so that over-development of fish-cage aquaculture should not occur, and (b) Reporting to local government (Dinas Fishery) regarding condition and recommendation of corrective measures	**Concept of Role and Responsibilities of Corporation** ➢ The service provided under this sector is basically of a collaboration concept. Only the basic concept is proposed in the Study **Operation Cost** ➢ Estimate of Corporation's operation cost for services related to water quality mnitoring and pollution control
O&M of River Infrastructures	**Existing River Infrastructures** ➢ There exist a variety of infrastructures for water resources/water distribution, flood control/mitigation, and sediment runoff control in Jeneberang river basin. **Budget Allocated to O&M** ➢ The annual O&M budget has a substantial increment after 2003 due to commencement of full-scale operation of Bili-Bili Dam. ➢ O&M cost for Bili-Bili Dam takes a substantial part (about 60%) of the total O&M cost for all river infrastructures. **O&M Manuals** ➢ The operation procedures for all major river infrastructures are described in the existing manuals. ➢ The existing manuals other than that for the on-going Bili-Bili Irrigation Project had been prepared in 1994 to 2004, and since then, any updating of manuals have never been made.	**Present Implementation Body of O&M** ➢ JRBDP currently undertakes O&M of the existing river infrastructures, but its principal scopes are oriented to project development but not O&M. **Budget Allocation to O&M** ➢ The annual budget for O&M of the river infrastructures for Jeneberang river basin in 2003 is Rp. 1,329 million, which corresponds to only 35% of the necessary cost (= Rp. 3,797 million) for the full-scale of O&M. **Damage of Existing River Infrastructures** ➢ Some of the existing river infrastructures are seriously damaged and left behind without any rehabilitation and/or replacement in spite of their important functions contributive to river management. **O&M Manuals** ➢ Some of contents described in the existing O&M Manuals are no longer compatible to the latest water demand, land use and other relevant conditions.	**Objective River Infrastructures Managed by Public Corporation** ➢ The Public Corporation should undertake O&M for all of the river infrastructures currently managed by JRBDP other than urban drainage facilities. ➢ The inventory and location map of the river infrastructures should continue to be updated in accordance with the latest information. **Expansion Program of O&M by Public Corporation** ➢ Among the above objective river infrastructures, the Public Corporation should firstly undertake O&M of those for water resources/distribution as represented by Bili-Bili Dam. ➢ The Public Corporation should expand its O&M works to those for the flood control facilities and the watershed management facilities after 2009 onward,. **Rehabilitation of the Damages of the Existing River Infrastructures** ➢ JRBDP should rehabilitate the damages of the eleven drainage sluice gates along the lower Jeneberang River, the telemetry system and the flow meter at the Raw Water Transmission main before handover of O&M works to the Public Corporation. **O&M Manuals** ➢ The Public Corporation should undertake the preventive maintenance works, while JRBDP should be responsible to the corrective and emergency maintenance which are oriented to replacement of the river infrastructures due to over-period of durability service and/or destructive damages by the extensive scales of natural disasters. The O&M manuals should continue to be updated in accordance with the latest information.	**Inventory of River Infrastructures** ➢ The inventory of the existing river infrastructures as of 2004 covering name of infrastructures, location, structural type, structural dimensions, investment cost and completion year. ➢ The location map of all river infrastructures located along the downstream of Jeneberang River from the river mouth to Sungguminasa Bridge. **Estimation of Necessary O&M Cost** ➢ The necessary full-scale O&M cost of the river infrastructures. ➢ The necessary rehabilitation cost born by JRBDP for the existing damaged river infrastructures. **O&M Manuals** ➢ The standard work items, time interval of works and annual work volume for the preventive maintenance. ➢ Revisions on the operation rules described in the existing manuals in accordance with the latest water demand, land use and other relevant conditions. ➢ New technical instructions against emergency cases such as extra-ordinary drought and flood over design capacity.

Table 12.3 List of Revenue Sources

Description	Type of Revenue	Payer
Water Supply Revenue:		
- Drinking water supply - Hydropower generation - Fishpond water supply - Plantation water supply	Raw water supply fee Water use fee Raw water supply fee Raw water supply fee	PDAM PLN Fishpond owners Plantation land owners
Non-water Revenue:		
- Water pollution monitoring	Effluent discharge fee	Effluent sources
- Land use in river area	Land use permit fee	Licensees
- C-Class mining	C-Class mining monitoring fee	Licensees
- Fishery	Fishery monitoring fee	Licensees
Government Obligation:		
- Irrigation O&M	Irrigation weir & intake O&M fee	Government(s) (in replacement of ISF)
- City canal water flushing	Flushing O&M fee	Makassar city (under principle of PSO)
- Public services not chargeable to specific beneficiaries	Government subsidy under concept of PSO	Government(s)
Non-Water Business:		
● Tourism	Income from tourism services	Tourists / visitors
● Land lease	Lease fee from lands owned by Corporation (other than river area)	Leaseholders
● Sand mining	Selling to market	Market
● Fish culture	Income from fish culture business	Consumers
● Other potential businesses in long term	Consultancy, construction, training services, equipment lease, etc.	Clients

Note: *1 Services for non-specific beneficiaries, such as water quality monitoring, flood and drought management, watershed management, etc

*2 PSO: Public Service Obligation

Table 12.4 Review of Benefit for Cost Allocation (1/2)

Flood Control Benefit Review

Million Rp. (1998 price)	1993	1994	1995	1996	1997	1998	1999	2000	2001
Original	3,368	6,736	10,104	13,472	16,840	20,208	23,576	26,944	30,312
1.049 per annum x 6 years	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
Reviewed	4,477	8,955	13,432	17,910	22,387	26,865	31,342	35,820	40,297

Original figure (as of 1992) is adjusted by six years' growth rate of per-capita GRDP (4.9% per annum in Makassar, main benefit area of flood control) to represent the value of 1998.
Original: Consulting Engineering Services for Detailed Design and Construction Supervision of Bili-Bili Irrigation Project, Final Design Report, Main Report, October 1999

Irrigation Benefit Review

	2004	2005	2006	2007	2008	2009
Million Rp. (1998 price)						
Original	51,576	77,364	90,258	103,152	128,940	143,267
Reviewed	41,404	62,106	72,457	82,808	103,511	115,012

Reviewd by reflecting a decline of paddy price.
Original: Consulting Engineering Services for Detailed Design and Construction Supervision of Bili-Bili Irrigation Project, Final Design Report, Main Report, October 1999

Hydro Power Benefit Review (1998 price)

Power Benefit	Installed capacity (KW)	16,300
	Power value/KW(US$)	700
	Capital recovery factor (12% - 25 years)	0.127
	Annuitaized capital cost(US$)	89.2
	O&M cost /KW (US$, 3% of capital cost)	21.0
	Annuitized capital + O&M cost/KW (US$)	110.2
	Annual power benefit (Million Rp.)	16,066
Energy Benefit	Generated energy	77,174,000
	Energy benefit (Rp./kWh)	427.0
	Annual energy benefit (Million Rp.)	32,957
	Total annual benefit (Million Rp.)	49,023

Estimation of benefit value follows alternative diesel method in "Basic Design Report of Engineering Services for Engineering Desing and Construction Supervision of Bili-Bili Hydroelectric Power Plant

Water Supply Benefit Review

Maximum guranteed discharge	4.1	m^3/second			
Above in annual volume	127.7	Million m^3/year			
Annual benefit (at maximum discharge)	61,857	Million Rp.	(1998 price)		
	2000	2004 (present)	2010	2018	Annuitized demand
Water demand volume (thousand m^3)	51,567	60,280	76,200	127,710	75,117
Annual growth of demand (%)		3.98%	3.98%	7.39%	

Water demand is assumed to increase geometrically for the above each period, and reach maximum guranteed discharge in 2018.

Actual operational record of PDAM Makassar (source: PDAM Makassar)

	1998	1999	2003
Water Sales Volume (m^3)	20,984,000	22,768,000	32,147,405
Water Sales Revenue	21,929,960,885	26,315,953,062	67,840,696,420
Average selling price per m^3	1,045.1	1,155.8	2,110.3
Average production cost per m^3	1,121.4	1,273.4	
Benefit value of raw water portion	484.4	519.1	

Unit benefit value of raw water = average selling price/m^3 - average production cost/m^3 x 0.5 (factor of raw water portion)
Estimation of benefit value follows "Final Report of Consulting Engineering Services for Comprehensive Water Management Plan Study for Maros-Jeneponto River Basin", based on updated PDAM data.

Table 12.4 Review of Benefit for Cost Allocation (Planned Stream of Benefits by Bili-Bill Multi-purpose Dam) (2/2)

(Rp. Million in 1998 price)

	Completion	Flood Control	FC O&M	FC net-benefit	Water Supply	WS O&M	WS net-benefit	Hydro-power	HP O&M	HP net-benefit	Irrigation	IG O&M	IG net-benefit
1992													
1993													
1994													
1995													
1996	RWTM												
1997													
1998	Base year	0	0	0	0	0	0	0	0	0	0	0	0
1999	Dam	0	0	0	0	0	0	0	0	0	0	0	0
2000		35,820	1,724	34,096	24,977	1,511	23,466	0	0	0	0	0	0
2001		40,297	1,724	38,573	25,971	1,511	24,460	0	0	0	0	0	0
2002		40,297	1,724	38,573	27,005	1,511	25,494	0	0	0	0	0	0
2003		40,297	1,724	38,573	28,080	1,511	26,569	0	0	0	0	0	0
2004	Weir/HP	40,297	1,724	38,573	29,197	1,511	27,686	0	0	0	41,404	2,999	38,406
2005		40,297	1,724	38,573	30,359	1,511	28,848	49,023	5,138	43,884	62,106	4,498	57,608
2006		40,297	1,724	38,573	31,568	1,511	30,057	49,023	5,138	43,884	72,457	5,248	67,210
2007		40,297	1,724	38,573	32,824	1,511	31,313	49,023	5,138	43,884	82,808	5,997	76,811
2008		40,297	1,724	38,573	34,130	1,511	32,619	49,023	5,138	43,884	103,511	7,496	96,014
2009		40,297	7,958	32,340	35,489	1,511	33,978	49,023	5,138	43,884	115,012	8,329	106,683
2010		40,297	1,724	38,573	36,908	1,511	35,397	49,023	5,138	43,884	115,012	8,329	106,683
2011		40,297	1,724	38,573	39,636	1,511	38,125	49,023	5,138	43,884	115,012	8,329	106,683
2012		40,297	1,724	38,573	42,565	1,511	41,054	49,023	5,138	43,884	115,012	8,329	106,683
2013		40,297	1,724	38,573	45,710	1,511	44,199	49,023	5,138	43,884	115,012	8,329	106,683
2014		40,297	1,724	38,573	49,088	1,511	47,577	49,023	5,138	43,884	115,012	15,201	99,811
2015		40,297	1,724	38,573	52,716	1,511	51,205	49,023	5,138	43,884	115,012	8,329	106,683
2016		40,297	1,724	38,573	56,612	1,511	55,101	49,023	5,138	43,884	115,012	8,329	106,683
2017		40,297	1,724	38,573	60,795	1,511	59,284	49,023	5,138	43,884	115,012	8,329	106,683
2018		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2019		40,297	7,958	32,340	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2020		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2021		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2022		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2023		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2024		40,297	1,724	38,573	61,857	13,978	47,879	49,023	5,138	43,884	115,012	15,201	99,811
2025		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2026		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2027		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2028		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2029		40,297	57,828	-17,530	61,857	51,381	10,477	49,023	5,138	43,884	115,012	34,484	80,528
2030		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2031		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2032		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2033		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2034		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	15,201	99,811
2035		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2036		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2037		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2038		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2039		40,297	7,958	32,340	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2040		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2041		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2042		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2043		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2044		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	15,201	99,811
2045		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2046		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2047		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2048		40,297	1,724	38,573	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
2049		40,297	7,958	32,340	61,857	1,511	60,347	49,023	5,138	43,884	115,012	8,329	106,683
Total		2,010,377		1,843,150	2,663,069		2,525,188	2,206,025		1,974,801	5,077,779		4,656,392
NPV	(as of 1998)	263,592		248,501	240,872		228,958	183,668		164,417	399,244		368,173

12.0% Discount rate 0.120 Annuity factor (12% - 50 years)

Table 12.5 Calculation of Allocated Service Cost on Full-cost Recovery Principle

Justifiable Expenditure (Economic Benefit) Method
a) Cost allocation of joint-facility portion (dam / reservoir)

	Planned Construction Cost (as of 1998)	467,509.4 Rp. Million				
	Function	Flood Control	Water Supply	Irrigation	Hydro-power	Total
1)	Justifiable investment cost	248,501.2	228,957.6	368,173.2	164,417.1	1,010,049.2
2)	Specific facility investment cost	102,687.9	90,006.0	248,101.4	99,822.5	540,617.7
3)	Specific Benefit	145,813.3	138,951.6	120,071.8	64,594.7	469,431.5
4)	Separable cost	143,891.2	137,029.5	118,149.7	62,672.5	461,742.9
5)	Remaining benefit	1,922.1	1,922.1	1,922.1	1,922.1	7,688.5
6)	Proportional distribution of 5)	0.250	0.250	0.250	0.250	5,766.4
7)	Remaining joint-cost	1,441.6	1,441.6	1,441.6	1,441.6	-
8)	Total allocated cost	145,332.8	138,471.1	119,591.3	64,114.1	467,509.4
9)	Cost Allocation Ratio	0.311	0.296	0.256	0.137	1.000

b) Derivation of full-cost recovery rate (in 2004 price)

	O&M cost items	Reservor/Related	Riparian Structure	IG Intake Weir	Long Storage	RWTM	Rubber Dam	River Conservation	Flood Manag.	Drought Manag.	Quantity Manag.	Water Quality/Waste	Watershed Manag.	Direct Cost	%	Indirect Cost+Margin	Total
		1,231,000,000	428,000,000	593,000,000	351,000,000	228,000,000	86,000,000	334,000,000	278,000,000	267,000,000	259,000,000	373,300,000	285,000,000	4,713,300,000		4,274,714,286	8,988,014,286
Service	Flood Control	382,676,149	428,000,000					62,297,563	222,400,000				70,877,467	1,166,251,179	24.7%	1,057,728,253	2,223,979,432
Cost	Water Supply	364,608,583			280,800,000	228,000,000	86,000,000	59,356,263		107,387,684	104,170,075	223,980,000	67,531,078	1,521,833,684	32.3%	1,380,222,814	2,902,056,498
	Irrigation Water Supply	314,896,160		593,000,000				51,263,355		92,745,949	89,967,045	74,660,000	58,323,578	1,274,856,087	27.0%	1,156,227,171	2,431,083,258
	Hydro Power	168,819,108						27,482,818		49,722,069	48,232,269		31,267,877	325,524,141	6.9%	295,233,212	620,757,353
	Flush Water Supply				*70,200,000*					*17,144,298*	*16,630,611*			103,974,909	2.2%	94,299,754	198,274,663
	Water Quality Management											*37,640,000*		37,640,000	0.8%	34,137,493	71,777,493
	Waste Water Monitoring											*37,020,000*		37,020,000	0.8%	33,575,186	70,595,186
	Watershed Management												*57,000,000*	57,000,000	1.2%	51,695,991	108,695,991
	River Admin. Area Management							*66,800,000*	*55,600,000*					122,400,000	2.6%	111,010,339	233,410,339
	Sand Mining Management							*66,800,000*						66,800,000	1.4%	60,584,074	127,384,074
		1,231,000,000	428,000,000	593,000,000	351,000,000	228,000,000	86,000,000	334,000,000	278,000,000	267,000,000	259,000,000	373,300,000	285,000,000	4,713,300,000		4,274,714,286	8,988,014,286
Volume	Irrigation Area (ha)	23,660	23,660	23,660	23,660	23,660	23,660	23,660	23,660	23,660	23,660	23,660	23,660			23,660	
	Flush Water Supply (m^3)	34,689,600	34,689,600	34,689,600	34,689,600	34,689,600	34,689,600	34,689,600	34,689,600	34,689,600	34,689,600	34,689,600	34,689,600			34,689,600	
	Water Supply (m^3)	75,117,472	75,117,472	75,117,472	75,117,472	75,117,472	75,117,472	75,117,472	75,117,472	75,117,472	75,117,472	75,117,472	75,117,472			75,117,472	
	Power Generation (kWh)	77,174,000	77,174,000	77,174,000	77,174,000	77,174,000	77,174,000	77,174,000	77,174,000	77,174,000	77,174,000	77,174,000	77,174,000			77,174,000	
Base tariff	Irrigation Water / ha	13,309.2	0.0	25,063.4	0.0	0.0	0.0	2,166.7	0.0	3,919.9	3,802.5	3,155.5	2,465.1	53,882.3		48,868.4	102,750.8
	Flush Water / m^3	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	3.0		2.7	5.7
	Raw (Municipal) Water / m^3	4.9	0.0	0.0	3.7	3.0	1.1	0.8	0.0	1.4	1.4	3.0	0.9	20.3		18.4	38.6
	Hydro Power / kWh	2.2	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.6	0.6	0.0	0.4	4.2		3.8	8.0

Explanation on O&M cost allocation approach
Facility O&M for dam, reservoir, sabo and related : according to allocation ratio of the joint-facility
Facility O&M for weir, riparian structure, water supply related : according to objective of each specific facility
River conservation : firstly allocated to river area and c-class mining management services with 20% of activity cost, and the rest allocated to flood control, irrigation, water supply, hydro power services according to allocation ratio of the joint-facility
Flood management : firstly allocated to river area management service with 20% of activity cost, and the rest allocated to flood control service
Drought / quantity management : firstly allocated to flush water service with its ratio of guranteed discharge volume (maintenance/flush water) against total discharge, and the rest to irrigation, water supply, hydro power services according to allocation ratio of the joint-facility
Water quality / waste water management : firstly allocated to river water quality and waste water management services with 20% of activity cost, and the rest assumingly allocated to irrigation and water supply services
Watershed management : firstly allocated to watershed management service with 20% of activity cost, and the rest to flood control, irrigation, water supply, hydro power services according to allocation ratio of the joint-facility

Source : Calculated by JICA Study Team, and reference to Concept for Calculation of Water Use Fee Draft, Secretariat Pokja RKSP, MSRI, February 2002
Note : Benefit value and construction data, as basis of joint-facility allocation are value in 1998 price.

Continued : Derivation of Water Supply Segments (Industry, Plantation, Fishpond Water)

a) Industrial Water : Average tariff ratio approach

For Makassar industry, based on PDAM Makassar average tariff (2003)		
1) Ave. tariff (whole category)	2,110.3	Rp./m3
2) Ave. tariff (large-scale user)	7,807.5	Rp./m3
Ratio between 1) and 2)	3.70	times
To be derived by multiplying the above ratio with the base tariff of raw (municipal) water		

For other industry, based on PDAM Gowa average tariff (2004)		
1) Ave. tariff (domestic)	1,648.3	Rp./m3
2) Ave. tariff (large-scale user)	2,808.3	Rp./m3
Ratio between 1) and 2)	1.70	times
To be derived by multiplying the above ratio with the base tariff of raw (municipal) water		

b) Irrigated Fishpond Water : Average net-income (per ha) raito approach

1) Net income of irrigated paddy	10,150,000	Rp./ha (2004)
2) Net income of irrigated fishpond	31,778,000	Rp./ha (2001)
Adjusted to 2004 price	39,323,672	Rp./ha (2004)
Ratio between 1) and 2)	3.87	times
To be derived by multiplying the above ratio with the base tariff of irrigation water		
3) Net income of irrigated plantation	5,338,200	Rp./ha (2004)
*Information on Takalar Sugar Factory		
Ratio between 1) and 3)	0.53	times
To be derived by multiplying the above ratio with the base tariff of irrigation water		

Result of Derivation

	In 2004 price	In 2007 price
Makassar Industry Water Rate / m^3	142.9	176.9
Other Industry Water Rate / m^3	65.8	81.5
Fishpond Water Rate / ha)	398,082.5	492,607.1
Plantation Water Rate / ha)	54,039.8	66,871.6

Table 12.6 Calculation of Burden by Commercial Service Beneficiaries to Finance Public Service

(in 2004 price)

Commercial service to bear public service costs	Base service costs / base tariff / volume	Case of full-cost recovery (with beneficiary to pay)	
Water Supply	2,902,056,498	4,422,191,284	6,083,885,712
Hydro Power	620,757,353	1,324,601,999	2,093,990,829
Water Supply Rate / m^3	38.6	58.9	81.0
Hydro Power Rate / kWh	8.0	17.2	27.1
Water Supply (m^3)	75,117,472	68.4%	Cost allocation ratio bewteen
Power Generation (kWh)	77,174,000	31.6%	water supply & hydropwer
Commercial service beneficiaries shall finance service costs of		flood control (FC) fully	FC and irrigation fully

Public service costs to be borne by commercial service beneficiaries	Base service costs	Ratio to be borne 100%	Ratio to be borne 100%
Service costs for flood control	2,223,979,432	2,223,979,432	2,223,979,432
Service costs for irrigation water supply	2,431,083,258		2,431,083,258
Total costs to be borne by commercial services	4,655,062,690	2,223,979,432	4,655,062,690

Table 12.7 PJT Jeneberang
Profit and Loss Projection 2007 - 2020 (at 2004 price without inflation factor)
Case 1: Beneficiary-to-Pay Principle

No.	I T E M	Unit	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
I.	**REVENUES**	**Rp. million**	**4,991**	**5,293**	**5,502**	**5,741**	**6,167**	**6,552**	**6,957**	**7,346**	**7,729**	**8,150**	**8,571**	**8,963**	**9,411**	**9,810**
1	**Revenues of Water Services**	**Rp. million**	**4,986**	**5,090**	**5,195**	**5,300**	**5,664**	**6,028**	**6,392**	**6,756**	**7,120**	**7,484**	**7,848**	**8,212**	**8,576**	**8,940**
a.	**Production**															
	Electricity	GWh	77	77	77	77	77	77	77	77	77	77	77	77	77	77
	Raw water for Drinking Water	thousand m^3	64,716	66,586	68,456	70,325	76,822	83,318	89,815	96,311	102,807	109,304	115,800	122,297	128,793	135,289
	Raw water for Industries	thousand m^3	159	164	170	176	182	188	194	201	208	215	223	230	238	246
	Raw water for Plantation	ha.	500	500	500	500	500	500	500	500	500	500	500	500	500	500
	Raw water for Irrigation	ha.	14,906	17,035	21,294	22,477	23,660	23,660	23,660	23,660	23,660	23,660	23,660	23,660	23,660	23,660
b.	**Tariffs**															
	Electricity	Rp/kWh	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2
	Raw water for drinking water	Rp/m^3	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9
	Raw water for Industries	Rp/m^3	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8
	Raw water for Plantation	Rp/ha	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040
	Raw water for Irrigation	Rp/ha	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751
c.	**Revenues of Water Service**															
	Electricity	Rp.million	1,327	1,327	1,327	1,327	1,327	1,327	1,327	1,327	1,327	1,327	1,327	1,327	1,327	1,327
	Raw water for drinking water	Rp.million	3,621	3,726	3,830	3,935	4,299	4,662	5,026	5,389	5,753	6,116	6,480	6,843	7,207	7,570
	Raw water for Industries	Rp.million	10	10	11	11	11	12	12	13	13	13	14	14	15	15
	Raw water for Plantation	Rp.million	27	27	27	27	27	27	27	27	27	27	27	27	27	27
2	**Income from Non Water Service**	**Rp.million**	**6**	**202**	**307**	**441**	**503**	**524**	**565**	**590**	**609**	**666**	**723**	**751**	**835**	**870**
	Tourism	Rp.million	6	6	6	6	7	7	7	15	17	20	22	24	25	25
	Land Lease	Rp.million	0	0	11	12	13	13	14	15	15	16	17	18	19	20
	Sand Mining	Rp.million	0	196	206	319	373	368	374	379	385	390	396	402	408	415
	Reservior Fishery	Rp.million	0	0	7	8	10	12	15	17	21	25	30	36	43	52
	Waste water monitoring service fee	Rp.million	0	0	77	96	101	124	157	164	171	215	258	271	340	359
II.	**COSTS**	**Rp.million**	**6,286**	**6,191**	**7,581**	**7,943**	**8,153**	**7,296**	**7,426**	**7,526**	**7,405**	**7,493**	**7,584**	**7,676**	**7,772**	**7,871**
	O&M	Rp.million	2,189	2,346	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431
	Personnel	Rp.million	1,226	1,396	1,565	1,735	1,905	1,962	2,021	2,082	2,144	2,208	2,275	2,343	2,413	2,485
	Travelling	Rp.million	325	362	400	437	475	489	504	519	534	550	567	584	601	619
	General Affairs	Rp.million	228	264	300	336	372	372	372	372	372	372	372	372	372	372
	Marketing	Rp.million	50	53	55	57	62	66	70	73	77	82	86	90	94	98
	Depreciation	Rp.million	1,216	1,216	1,216	1,210	1,210	127	127	149	149	149	149	149	149	149
	Public Relations	Rp.million	50	50	50	50	50	50	50	50	50	50	50	50	50	51
	Human Resources Development	Rp.million	56	59	76	92	111	111	111	111	111	111	111	111	111	111
	Watershed conservation	Rp.million	0	57	143	285	285	285	285	285	285	285	285	285	285	285
	Board of Commissioner	Rp.million	85	88	90	93	96	99	102	105	108	111	114	118	121	125
	Research and Development	Rp.million	54	72	89	125	144	144	144	144	144	144	144	144	144	144
	Capacity Development	Rp.million	807	228	166	91	13	161	209	205	0	0	0	0	0	0
III.	**Profit & Loss of Operation**	**Rp.million**	**-1,295**	**-899**	**-2,079**	**-2,202**	**-1,986**	**-744**	**-468**	**-180**	**323**	**657**	**988**	**1,287**	**1,639**	**1,939**
IV.	**Other Revenues**	**Rp.million**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Bank Interest etc.	Rp.million														
V.	**Other Costs**	**Rp.million**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Bank Fee etc.	Rp.million	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VI.	**Profit and Loss from others source**	**Rp.million**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
VII.	**Government Allocation for Public Services**	**Rp.million**	**2,048**	**2,270**	**2,883**	**3,014**	**3,146**	**3,156**	**3,166**	**3,177**	**3,188**	**3,199**	**3,211**	**3,223**	**3,235**	**3,248**
	PGPS (public servant salary)*	Rp.million	137	141	316	326	336	346	356	367	378	389	401	413	425	438
	Government Payment for Irrigation O&M	Rp.million	1,532	1,750	2,188	2,310	2,431	2,431	2,431	2,431	2,431	2,431	2,431	2,431	2,431	2,431
	Total other PSOs	Rp.million	379	379	379	379	379	379	379	379	379	379	379	379	379	379
VIII.	**Profit & Loss before Taxes**	**Rp.million**	**616**	**1,231**	**488**	**487**	**825**	**2,066**	**2,342**	**2,630**	**3,133**	**3,467**	**3,798**	**4,097**	**4,449**	**4,749**
IX.	**Taxes**	Rp.million	167	352	129	129	230	602	685	772	923	1,023	1,122	1,212	1,317	1,407
X.	**Profit & Loss after Taxes**	**Rp.million**	**449**	**879**	**359**	**358**	**595**	**1,464**	**1,657**	**1,859**	**2,211**	**2,444**	**2,676**	**2,885**	**3,132**	**3,342**
XI.	**Accumulated Profit/Loss**		449	1,328	1,687	2,045	2,640	4,104	5,760	7,619	9,830	12,275	14,950	17,836	20,967	24,309

*Profit excludes PGPS because tariff includes PNS Salary

Table 12.8 PJT Jeneberang
Profit and Loss Projection 2007 - 2020 (at 2004 price without inflation factor)
Case 2: Tariff setting with a target of attaining PJT's Self-financing ability within 5 years

No.	I T E M	Unit	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
I.	**REVENUES**	**Rp. million**	**4,013**	**4,294**	**4,483**	**4,701**	**5,055**	**5,368**	**5,702**	**6,018**	**6,330**	**6,678**	**7,028**	**7,347**	**7,724**	**8,051**
1	**Revenues of Water Services**	**Rp. million**	**4,007**	**4,092**	**4,176**	**4,260**	**4,552**	**4,844**	**5,136**	**5,428**	**5,720**	**6,013**	**6,305**	**6,597**	**6,889**	**7,181**
a.	**Production**															
	Electricity	GWh	77	77	77	77	77	77	77	77	77	77	77	77	77	77
	Raw water for Drinking Water	thousand m^3	64,716	66,586	68,456	70,325	76,822	83,318	89,815	96,311	102,807	109,304	115,800	122,297	128,793	135,289
	Raw water for Industries	thousand m^3	159	164	170	176	182	188	194	201	208	215	223	230	238	246
	Raw water for Plantation	ha.	500	500	500	500	500	500	500	500	500	500	500	500	500	500
	Raw water for Irrigation	ha.	14,906	17,035	21,294	22,477	23,660	23,660	23,660	23,660	23,660	23,660	23,660	23,660	23,660	23,660
b.	**Tariffs**															
	Electricity	Rp/kWh	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8
	Raw water for drinking water	Rp/m^3	47.3	47.3	47.3	47.3	47.3	47.3	47.3	47.3	47.3	47.3	47.3	47.3	47.3	47.3
	Raw water for Industries	Rp/m^3	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8	65.8
	Raw water for Plantation	Rp/ha	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040
	Raw water for Irrigation	Rp/ha	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751
c.	**Revenues of Water Service**															
	Electricity	Rp.million	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065
	Raw water for drinking water	Rp.million	2,905	2,989	3,073	3,157	3,449	3,740	4,032	4,324	4,615	4,907	5,199	5,490	5,782	6,074
	Raw water for Industries	Rp.million	10	10	11	11	11	12	12	13	13	13	14	14	15	15
	Raw water for Plantation	Rp.million	27	27	27	27	27	27	27	27	27	27	27	27	27	27
2	**Income from Non Water Service**	**Rp.million**	**6**	**202**	**307**	**441**	**503**	**524**	**566**	**590**	**609**	**666**	**723**	**751**	**835**	**870**
	Tourism	Rp.million	6	6	6	6	7	7	7	15	17	20	22	24	25	25
	Land Lease	Rp.million	0	0	11	12	13	13	14	15	15	16	17	18	19	20
	Sand Mining	Rp.million	0	196	206	319	373	368	374	379	385	390	396	402	408	415
	Reservior Fishery	Rp.million	0	0	7	8	10	12	15	17	21	25	30	36	43	52
	Waste water monitoring service fee	Rp.million	0	0	77	96	101	124	157	164	171	215	258	271	340	359
II.	**COSTS**	**Rp.million**	**6,276**	**6,181**	**7,571**	**7,932**	**8,142**	**7,285**	**7,413**	**7,512**	**7,391**	**7,478**	**7,568**	**7,660**	**7,755**	**7,853**
	O&M	Rp.million	2,189	2,346	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431
	Personnel	Rp.million	1,226	1,396	1,565	1,735	1,905	1,962	2,021	2,082	2,144	2,208	2,275	2,343	2,413	2,485
	Travelling	Rp.million	325	362	400	437	475	489	504	519	534	550	567	584	601	619
	General Affairs	Rp.million	228	264	300	336	372	372	372	372	372	372	372	372	372	372
	Marketing	Rp.million	40	43	45	47	51	54	57	60	63	67	70	73	77	81
	Depreciation	Rp.million	1,216	1,216	1,216	1,210	1,210	127	127	149	149	149	149	149	149	149
	Public Relations	Rp.million	50	50	50	50	50	50	50	50	50	50	50	50	50	51
	Human Resources Development	Rp.million	56	59	76	92	111	111	111	111	111	111	111	111	111	111
	Watershed conservation	Rp.million	0	57	143	285	285	285	285	285	285	285	285	285	285	285
	Board of Commissioner	Rp.million	85	88	90	93	96	99	102	105	108	111	114	118	121	125
	Research and Development	Rp.million	54	72	89	125	144	144	144	144	144	144	144	144	144	144
	Capacity Development	Rp.million	807	228	166	91	13	161	209	205	0	0	0	0	0	0
III.	**Profit & Loss of Operation**	**Rp.million**	**-2,263**	**-1,887**	**-3,088**	**-3,231**	**-3,086**	**-1,917**	**-1,711**	**-1,494**	**-1,062**	**-800**	**-540**	**-313**	**-31**	**198**
IV.	**Other Revenues**	**Rp.million**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Bank Interest etc.	Rp.million														
V.	**Other Costs**	**Rp.million**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Bank Fee etc.	Rp.million	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VI.	**Profit and Loss from others source**	**Rp.million**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
VII.	**Government Allocation for Public Services**	**Rp.million**	**2,048**	**2,271**	**2,883**	**3,014**	**3,146**	**3,156**	**3,166**	**3,177**	**3,188**	**3,199**	**3,211**	**3,223**	**3,235**	**3,248**
	PGPS (public servant salary)	Rp.million	137	141	316	326	336	346	356	367	378	389	401	413	425	438
	Government Payment for Irrigation O&M	Rp.million	1,532	1,750	2,188	2,310	2,431	2,431	2,431	2,431	2,431	2,431	2,431	2,431	2,431	2,431
	Total other PSOs	Rp.million	379	379	379	379	379	379	379	379	379	379	379	379	379	379
VIII.	**Profit & Loss before Taxes**	**Rp.million**	**-215**	**383**	**-205**	**-216**	**59**	**1,239**	**1,455**	**1,683**	**2,126**	**2,399**	**2,670**	**2,910**	**3,204**	**3,446**
IX.	**Taxes**	Rp.million	0	98	0	0	6	354	419	487	620	702	784	856	944	1,016
X.	**Profit & Loss after Taxes**	**Rp.million**	**-215**	**286**	**-205**	**-216**	**53**	**885**	**1,036**	**1,196**	**1,506**	**1,697**	**1,887**	**2,055**	**2,260**	**2,430**
XI.	**Accumulated Profit/Loss**		-215	70	-134	-351	-298	587	1,623	2,819	4,324	6,021	7,908	9,963	12,223	14,652

Table 12.9 PJT Jeneberang
Profit and Loss Projection 2007 - 2020 (at 2004 price without inflation factor)
Case3: Tariff setting in consideration of Beneficiary's Affordability to Pay

No.	I T E M	Unit	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
I.	**REVENUES**	**Rp. million**	**4,443**	**4,711**	**4,888**	**5,093**	**5,403**	**5,671**	**5,960**	**6,232**	**6,498**	**6,802**	**7,107**	**7,382**	**7,713**	**7,996**
1	**Revenues of Water Services**	**Rp. million**	**4,438**	**4,509**	**4,581**	**4,652**	**4,899**	**5,147**	**5,394**	**5,642**	**5,889**	**6,136**	**6,384**	**6,631**	**6,879**	**7,126**
a.	**Production**															
	Electricity	GWh	77	77	77	77	77	77	77	77	77	77	77	77	77	77
	Raw water for Drinking Water	thousand m^3	64,716	66,586	68,456	70,325	76,822	83,318	89,815	96,311	102,807	109,304	115,800	122,297	128,793	135,289
	Raw water for Industries	thousand m^3	159	164	170	176	182	188	194	201	208	215	223	230	238	246
	Raw water for Plantation	ha.	500	500	500	500	500	500	500	500	500	500	500	500	500	500
	Raw water for Irrigation	ha.	14,906	17,035	21,294	22,477	23,660	23,660	23,660	23,660	23,660	23,660	23,660	23,660	23,660	23,660
b.	**Tariffs**															
	Electricity	Rp/kWh	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1
	Raw water for drinking water	Rp/m^3	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
	Raw water for Industries	Rp/m^3	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
	Raw water for Plantation	Rp/ha	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040	54,040
	Raw water for Irrigation	Rp/ha	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751	102,751
c.	**Revenues of Water Service**															
	Electricity	Rp.million	1,939	1,939	1,939	1,939	1,939	1,939	1,939	1,939	1,939	1,939	1,939	1,939	1,939	1,939
	Raw water for drinking water	Rp.million	2,459	2,530	2,601	2,672	2,919	3,166	3,413	3,660	3,907	4,154	4,400	4,647	4,894	5,141
	Raw water for Industries	Rp.million	12	12	13	13	14	14	15	15	16	16	17	18	18	19
	Raw water for Plantation	Rp.million	27	27	27	27	27	27	27	27	27	27	27	27	27	27
2	**Income from Non Water Service**	**Rp.million**	**6**	**202**	**307**	**441**	**503**	**524**	**566**	**590**	**609**	**666**	**723**	**751**	**835**	**870**
	Tourism	Rp.million	6	6	6	6	7	7	7	15	17	20	22	24	25	25
	Land Lease	Rp.million	0	0	11	12	13	13	14	15	15	16	17	18	19	20
	Sand Mining	Rp.million	0	196	206	319	373	368	374	379	385	390	396	402	408	415
	Reservior Fishery	Rp.million	0	0	7	8	10	12	15	17	21	25	30	36	43	52
	Waste water monitoring service fee	Rp.million	0	0	77	96	101	124	157	164	171	215	258	271	340	359
II.	**COSTS**	**Rp.million**	**6,280**	**6,185**	**7,575**	**7,936**	**8,145**	**7,288**	**7,416**	**7,514**	**7,393**	**7,480**	**7,569**	**7,660**	**7,755**	**7,853**
	O&M	Rp.million	2,189	2,346	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431	3,431
	Personnel	Rp.million	1,226	1,396	1,565	1,735	1,905	1,962	2,021	2,082	2,144	2,208	2,275	2,343	2,413	2,485
	Travelling	Rp.million	325	362	400	437	475	489	504	519	534	550	567	584	601	619
	General Affairs	Rp.million	228	264	300	336	372	372	372	372	372	372	372	372	372	372
	Marketing	Rp.million	44	47	49	51	54	57	60	62	65	68	71	74	77	80
	Depreciation	Rp.million	1,216	1,216	1,216	1,210	1,210	127	127	149	149	149	149	149	149	149
	Public Relations	Rp.million	50	50	50	50	50	50	50	50	50	50	50	50	50	51
	Human Resources Development	Rp.million	56	59	76	92	111	111	111	111	111	111	111	111	111	111
	Watershed conservation	Rp.million	0	57	143	285	285	285	285	285	285	285	285	285	285	285
	Board of Commissioner	Rp.million	85	88	90	93	96	99	102	105	108	111	114	118	121	125
	Research and Development	Rp.million	54	72	89	125	144	144	144	144	144	144	144	144	144	144
	Capacity Development	Rp.million	807	228	166	91	13	161	209	205	0	0	0	0	0	0
III.	**Profit & Loss of Operation**	**Rp.million**	**-1,837**	**-1,474**	**-2,687**	**-2,843**	**-2,743**	**-1,617**	**-1,456**	**-1,283**	**-895**	**-678**	**-462**	**-279**	**-42**	**144**
IV.	**Other Revenues**	**Rp.million**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Bank Interest etc.	Rp.million														
V.	**Other Costs**	**Rp.million**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Bank Fee etc.	Rp.million	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VI.	**Profit and Loss from others source**	**Rp.million**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
VII.	**Government Allocation for Public Services**	**Rp.million**	**2,048**	**2,271**	**2,883**	**3,014**	**3,146**	**3,156**	**3,166**	**3,177**	**3,188**	**3,199**	**3,211**	**3,223**	**3,235**	**3,248**
	PGPS (public servant salary)	Rp.million	137	141	316	326	336	346	356	367	378	389	401	413	425	438
	Government Payment for Irrigation O&M	Rp.million	1,532	1,750	2,188	2,310	2,431	2,431	2,431	2,431	2,431	2,431	2,431	2,431	2,431	2,431
	Total other PSOs	Rp.million	379	379	379	379	379	379	379	379	379	379	379	379	379	379
VIII.	**Profit & Loss before Taxes**	**Rp.million**	**211**	**797**	**196**	**172**	**403**	**1,538**	**1,710**	**1,894**	**2,293**	**2,521**	**2,749**	**2,944**	**3,193**	**3,392**
IX.	**Taxes**	Rp.million	46	222	41	34	103	444	496	551	670	739	807	866	941	1,000
X.	**Profit & Loss after Taxes**	**Rp.million**	**165**	**575**	**155**	**138**	**300**	**1,094**	**1,215**	**1,343**	**1,622**	**1,783**	**1,942**	**2,078**	**2,253**	**2,392**
XI.	**Accumulated Profit/Loss**		165	740	895	1,032	1,332	2,426	3,641	4,985	6,607	8,390	10,331	12,410	14,662	17,054

Table 12.10 PJT Jeneberang
Profit and Loss Projection 2007 - 2011 (current price)
Tariff setting in consideration of Beneficiary's Affordability to Pay

No.	I T E M	Unit	2007	2008	2009	2010	2011
I.	**REVENUES**	**Rp. million**	**5,499**	**6,194**	**6,841**	**7,708**	**8,706**
1	**Revenues of Water Services**	**Rp. million**	**5,491**	**5,991**	**6,533**	**7,124**	**8,055**
a.	**Production**						
	Electricity	GWh	77	77	77	77	77
	Raw water for Drinking Water	thousand m^3	64,716	66,586	68,456	70,325	76,822
	Raw water for Industries	thousand m^3	159	164	170	176	182
	Raw water for Plantation	ha.	500	500	500	500	500
	Raw water for Irrigation	ha.	14,906	17,035	21,294	22,477	23,660
b.	**Tariffs**						
	Electricity	Rp/kWh	31	33	36	38	41
	Raw water for drinking water	Rp/m^3	49	53	57	61	66
	Raw water for Industries	Rp/m^3	99	106	114	123	132
	Raw water for Plantation	Rp/ha	66,872	71,794	77,078	82,750	88,841
	Raw water for Irrigation	Rp/ha	127,149	136,507	146,554	157,341	168,921
c.	**Revenues of Water Service**						
	Electricity	Rp.million	2,400	2,577	2,766	2,970	3,188
	Raw water for drinking water	Rp.million	3,043	3,362	3,710	4,092	4,799
	Raw water for Industries	Rp.million	15	17	18	20	23
	Raw water for Plantation	Rp.million	33	36	39	41	44
2	**Income from Non Water Service**	**Rp.million**	**7**	**203**	**308**	**584**	**651**
	Tourism	Rp.million	7	7	7	10	9
	Land Lease	Rp.million	0	0	11	13	14
	Sand Mining	Rp.million	0	196	206	455	515
	Reservior Fishery	Rp.million	0	0	7	10	12
	Waste water monitoring service fee	Rp.million	0	0	77	96	101
II.	**COSTS**	**Rp.million**	**7,734**	**8,068**	**10,537**	**11,764**	**12,868**
	O&M	Rp.million	2,709	3,117	4,894	5,254	5,641
	Personnel	Rp.million	1,517	1,855	2,235	2,661	3,138
	Travelling	Rp.million	402	481	571	669	781
	General Affairs	Rp.million	282	351	428	515	612
	Marketing	Rp.million	55	62	68	77	87
	Depreciation	Rp.million	1,466	1,466	1,466	1,460	1,460
	Public Relations	Rp.million	62	66	71	77	82
	Human Resources Development	Rp.million	69	78	108	141	182
	Watershed conservation	Rp.million	0	76	204	436	469
	Board of Commissioner	Rp.million	105	117	128	142	158
	Research and Development	Rp.million	67	96	127	191	237
	Capacity Development	Rp.million	998	303	236	140	21
III.	**Profit & Loss of Operation**	**Rp.million**	**-2,235**	**-1,875**	**-3,696**	**-4,056**	**-4,162**
IV.	**Other Revenues**	**Rp.million**	**0**	**0**	**0**	**0**	**0**
	Bank Interest etc.	Rp.million					
V.	**Other Costs**	**Rp.million**	**0**	**0**	**0**	**0**	**0**
	Bank Fee etc.	Rp.million	0	0	0	0	0
VI.	**Profit and Loss from others source**	**Rp.million**	**0**	**0**	**0**	**0**	**0**
VII.	**Government Allocation for Public Services**	**Rp.million**	**2,534**	**3,016**	**4,112**	**4,614**	**5,169**
	PGPS (public servant salary)	Rp.million	170	187	451	497	549
	Government Payment for Irrigation O&M	Rp.million	1,895	2,325	3,121	3,537	3,997
	Total other PSOs	Rp.million	469	504	541	580	623
VIII.	**Profit & Loss before Taxes**	**Rp.million**	**299**	**1,141**	**416**	**558**	**1,007**
IX.	**Taxes**	Rp.million	72	325	107	150	285
X.	**Profit & Loss after Taxes**	**Rp.million**	**227**	**816**	**309**	**408**	**722**
XI.	**Accumulated Profit/Loss**		227	1,043	1,352	1,760	2,482
XIII.	**SENSITIVITY ANALYSIS**						
	Profit & Loss before Taxes						
1	Water Revenue75%in 1st year and increase to 100% in 5th year		-1,074	18	-401	113	1,007
2	Water Revenue50%in 1st year and increase to 100% in 5th year		-2,447	-1,105	-1,217	-332	1,007
3	No government payment for irrigation and other PSOs		-2,065	-1,688	-3,245	-3,559	-3,613

Table 12.11 PJT Jeneberang
Balance Sheet Projection 2007 - 2011 (current price)
Tariff setting in consideration of Beneficiary's Affordability to Pay

Item	2007	2008	2009	2010	2011
ASSETS					
Current Assets					
Cash	5	5	5	5	5
Bank	926	2,991	3,073	3,421	3,940
Short-Time Deposit	0	0	0	0	0
Account Receivable	686	749	817	890	1,007
Allowance for Bad Debt	0	0	0	0	0
Advance	2	2	2	2	2
Accrued revenue	458	499	544	594	671
Prepaid Taxes	0	0	0	0	0
Inventory	23	26	41	44	47
Current Assets	**2,100**	**4,272**	**4,482**	**4,956**	**5,672**
Fixed Assets					
Land	735	735	735	735	735
Building	2,549	2,549	2,549	2,549	2,549
Machine Equipment	3,018	3,018	3,018	3,018	3,018
Office Equipment	3,218	3,218	3,218	3,218	3,218
	9,520	9,520	9,520	9,520	9,520
Accumulated Depreciation	-1,466	-2,933	-4,399	-5,859	-7,320
Fixed Assets	**8,053**	**6,587**	**5,121**	**3,660**	**2,200**
Other Assets					
Deferred Cost	0	0	0	0	0
Amortization	0	0	0	0	0
Other Assets	**0**	**0**	**0**	**0**	**0**
TOTAL ASSETS	**10,153**	**10,859**	**9,603**	**8,616**	**7,872**
LIABILITIES & EQUITY					
Current Liabilities					
Account Payable	406	468	734	788	846
Taxes Payable	0	0	0	0	0
Other short-term debt	0	1,216	1,216	1,216	1,216
Prepaid Revenue	0	0	0	0	0
Current Liabilities	**406**	**1,684**	**1,950**	**2,004**	**2,062**
Long-term debt to the third party	**6,081**	**4,865**	**3,649**	**2,433**	**1,216**
Equity					
Government Equity	3,438	3,438	3,438	3,438	3,438
General/Purpose Reserve	0	56	257	333	433
Retained profit - loss	0	0	0	0	0
Current year's profit - loss	227	816	309	408	722
Equity	**3,665**	**4,310**	**4,003**	**4,179**	**4,593**
TOTAL LIABILITIES & EQUITY	**10,153**	**10,859**	**9,603**	**8,616**	**7,872**

Table 12.12 List of Owned Assets Candidates

No.	Assets	Present Value Rp.
A	Land	734,762,000
1	Land in Barombong, Makassar	
2	Land in Tanjung Merdeka	
3	Land in Jl. M Emmy Saelan 109 A	
4	Land in Karunrung	
B	Building	2,548,923,000
1	Central Monitoring Office	
2	a. Type 90 house (Jl. B. Bili-Bili No. B2)	
	b. Type 90 house (Jl. B. Bili-Bili No. B3)	
3	a. Type 54 house (Jl. S. Jenelata No. C9)	
	b. Type 54 house (Jl. S. Jenelata No. C6)	
	c. Type 54 house (Jl. S. Jenelata No. C14)	
	d. Type 54 house (Jl. S. Jenelata No. C11)	
C	Heavy equipment, vehicles anf Office Equipment	154,483,000
1	Heavy Equipment	
	a. Dump Truck	
	b. Ordinary Truck	
	c. Excavator	
	d. Wheel Loader	
	e. Patrol Boat	
	f. Tug Boat	
	g. Trash Barge	
	h. Boat Trailer	
	i. Hydrological & Meteorological observation	
	j. Apparatus for soil & rock test	
	k. Apparatus for concrete test	
	l. Apparatus for road const. Test	
	m. Water quality sampler test	
	n. Pressure sensor type water level	
	o. Water depth measuring & recording equip.	
	p. Washing type air content test	
2	Vehicles	
	a. Station wagon	
	b. Jeep	
	c. Pick up	
	d. Motorcycle	
3	Office equipment	
	a. 1 biro desk	
	b. 1/2 biro desk	
	c. Chair	
	d. Chairs & Tables	
	e. Meeting tables and chairs	
	f. Filling cabinet	
	g. Pentium 2 computer	
	Total	3,438,168,000

Table 12.13 PJT Jeneberang
Cash flow Projection 2007 - 2011 (current price)
Tariff setting in consideration of Beneficiary's Affordability to Pay

Item	2007	2008	2009	2010	2011
CASH FLOW FROM OPERATING ACTIVITIES					
Profit & Loss before tax	299	1,141	416	558	1,007
Depreciation	1,466	1,466	1,466	1,460	1,460
Allowance for Bad Debt	0	0	0	0	0
Profit & Loss before working capital changes	1,765	2,608	1,882	2,019	2,467
Increase (decrease) from operating assets:					
- Account receivable	-1,146	-104	-113	-123	-194
- Inventory	-23	-3	-15	-3	-3
- Prepaid Taxes	0	0	0	0	0
Increase (decrease) from operating liabilities:					
- Account payable	406	1,277	266	54	58
- Taxes payable	0	0	0	0	0
- Taxes paid	-72	-325	-107	-150	-285
Increase (decrease) deferred tax asset	0	0	0	0	0
Cash flow from operating activities	-834	845	31	-222	-424
Net Cash flow from operating activities	**931**	**3,453**	**1,914**	**1,797**	**2,043**
CASH FLOW FROM INVESTMENT ACTIVITIES					
Fixed Assets procurement	-9,520	0	0	0	0
Other Assets procurement	0	0	0	0	0
Net Cash flow from investment activities	**-9,520**	**0**	**0**	**0**	**0**
CASH FLOW OF FINANCING ACTIVITIES					
Profit Distribution	0	-171	-616	-233	-308
Received from Government as Gov. Equity	3,438	0	0	0	0
Gov. equity that status is not yet determined	0	0	0	0	0
Long-term debt to the third party	6,081	-1,216	-1,216	-1,216	-1,216
Retained profit	0	0	0	0	0
Reserve fund use	0	0	0	0	0
Net Cash flow of financing activities	**9,520**	**-1,387**	**-1,832**	**-1,449**	**-1,524**
Net increase (decrease) of cash & cash equivalent	**931**	**2,066**	**82**	**348**	**519**
Cash & cash equivalent at beginning	**0**	**931**	**2,996**	**3,078**	**3,426**
Cash & cash equivalent at end	**931**	**2,996**	**3,078**	**3,426**	**3,945**

Table 12.14
Financial Ratio Analysis 2007 - 2011

No.	Item	Formulation	2007		2008		2009		2010		2011	
			Value	Score	Value	Score	Value	Score	Value	Score	Value	Score
1	Return On Equity (ROE)	Profit After Tax / Equity x 100%	6.6 %	7.5	23.4 %	15	8.4 %	9	10.8 %	12	18.7 %	15
2	Return On Investment (ROI)	EBIT + Depreciation / Capital Employed x 100%	17.4 %	9	24.0 %	10	19.6 %	10	23.4 %	10	31.3 %	10
3	Cash Ratio	Cash + Bank + Time Deposit / Current Liabilities x 100%	229.1 %	3	178.0 %	3	157.8 %	3	170.9 %	3	191.3 %	3
4	Current Ratio	Current Assets / Current Liabilities x 100%	516.6 %	4	253.7 %	4	229.8 %	4	247.2 %	4	275.0 %	4
5	Collection Periods (CP)	Account Receivable / Revenue x 365 days	12.5 days	4	12.1 days	4	11.9 days	4	11.6 days	4	11.6 days	4
6	Inventory Turn Over	Inventory / Revenue x 365 days	0.4 days	4	0.4 days	4	0.6 days	4	0.6 days	4	0.5 days	4
7	Total Asset Turn Over (TATO)	Total Revenue / Capital Employed x 100%	79.1 %	2.5	84.8 %	2.5	114.1 %	3.5	143.0 %	4	176.2 %	4
8	Ratio Total Equity and Total Assets (TE/TA)	Total Equity / Total Assets x 100%	36.1 %	6	39.7 %	6	41.7 %	5.5	48.5 %	5.5	58.4 %	5
	Total Score			40.0		48.5		43.0		46.5		49.0

Figure 12.1 Conceptual Schedule toward Operation of PJT I Jeneberang

Description	Preparation Stage	Establishment Stage	Mid-term Plan Period				Expansion Phase
			Start-up Phase		Development Phase		
	2005	2006	2007	2008	2009	2010	2011	
Legislation: (by Government)								
1 PJ T J & III initial legislation (for enabling establishment)								
2 Central government legislation (other than above)								
3 Regional government legislation & agreements among stakeholders								
Budgeting: (by Government)								
1 Budget for regional legislation & socialization		Establishment of PJT J						
2 Budget for organizational establishment								
3 Budgeting of fresh money fund for initial O&M operation								
Rehabilitation of Infrastructure before Asset Management Transfer to PJT J (by Government)	(e.g. Rubber dam, sand pocket No.4, sluiceway & drainage gates in lower reach, hydrological gaging stations)							
Organizational Set-up: (by PJT Jeneberang)								
1 Office set-up								
2 Assignment of key staff for initial mobilization work		20						
3 Assistance in socialization, legislation and water fee setting								
4 Preparation of detailed annual work plan and budget plan								
5 Finalization of corporate and RBM management system								
6 Initial training of O&M personnel by PJT I								
7 Procurement of initial O&M operation resources								
			Commencement of Operation					
Operation: (by PJT Jeneberang)								Increase
1 Recruitment of staff			45	48	58	67	76	as required
2 Establishment of management system								
(1) Internal management system								
(2) External relation								
3 Taking-over of Infrastructres (see Note 4 below)								
4 River Basin Management Services								
(1) Water quantity management								
(2) Water quality management			(Preparation)					
(3) Flood control and management				(Preparation)				
(4) Drought management				(Preparation)				
(5) River administration area management			(Preparation)					
(6) Watershed management				(Preparation)				
(7) O&M of infrastructure								
5 Fee collection								
(1) Establishment of various permit / license system								
(2) Socialization of fee collection								
(3) Collection of fees			PDAM & PLN	+ Industrial & other fees				
6 Development of Non-water Business					Gradual expansion of new businesss			
Capacity development program to strengthen the operational capabilities	(Revised schedule under discussion)							
(Activities scheduled as Phase III of the current Study)								

Note: 1. (Preparation): Main activities during this period is the establishment of service system including technical studies and public relation formation. However, minimum extent of required RBM service will be provided in parallel. .
2. Number of staff shown above is still tentative, subject to change in further study
3. Schedule of fee collection is dependent on acquisition of consensus and agreement from stakeholders, which is presumed to take some time jaccording to experience in Solo basin
4. Taking-over of infrastructure will be made on facility-by-facility basis: i.e. initially dam and lower reach facilities, then irrigation weir and then Sabo facilities

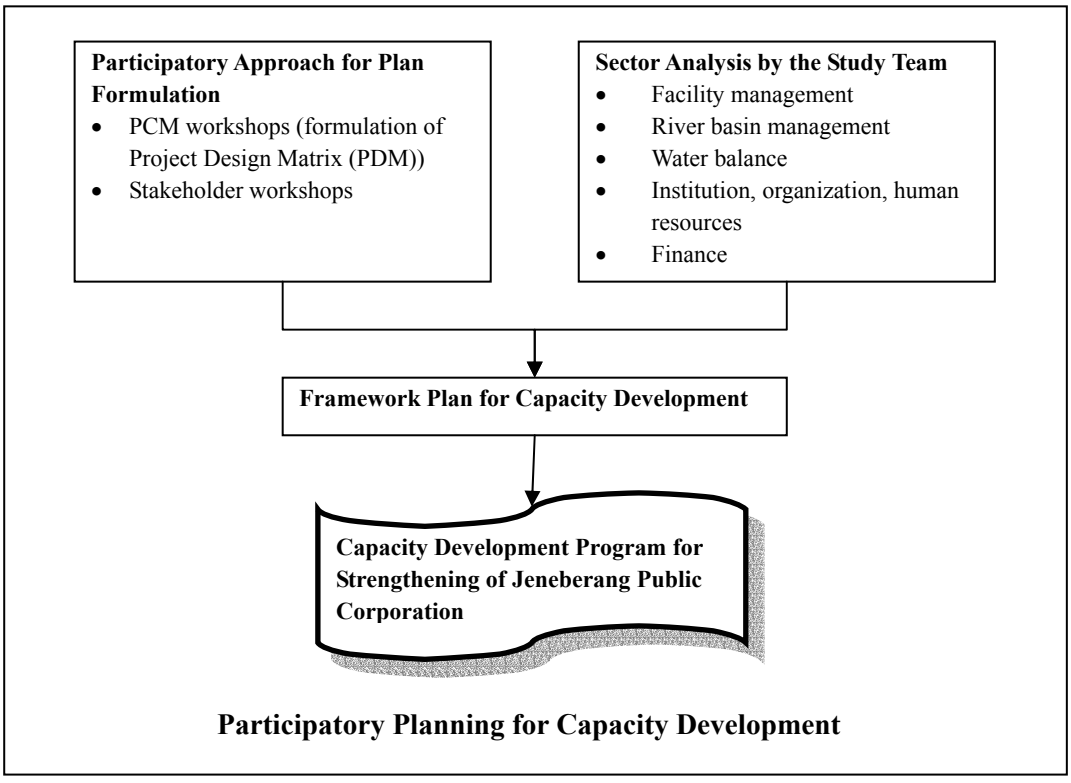
CHAPTER 13

CAPACITY DEVELOPMENT PROGRAM

13.1 Introduction

The Capacity Development Program was designed to be implemented after establishment of the PJT Jeneberang to strengthen the capacity of PJT Jeneberang. A participatory approach[1] was applied for formulation of Capacity Development Program. For this purpose PCM (Project Cycle Management) workshops and stakeholder workshops were conducted to examine and understand the stakeholder needs for river basin management and needs for strengthening of capability of PJT Jeneberang.

The Capacity Development Program formulation flow is shown in the figure below.



Participatory Planning for Capacity Development

13.2 PCM Workshop and Stakeholder Workshops

13.2.1 Method of Participatory Approach

The participatory approach, in which a series of workshops were conducted with stakeholders including JRBDP, Dinas, Balai, beneficiaries and clients, was applied to assess the intention of

[1] Participatory approach and PCM workshop is described in Supporting Report O

stakeholders and for plan formulation. Workshops were utilized as an opportunity for the JICA Study Team and counterpart to provide information on river basin management and the concept of PJT Jeneberang to stakeholders, and the stakeholders and the JICA Study Team to express and exchange ideas on river basin management. Several types of workshops were conducted as shown below.

13.2.2 Project Cycle Management (PCM) Workshop

A series of PCM workshops were conducted to identify the issues and measures for river basin management. A target group of the workshop was organizations directly responsible for river basin management, including JRBDP, Dinas PSDA, and Balai Jeneberang.

PCM workshops were conducted separately at the analysis stage and planning stage, with different workshop designs applied depending on the objective of the workshops.

(1) Analysis stage

- PCM workshops for an analysis stage were conducted to identify general issues and for specific sectors related to river basin management and establishment of PJT Jeneberang.
- Objective of the workshop for general issues was to generally discuss river basin management with a focus on Stakeholders Analysis. Outputs of the workshop were Stakeholders' Analysis and Problem Tree.
- Sector workshops for an analysis stage were designed to discuss specific issues for the selected sectors: 1) facility O&M, 2) human resources management, 3) financial management, 4) institutions and legal issues, and 5) non-water business. Outputs of the workshop were Problem Tree, Objectives Tree, and Project Selection.
- A workshop for non-water business was designed to provide an opportunity for free discussion among stakeholders about non-water business potentials rather than formulating a Problem Tree and an Objectives Tree. An output of the workshop was a list of non-water business opportunities.

The following table shows the workshop schedule for the analysis stage.

PCM workshop for Analysis Stage

Date	Topic	Participants
February 5	The Jeneberang River basin management (general issue) (practice)	JRBDP
February 10	The Jeneberang River basin management (general issue)	Regional committee member
February 12	Facility O&M	JRBDP, Dinas PSDA, Balai PSDA
February 17	Human resources management	JRBDP, Dinas PSDA, Balai PSDA
February 18	Financial management	JRBDP, Dinas PSDA, Balai PSDA
February 19	Institutions and legal issues	JRBDP, Dinas PSDA, Balai PSDA
February 25	Non-water business	JRBDP, Dinas PSDA, Balai PSDA

(2) Planning stage

A workshop for the planning stage was conducted based on the results of the analysis stage with

a focus on formulation of a Project Design Matrix (PDM). This was conducted on March 3 and 4 for all sectors discussed during the analysis stage.

(3) Formulation of Project Design Matrix (PDM)

A Project Design Matrix (PDM) was formulated as a basis for the Capacity Development Program.

Based on the results of the sector workshops at the analysis stage, a Project Design Matrix (PDM) was formulated. A workshop for formulation of PDM was conducted on two consecutive days (3-4 March, 2004). Since project formulation was a new experience for most JRBDP staff, PDM was formulated with the support of the Study Team.

Since the objective of the capacity development program was to achieve "sustainable river basin management by strengthening capacity of PJT Jeneberang", projects selected at sector workshops were considered as components or sub-projects of the capacity development program. All project approaches selected at the analysis stage were reviewed and regrouped to cover four aspects of the capacity development program: 1) O&M of infrastructure, 2) Organization operation management, 3) Financial management, and 4) Human resources development.

The following six sub-projects were proposed as components of the capacity development program with the PDM prepared for each sub-project. The PDM formulated is outlined in Table 13.1.

(i) O&M of infrastructure

PDM 1 Monitoring and operation of facility O&M and reporting system improvement project

(ii) Organization operation management

PDM 2 Organization strengthening project

(iii) Financial management

PDM 3 Fund raising (non-water business) and empowerment project
PDM 4 Financial information system improvement project

(iv) Human Resources Development

PDM 5 Management skill strengthening project
PDM 6 Personnel management system improvement project

The overall goal of the six PDMs was set as "Achieving sustainable river basin management", meaning project purposes of each PDM shall lead to sustainable river basin management.

A comprehensive PDM for the Jeneberang River basin management was prepared based on the six sector PDMs. The "overall goal" was identified as "Achieving sustainable Jeneberang River basin management". "Project purpose" was identified as "Capacity of PJT Jeneberang

and Balai PSDA Jeneberang is strengthened, and watershed management, water quality/quantity management, flood/drought management, and river area management are properly executed," This could be achieved through four "outputs" which are categorized by four sectors, namely: 1) facility O&M, 2) institutional and organizational management, 3) financial management, and 4) human resources development.

Narrative Summary
Overall Goal Sustainable Jeneberang River basin management is achieved
Project Purpose Capacity of PJT Jeneberang and Balai PSDA Jeneberang is strengthened, and watershed management, water quality/quantity management, flood/drought management, and river area management are properly executed.
Outputs 1 Facility O&M and management capacity will improve by management staff making proper decision on facility O&M resulted from improved manual, improved database management and improved O&M equipment 2 Organization operation and management capacity will improve by proper execution of jobs resulted from efficient organizational structure, proper understanding and implementation of laws and regulation related to internal and external affairs 3 Financial management capacity will improve by securing income sources and fee collection, and efficient financial management resulted from improved fee collection system, installation of corporate accounting system and staff skill development, and promotion of non-water businesses 4 Human resources will be developed by improving management staff skills and improving personnel system resulted from staff training, more senior staff, improving skill of young staff, and improving staff assignment/promotion/recruitment

The PDM prepared for the Capacity Development Program was updated by integrating the Study results; it is shown in Table 13.2.

13.3.3 Stakeholder Workshops

A series of stakeholder workshops were conducted to exchange ideas about the roles of stakeholders, stakeholder participation, and expectations for PJT Jeneberang. Stakeholder workshops were designed to target specific stakeholders, with the discussion focusing on specific issues related to the stakeholders.

(1) Stakeholder Workshop targeting future clients of PJT Jeneberang

The objective of the workshop was to discuss a role for stakeholders and expectations with PJT Jeneberang for river basin management by targeting the future clients of PJT Jeneberang. These included PDAM, PLN, and Water Users Association (P3A).

Outline of the Workshop

Date	July 15, 2004
Place	JRBDP Meeting Room
Participants	PDAM Makassar, PLN, Water Users Association (Gowa), Dinas Gowa, Balai Jeneberang, JRBDP
Topics	- The roles and activities of stakeholders in river basin management - Activities to be responsibilities of PJT Jeneberang - Expectations to PJT Jeneberang
Methodology	- Participants were asked to write their opinions on a card - Free discussion among the participants based on the opinions - Summarize the expectation of stakeholders to PJT Jeneberang
Findings	Participants identified many activities for river basin management including water quality and quantity, facility O&M, legal issues, environmental conservation, capacity building, and coordination among agencies. Participants' expectation to PJT Jeneberang is high, and participants are aware stakeholder involvement for river basin management is important.

(2) Stakeholder Workshop targeting all stakeholders in Jeneberang River basin

The objective of the workshop was to provide information on river basin management and discuss a variety of issues related to river basin management, including "tariff charge for the services", "role of stakeholders in river basin management", and "consideration for upstream area".

Outline of the Workshop

Date	July 27, 2004
Place	Meeting room at the hotel in Makassar
Participants	Regional committee members, Kabupaten, Kecamatan, Desa, NGO, Universities (Total of 55 participants)
Topics	(1) Provision of information (a) River basin management by PJTI - River basin management activities - O&M cost - Coordination with stakeholders (b) Interim result of the Study (Study Team) - Present condition of Jeneberang River basin management and management plan - Function of PJT Jeneberang (2) Group discussion (facilitator: counterpart) (a) Tariff charge for the services (types of services, payer, method of payment) (b) Roles of stakeholders in river basin management (PDAM, PLN, water users' association, regional government, residents (NGO), factories) (c) Consideration for the upstream area (living condition improvement, economic development, institutional strengthening, environmental conservation, education and training)
Methodology	(1) Provision of information Presentation by PJTI and the Study Team (2) Group discussion - Facilitators are selected from counterparts - Participants are asked to write their opinions on a card - Free discussion among the participants based on the opinions
Findings	The workshop was the first official stakeholder meeting in which information on river basin management and the concept of PJT Jeneberang were provided to stakeholders. After the stakeholders understood river basin management and the concept of PJT Jeneberang, they generally agreed on the establishment of the Corporation and showed a willingness to participate in river basin management activities.

(3) Stakeholder Workshops for selected areas of the Jeneberang River basin

Since interpretation of river basin management differs depending on river basin areas, stakeholder workshops were conducted in upstream areas (Malino), in Bili- Bili dam area, and in downstream areas (irrigation area, water users' association).

The workshops focused particularly on stakeholders' intentions on participation in river basin management. One of the aims of the workshop was also awareness-raising by formulating *'Slogan'* for river basin management.

Outline of the Workshop in Malino

Date	November 6, 2004
Place	Meeting room at the Kecamatan Tinggi Moncong
Participants	Local governments (Kecamatan, Desa, Kerurahan), community organizations, school teachers, NGOs (Total of 42 participants)
Topics	(1) Provision of information on river basin management by JRBDP staff (2) Group discussion (facilitator: NGO) (a) Stakeholder participation in river basin management (b) Formulation of slogan for river basin management
Findings	(1) Stakeholder participation in river basin management ・ Forest conservation (tree planting, protection, education) are the major interests of the participants. ・ Revival of local custom for reforestation efforts (this region had a custom of planting trees for special occasions such as weddings). ・ Participants are well aware of importance of forest conservation for water resources conservation and showed a willingness to contribute to forest conservation through education, planting trees, land conservation. ・ Other areas of participation were identified as tourism, health, infrastructure, fishery, women empowerment. (2) Slogan for river basin management ・ "One piece of land, one tree" ・ "Your green is my crystal water" ・ "Plant the fruit seeds you eat to shade Jeneberang" ・ "The redness of *Spatudea** flowers reflects clear water of Jeneberang"

Note: * *Spatudea*: a kind of plant grown in Malino area.

Outline of the Workshop in Bili-Bili

Date	November 11, 2004
Place	Meeting room at the Bili-Bili dam control office
Participants	Local governments (Kecamatan, Desa, Kerurahan), community organizations, school teachers, NGOs (Total of 35 participants)
Topics	(1) Provision of information about river basin management by JRBDP staff (2) Group discussion (facilitator: NGO) (a) Stakeholder participation in river basin management (b) Formulation of slogan for river basin management
Findings	(1) Stakeholder participation in river basin management ・ Forest management including planting trees, law enforcement. ・ Bili-Bili dam reservoir management including excavation, solid waste management, planting vegetation. ・ Benefits of the reservoir existence to the surrounding communities and utilization of the reservoir for the benefit of the community. ・ Promotion of economic activities including fishery, tourism and mining ・ Community empowerment. (2) Slogan for river basin management ・ "Conserve Bili-Bili Reservoir" ・ "Forest is my hope. River is my life"

Outline of the Workshop in Downstream Area

Date	November 23, 2004
Place	Community hall in Tanabangka
Participants	Water Users' Association members, farmers, NGOs (Total of 31 participants)
Topics	(1) Provision of information about river basin management by JRBDP staff (2) Group discussion (facilitator: NGO) (a) Stakeholder participation in river basin management (b) Formulation of slogan for river basin management
Findings	(1) Stakeholder participation in river basin management ・ Operation and maintenance of irrigation channels was the main concern of the participants, which directly affects the production of crops and wellbeing of farmers. ・ O&M includes cleaning, water allocation, proper use of channels and facilities. ・ Strengthening of O&M by mutual cooperation, empowerment of WUA, legal enforcement are discussed. ・ Importance of paying ISF for all water uses including paddy and fishpond and payment of WUA fund to be used for rehabilitation of canals are discussed. ・ Participants also showed a willingness for canal rehabilitation by themselves. (2) Slogan for river basin management ・ "Irrigation channels are mutual ownership" ・ "Stop illegal off-take and tree planting on dykes" ・ "Let's work together to clear irrigation channels"

13.3 Framework Plan of Capacity Development

13.3.1 Concept of Capacity Development

The Capacity Development Program was formulated for establishing a strong basis for management capability and technical capability required for the initial stage of operation of PJT Jeneberang, which aims to cover the components described below.

A framework plan of the capacity development was prepared based on the PDM. Capacity development composed four components, namely: 1) facility management/river basin management, 2) institutional and organizational management, 3) financial management, and 4) human resources development.

Facility management and river basin management are a primary objective of the capacity development, which is supported by institution/organizational management, financial management, institutional and human resources development as shown in Figure 13.1. Human resources development aims to strengthen components 1) to 3).

13.3.2 Description of the Capacity Development Components

Descriptions of the capacity development for each sector are summarized below.

(1) Facility Management/River Basin Management

Capacity development for facility management/river basin management aims to strengthen watershed management, water quality/quantity management, and flood/drought management through proper database management and facility O&M, which are considered as major services of PJT Jeneberang.

(2) Institutional and Organizational Management

Institutional and organizational management has three aspects: institutional and legal matters, organizational management, and administrative management. Institutional and legal matters deal with water laws, water rights, and regional autonomy, which directly affect operation of the facility and need to be clarified for efficient river basin management. The organizational management aspect covers the status and structure of PJT Jeneberang. The administrative management aspect covers general administration and managerial administration including non-water business and quality management.

(3) Financial Management

A main focus of the financial management is adoption of the corporate accounting system. Regardless of the status of PJT Jeneberang, the Public Corporation is expected to have financial autonomy in which independent financial management is expected.

(4) Human Resources Management

Human resources management shall support skills development of facility management (O&M), institutional and organizational management, and financial management by strengthening personnel management systems and providing training. Capacity development for human resources covers HRD planning, recruitment, training and development systems.

13.4 Capacity Development Program

The Capacity Development Program was prepared to match the requirements according to the position and the sector, which are necessary for strengthening of the initial stage of operation of PJT Jeneberang. Some programs were designed to strengthen management capability, which targets Heads of Bureaus, Sections, Divisions, Sub-Divisions, and staff in administration & finance sections. Some programs were designed for strengthening of technical capability targeting technical staff and management staff.

Capacity Development Programs are categorized into four sectors as shown below.

(1) Facility Management/ River Basin Management
(2) Administrative Management
(3) Financial Management
(4) Institutions/Organization Management/Human Resources Management

The Capacity Development Program is described in the profile sheets prepared for each program. The items in the profile sheet correspond to the structure of the PDM so that the project purpose, output, and input can be clarified for each program. Selected items from the sheet are shown in the text and complete profile sheets for all programs are shown in Appendix N1.

13.4.1 Facility Management

The Capacity Development Program for facility management covers (1) Monitoring and

analysis of database (data collection and analysis) and (2) Facility operation and maintenance.

Capacity Development Program for Facility Management

No.	Program Name	Objective	Cost (Rp. million)	Schedule
(1)-1-1	Development of inventory of land use states in river administration area	・ To identify the outer bound of administration area of PJT Jeneberang ・ To identify the updated land use states in the administration area	341.2	2008 (2nd quarter) ~2010 (2nd quarter)
(1)-1-2	Development of inventory of facilities relevant to river management	To identify the updated states of facilities relevant to river management	49.8	2006 (2nd half)~2008 (3rd quarter)
(1)-1-3	Hydrological data collection and analysis	・ To improve knowledge of PJT Jeneberang on hydrological data collection and analysis ・ To improve accuracy of hydrological gauging data as the base for operation of the facilities	80.9	2006 (3rd quarter)~2007
(1)-2-1	O&M of Bili-Bili Dam and Raw Water Transmission Main (RWTM)	To improve the knowledge of PJT Jeneberang on the relevant operation and maintenance works and to improve the conditions of facilities.	53.7	2006 (3rd quarter)~2008 (1st quarter)
(1)-2-2	Maintenance system for electrical equipment in Bili-Bili Dam	To achieve the conduct of proper maintenance work for electrical equipment in Bili-Bili dam on a continuous basis.	16.8	2007~2009
(1)-2-3	O&M for hydromechanical facility (Bili-Bili Dam site)	To establish a long term maintenance plan and to conduct proper O&M for hydromechanical facility at Bili-Bili dam site.	29.8	2007~2008
(1)-2-4	O&M for hydromechanical facility (Drainage gate at Jeneberang river)	To establish a long term maintenance plan and to conduct proper O&M for hydromechanical facility for drainage gate.	29.3	2006~2007
(1)-2-5	O&M of the existing eleven drainage gates along lower Jeneberang River	・ To improve the knowledge of PJT Jeneberang on the relevant operation and maintenance works ・ To improve the knowledge of local residents as gatekeepers for relevant operation and maintenance works	173.9	2006~2007 (3rd quarter)
(1)-2-6	O&M of rubber Dam and long storage	・ To improve the knowledge of PJT Jeneberang on the relevant operation and maintenance works. ・ To improve the knowledge of local residents as gatekeepers for relevant operation and maintenance works.	52.6	2006 (2nd quarter)~2008 (1st quarter)
(1)-2-7	O&M of irrigation weirs	To improve the knowledge of PJT Jeneberang on the relevant operation and maintenance works	50.3	2006 (2nd quarter)~2008 (1st quarter)

13.4.2 River Basin Management

The Capacity Development Program for facility management/river basin management covers (1) Monitoring and analysis of database (data collection and analysis) and (2) Facility operation and maintenance.

Capacity Development Program for River Basin Management

No.	Program Name	Objective	Cost (Rp. million)	Schedule
(2)-1-1	Flood plain management	・ To establish an effective floodplain management system. ・ To improve the knowledge of PJT Jeneberang on floodplain management.	53.8	2012 (2nd quarter)~2014
(2)-1-2	Flood warning, fighting and evacuation	・ To establish the flood warning, fighting and evacuation system ・ To improve the knowledge of PJT Jeneberang on flood warning, fighting and evacuation system	505.4	2012 (3rd quarter)~2014 (3rd quarter)
(2)-2	Water quantity management	・ To establish the water quantity management system for stabilizing water supply. ・ To improve knowledge of PJT Jeneberang on water quantity management system.	47.0	2006 (3rd quarter)~2008 (3rd quarter)
(2)-3	Drought management	・ To establish drought management system ・ To improve the knowledge of PJT Jeneberang on drought management system	15.8	2012 (3rd quarter)~2014 (2nd quarter)
(2)-4	Watershed Management/Implementation of watershed management services	To accomplish the conduct of services relevant to watershed conservation and management. To gain knowledge on the basic know-how of providing the services.	32.0	2009 (3rd quarter)~2011
(2)-5-1	Water Quality Monitoring (WQM)	To accomplish the conduct of WQM work on a continuous basis.	17.6	2007 (2nd quarter)~2008
(2)-5-2	Water Pollution Monitoring (WPM)	To accomplish the conduct of WPM work on a continuous basis	21.0	2007 (2nd quarter)~2008

13.4.3 Institution/Organization Management/Human Resources Management

Capacity development for institution/organization management/human resources management covers sectors related to organizational arrangement.

Capacity Development Program for Institutional/Organization Management/Human Resources Management

No.	Program Name	Objective	Cost (Rp. million)	Schedule
(3)-1	Laws and regulations in the water sector	To familiarize PJT Jeneberang management with the relevant (i) national laws, regulations and decrees, (ii) regional regulations, decrees, (iii) PJT I Directors' Decrees.	29.3	2006 (2nd quarter)~ 2006 (4th quarter)
(3)-2	Organizational structuring & staffing, and HRA	To educate selected senior personnel and those responsible for organizational structuring, job analysis, staff planning and budgeting, and personnel administration so that the staff can execute jobs properly.	86.4	2006 (3rd quarter)~2007 (1st quarter)
(3)-3	Human Resources Development (HRD)	To educate the HR Section and PJT Jeneberang managers in the basic skills, procedures and documentation of HRD.	79.4	2006 (3rd quarter)~2007 (1st quarter)
(3)-4	Strengthening of public relations capability	To strengthen operational capability by establishing public relations system and skills development aimed at customer satisfaction and stakeholder participation.	21.4	2007 (3rd quarter)~2007

13.4.4 Administrative Management

Capacity development for administrative management covers 1) Business planning skill training, 2) Quality management system training, and 3) Corporate management.

Capacity Development Program for Administrative Management

No.	Program Name	Objective	Cost (Rp. million)	Schedule
(4)-1	Business planning skill training	To be familiar with the basic skills, procedures, know-how and documentation of business planning, and to be able to elaborate planning document and business proposal.	63.0	2006 (4th quarter)~2007
(4)-2	Quality management system training	To learn about Quality Management System (QMS) – quality policy and goals, work procedure and instruction, and document control – and acquire capability of preparing the certificate acquisition process after operation.	63.0	2007 ~2008 (1st quarter)
(4)-3	Corporate management capacity development	To establish management base of PJT Jeneberang with business mind.	86.0	2006 (4th quarter) ~2007 (1st quarter)

13.4.5 Financial Management

Capacity development for financial management covers 1) Financial administration, 2) Corporate accounting by ASGL (Accounting System General Ledger), and 3) Revenue collection.

Capacity Development Program for Financial Management

No.	Program Name	Objective	Cost (Rp. million)	Schedule
(5)-1	Financial administration capacity development program	To strengthen capacity of financial administration system and its operation by establishing the system and skills development.	116.1	2006 (4th quarter)~2007
(5)-2	Corporate accounting by ASGL (Accounting System General Ledger)	To develop skills for corporate accounting specialized in water resources management using ASGL.	155.5	2006 (4th quarter)~2007
(5)-3	Revenue collection	To establish and strengthen revenue collection procedure of the services provided by PJT Jeneberang.	59.6	2007

13.5 Implementation Organization for the Capacity Development Program

13.5.1 Basic Concept

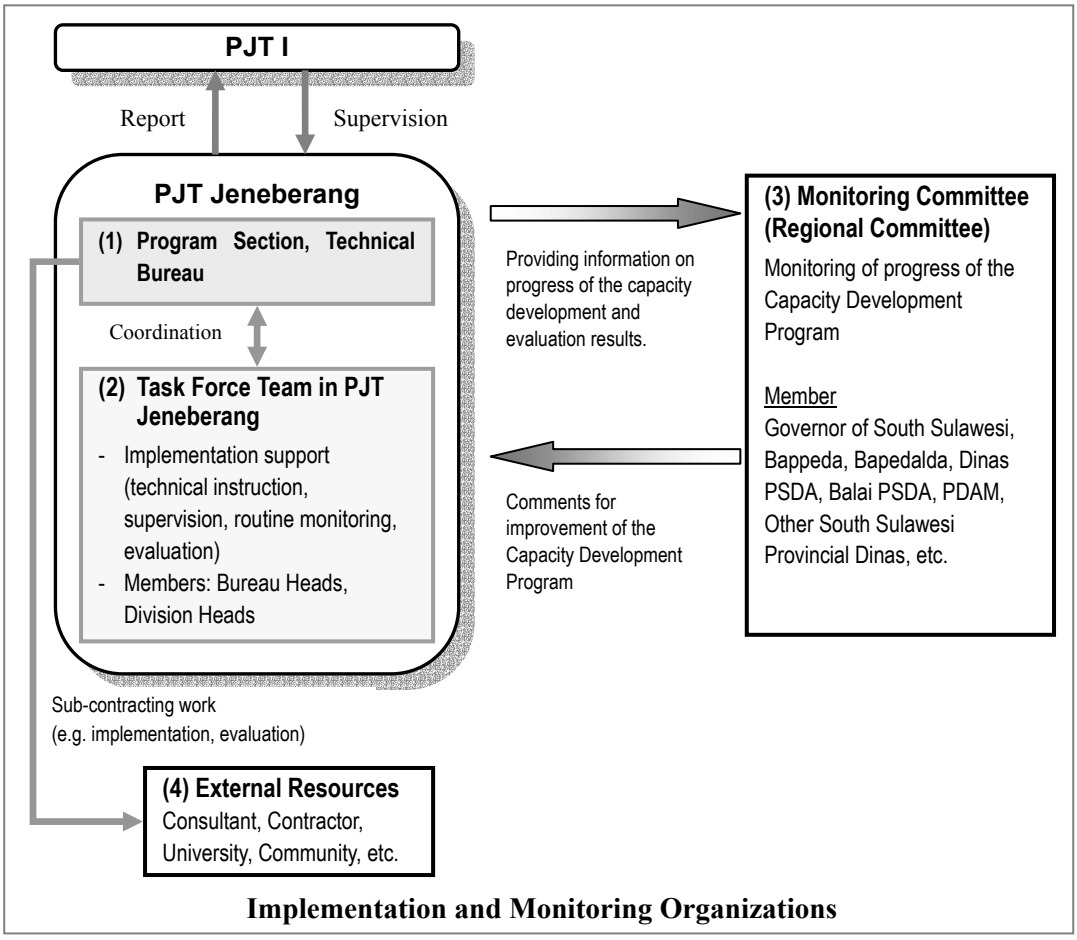
A basic concept for implementation and monitoring is that PJT Jeneberang initiates and assumes full responsibility for them. Some work can be sub-contracted to local consultants if proper budgetary arrangements are made. A system in which comments from the stakeholder can be integrated into the Capacity Development Program will be established since sustainable Jeneberang river basin management requires stakeholder participation.

13.5.2 Implementation Organization

Several groups are involved in implementation and monitoring of the Capacity Development Program.

- **Program Section** in Technical Bureau of PJT Jeneberang takes sole responsibility for implementation. This is supported by a **Task Force Team** composed of Bureau Heads and Division Heads providing technical assistance and supervised by PJT I.
- **Monitoring Committee**, composed of stakeholders, is responsible for monitoring the implementation and provides advice if necessary.
- **External Sources** can be utilized for some implementation work.

Responsibilities and flow of implementation are shown in the figure below.



Implementation and Monitoring Organizations

13.5.3 Tasks for implementation

Three actions are needed for implementation of the program namely; implementation, monitoring and evaluation, and feedback. Tasks required for implementation and monitoring are summarized below. Details of the monitoring and evaluation procedure are described in Section 13.6.

(1) Implementation

- Formulate detailed plan for implementation of each program (selection of trainer and trainee, procurement, schedule, etc.),
- Prepare a budget plan for implementation and monitoring, and send request to relevant agencies,
- Instruct and supervise the programs in the Capacity Development Program to the target group,
- Coordinate with relevant agencies or sections in PJT Jeneberang for implementation,
- Prepare Terms of Reference (TOR) for the work to be sub-contracted if necessary, and
- Keep close contact between the Program Section and the Task Force Member by holding routine meetings.

(2) Monitoring and evaluation

- Conduct monitoring routinely,
- Conduct mid-term, terminal, and ex-post evaluation, and
- Prepare a monitoring and evaluation report to be distributed to the Monitoring Committee and ask for comments.

(3) Feedback

- Formulate improvement plan based on the monitoring and evaluation results and comments from the Monitoring Committee.

13.6 Monitoring and Evaluation of the Capacity Development Program

Implementation of the Capacity Development Program shall be monitored and evaluated by PJT Jeneberang during and after implementation of the program. Monitoring and evaluation are important not only to understand the input and output, but also to improve the program by integrating the monitoring and evaluation results. It is important to establish a monitoring and evaluation system before implementation of the Capacity Development Program. Monitoring and evaluation are conducted based on the information in the PDM and the profile sheets.

13.6.1 Monitoring

(1) Monitoring system

"Monitoring" is defined as an ongoing process designed to periodically check if the program is being implemented according to the plan and with expected results produced, to modify the plan if necessary and provide feedback.

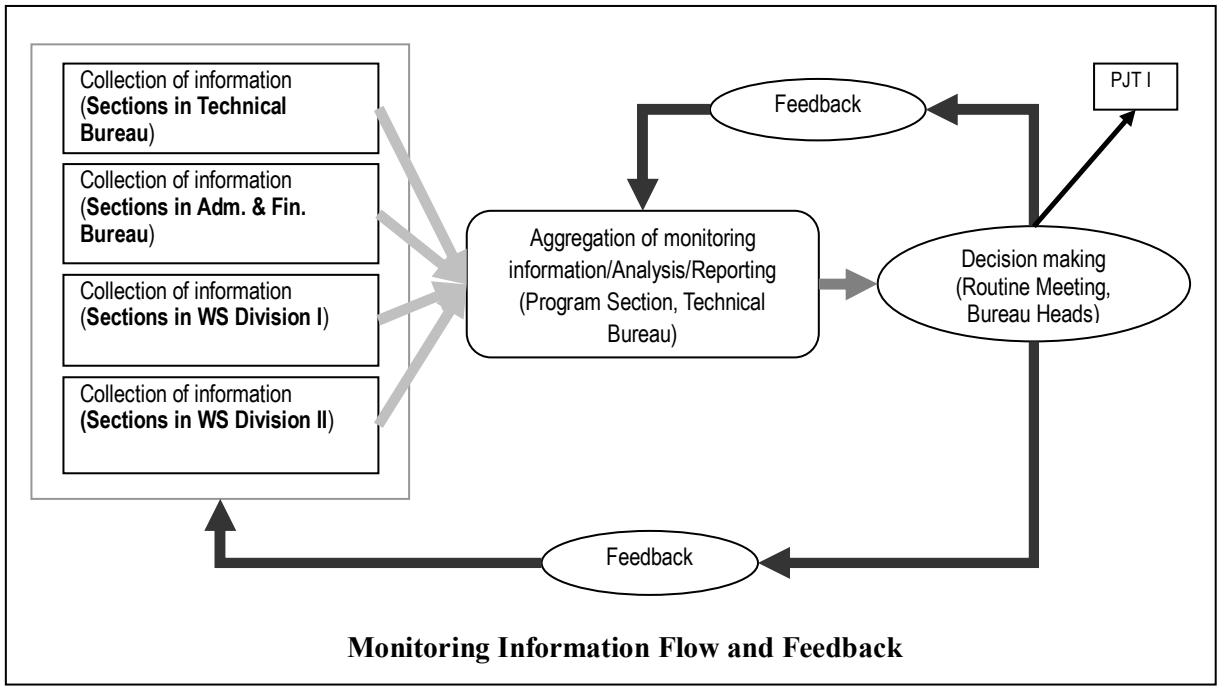
To carry out monitoring properly, it is essential to clearly define information for progress management and develop a monitoring system that allows such an information system to be periodically collected, aggregated and assembled for decision-making. Monitoring shall be conducted internally, and all sections of PJT Jeneberang should be involved. The table below

shows monitoring activities and responsible sections in PJT Jeneberang.

Monitoring and Responsible Section

Sections in PJT Jeneberang	Responsibilities
Bureau Heads (Technical Bureau & Administration & Finance Bureau) of PJT Jeneberang	・ Decision-making and feedback ・ Modification of the program (if necessary) ・ Report to PJT I
Program Section, Technical Bureau of PJT Jeneberang	・ Aggregation of monitoring information ・ Reporting to Bureau Heads/Division Heads ・ Modification of the program (if necessary)
Each Section responsible for implementation of Capacity Development Program	・ Record keeping of the Capacity Development Program ・ Information collection (monitoring indicators)

Within this system there should be a mechanism whereby decisions based on monitoring results can be fed back to those who are responsible for capacity development or respective Bureaus or Sections, in a timely manner. The following figure shows the proposed information collection and feedback system for monitoring.



Monitoring Information Flow and Feedback

(2) Monitoring procedure

Monitoring is to understand a current condition of implementation against the plan specified in "Profile sheets for the Capacity Development Program". It shall be conducted at least bi-monthly (six times a year) or ideally every month. Core monitoring items of the Capacity Development Program are shown below.

Procedures	Description
(i) Implementation of Activities	Progress in implementation of activities at the time of monitoring is checked with the plan of operations specified in the Profile Sheet.

Procedures	Description
(ii) Achievement of Outputs	Data for Output indicators are collected and progress in the achievement of Output is examined.
(iii) Achievement of Objective	Data for Objective indicators are collected and progress in the achievement of the Project Purpose is examined.
(iv) External factors	In addition to those indicated above, there are other items that should be monitored, which include external conditions of PJT Jeneberang such as legal, socio-economic or institutional frameworks, which may affect implementation.
(v) Search for the problem causes	If monitoring detects a gap between the plan and the current status, or the existence of a problem, it is necessary to search for causes and determine measures for solving the problem.
(vi) Feedback	Monitoring results shall be reported at a routine internal meeting (Division heads and Bureau heads) for review and to decide whether any actions are needed to improve the program. After the monitoring results are reviewed by the Bureau Heads, the results are fed back to respective sections in PJT Jeneberang and to PJT I. Monitoring results are an important information source for evaluation and should be kept in the Program Section.

13.6.2 Evaluation

(1) Evaluation System

"Evaluation" is defined as a process designated to judge the results of a completed or ongoing project in terms of five evaluation criteria (relevance, effectiveness, efficiency, impact, and sustainability) systematically and objectively, and to help improve the ongoing and other projects.

Evaluation requires extra work compared with the work for monitoring, so the evaluation system with clear task allocation and data to be collected needs to be established with design evaluation procedures in place prior to conducting each evaluation.

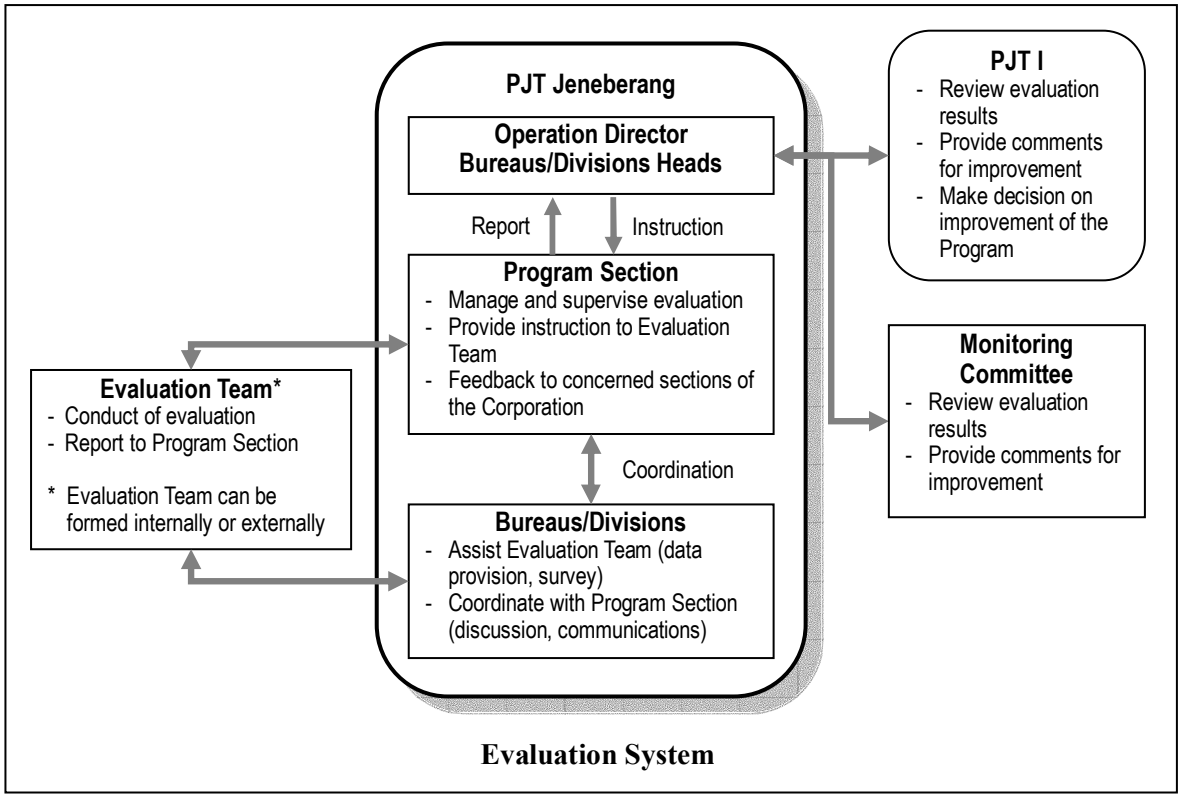
Unlike monitoring, which is conducted internally, evaluation may involve several organizations. Sections of PJT Jeneberang and other organizations involved in evaluation and their responsibilities are summarized in the table below.

Evaluation and Responsible Section

Section/Organizations Involved	Responsibilities
(1) PJT Jeneberang ・ Operation Director ・ Bureau Heads (Technical Bureau & Administration & Finance Bureau)	・ Decision-making and feedback ・ Modification of the program (if necessary) ・ Report to Monitoring Committee and PJT I
(2) PJT Jeneberang Program Section, Technical Bureau	・ Function as secretariat of evaluation ・ Management and supervision of Evaluation Team ・ Information provision (monitoring results) ・ Reporting to Director/Bureau Heads/Division Heads ・ Modification of Capacity Development Program based on evaluation results and recommendation by Monitoring Committee (if necessary) ・ Feedback to concerned sections of the Corporation
(3) PJT Jeneberang Each Section responsible for implementation of Capacity Development Program	・ Information provision (indicators for monitoring)

Section/Organizations Involved	Responsibilities
(4) PJT I	・ Decision-making and feedback on the Capacity Development Program ・ Review evaluation results ・ Provide recommendation for improvement of Capacity Development Program
(5) Evaluation Team (internal or external)	・ Conduct evaluation
(6) Monitoring Committee	・ Review evaluation results ・ Provide recommendation for improvement of Capacity Development Program

The following figure shows task flows among organizations involved in evaluation.



(2) Planning of Evaluation Process

In planning of evaluation, its basic direction has to be clarified. This includes elements such as an evaluation purpose, evaluation methods consistent with the purpose, the evaluation team and time schedule. Items to be considered and planning design (sample) are shown in the table below.

Items to be Considered for Evaluation Planning

	Planning Items	Planning Design for CDP*
1	Evaluation purpose (Why the evaluation is being performed, what will be evaluated, who will use the evaluation results for what purpose and when.)	・ Checking the progress of Capacity Development Program and impact on the operation of PJT Jeneberang. ・ Director and Bureau heads/Division heads of PJT Jeneberang use the evaluation results for improving operation of PJT Jeneberang for sustainable river basin management. ・ May also be reported to PJT1 or Ministry of Pubic Works for budget request.
2	Evaluation method	・ Evaluation design (five evaluation criteria, indicators specified in Profile Sheet and PDM). ・ Evaluation process (data collection, analysis, recommendation).
3	Evaluation team	・ Formation of evaluation team. ・ Evaluation can be done internally or sub-contracted to consultants to secure fairness of the evaluation. ・ Team leader, data collection with support of the Corporation staff at operation sites.
4	Cost	Manpower, transport, allowance, meeting, reporting, etc.
5	Evaluation timing and duration	(1) Timing: 4 times i) Mid-term: halfway through implementation of the CDP (4th quarters of 2006 & 2007) ii) Terminal: at the end of the CDP (2008) iii) Ex-Post: during the development phase of operation (2010 or 2011) (2) Duration Each evaluation requires 2 to 3 weeks to conduct.
6	Reporting and feedback	・ Report includes evaluation results and recommendations. ・ Evaluation results are reported to Monitoring Committee. ・ Feedback to Bureau Heads and Division Heads after finalizing the report.

* Planning design is a sample proposed by the Study Team and needs to be reconsidered when evaluation is conduced.

(3) Evaluation Procedure

Four steps are necessary to conduct evaluation.

Step 1 Review of PDM and profile sheet for evaluation

- Identify changes in the PDM and profile sheet and update the information in accordance with current situation.
- For evaluation, the project sheet is used to evaluate individual programs conducted. Based on the individual program evaluation, the PDM is then used to evaluate overall progress of the program, particularly overall goals and important assumptions. Detail is discussed in Section N5.2.4.

Step 2 Preparation of evaluation design

- Prepare evaluation questions (five evaluation criteria).
- Select data collection methods (literature survey, direct measurement, questionnaire, observation, focus group interview).
- Finalizing evaluation design.

Step 3 Data collection and sorting of results

- Collecting and analyzing information.
- Sorting inquiry results for five evaluation criteria.

Step 4 Conclusion of evaluation

- Draw overall conclusion.
- Making recommendations and draw lessons.
- Presenting evaluation results to Monitoring Committee and PJT I
- Modify and improve the Capacity Development Program, if necessary.
- Feedback to PJT Jeneberang.

(4) Evaluation Design for Capacity Development Program

Since the Capacity Development Program is composed of many sector programs, evaluation is conducted for each program based on the profile sheets. The Capacity Development Program as a whole is then based on the results from the profile sheets and the PDM.

(i) Evaluation by profile sheets

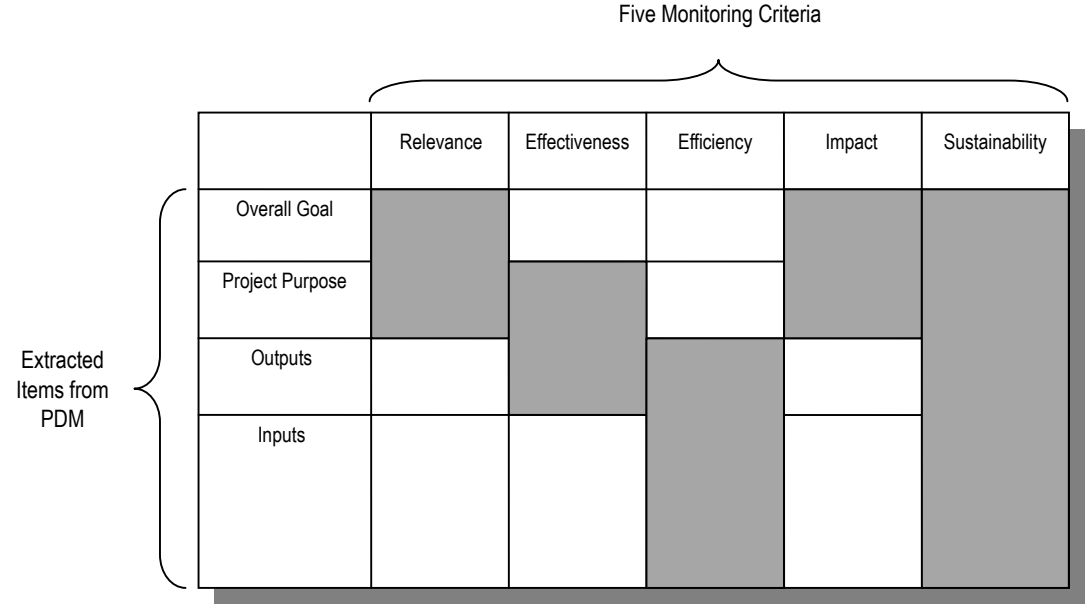
Evaluation of sector programs are conducted based on the information in the profile sheets. The profile sheet provides necessary information for evaluation, and selected items, 3) Objectives, 7) Inputs, 8) Outputs, 9) Contribution to Sustainable River Basin Management, are used for evaluation. The relationship between the items in the profile sheet and five evaluation criteria is shown below.

Profile Sheet	Evaluation Criteria				
	Relevance	**Effectiveness**	**Efficiency**	**Impact**	**Sustainability**
1. Sector					
2. Program Name					
3. Objectives					
4. Justification of the Program					
5. Activities					
6. Target Group					
7. Inputs					
8. Outputs					
9. Contribution to Sustainable River Basin Management					
10. Method of Capacity Development					
11. Qualification of Trainer					
12. Cost					
13. Monitoring and Evaluation Indicators					
14. Role/Responsibility of Relevant Agencies					
15. Remarks					
16. Plan of Operation					

(ii) Evaluation by the PDM

The evaluation for the Capacity Development Program is conducted to judge the Program as a

whole. In particular, the Outputs set for each sector are contributing to achieve Project Purpose, "Capacity of PJT Jeneberang is strengthened, and watershed management, water quality/quantity management, flood/drought management, and river area management is properly conducted", and the Overall Goal, "Sustainable river basin management is achieved" is or is not likely to be achieved. One of the important objectives is to point out additional programs necessary to achieve the Project Purpose. The relationship between the five evaluation



PDM and Five Criteria

criteria and the PDM is shown in the figure below.

Descriptions and main considerations for each criterion are summarized in the table below.

(iii) Indicators

Indicators for each program are listed in the profile sheet. Some indicators are automatically available when the Capacity Development Program is properly implemented, and some may have to be created in addition to implementation of the Capacity Development Program. Monitoring results can also be utilized as a means of verifying indicators. Prior to implementation of the Capacity Development Program, means of verification for each program have to be clarified. A list of indicators that can be applied in addition to the indicators listed in the profile sheets for evaluation is summarized in Table 13.3.

13.7 Implementation Schedule

13.7.1 Capacity Development Program Implementation Schedule

The Capacity Development Program is planned to be implemented intensively for three years after establishment of PJT Jeneberang. It is expected to start in 2006 and be completed in 2008.

For some components, preparatory work will start prior to program establishment, and some programs are implemented three years after the establishment of PJT Jeneberang when conditions, such as budget and maturity of the operation, are met. The implementation schedule may need to be adjusted if the establishment schedule of PJT Jeneberang changes. The implementation schedule of the Capacity Development Program is shown in Figure 13.2.

13.7.2 Monitoring and Evaluation Schedule

Monitoring and evaluation plays an important role in implementation and should be implemented as a part of the Capacity Development Program.

Monitoring shall be conducted routinely and reported to the routine PJT Jeneberang meetings planned to be conducted every month.

Evaluation shall be conducted several times during and after implementation of the Program. "Mid-Term Evaluation" will be conducted twice during the implementation, "Terminal Evaluation" will be conducted at the end of the implementation, and "Ex-Post Evaluation" will be conducted during the development phase of PJT Jeneberang operation. Timing and objectives of each evaluation are summarized in the table below.

Timing and Objective of Evaluation

	Mid-term Evaluation	**Terminal Evaluation**	**Ex-Post Evaluation**
Timing*	(1) 1 year after the start of implementation (4^{th} quarter of 2006) (2) 2 years after the start of implementation (4^{th} quarter of 2007)	End of implementation (end of 2008)	A few years after completion of implementation (2011, during the Development Phase)
Objective	Make sure Capacity Development is conducted as planned, and make adjustment by modifying the program for improvement. Evaluation Criteria *Relevance, Effectiveness, Efficiency, Impact, Sustainability*	Make sure the Capacity Development is completed as planned and objectives are achieved and sustainable river basin management is likely to be achieved. Evaluation Criteria *Relevance, Effectiveness, Efficiency, Impact, Sustainability*	Make sure "Sustainable river basin management" is still achieved Evaluation Criteria *Relevance, Impact, Sustainability*

Note: * Year shown is tentative and may change depending on the establishment schedule of PJT Jeneberang.

Table 13.1 Project Design Matrix (1/6)

PDM 1: Project name: Monitoring and operation of facility O&M and reporting system improvement project (Facility O&M) Target group: O&M staff of the Corporation

Narrative Summary	Objective Verification Indicators	Means of Verification	Important Assumption
Overall Goal: Sustainable river basin management is achieved by improving operation and management capability of the Public Corporation	- quality water is available to beneficiaries - operation cost is covered by revenues - negative impact to environment is zero - no complaints from public	- operation record, operation manual, operation plan, letter, financial statement - media, newspaper	- Public Corporation keeps existing - Autonomy regulation does not change
Project Purpose: Management staff make proper decision on O&M of facilities	- quality water is available to beneficiaries (allocation of water) - no complaints from public (clients)	- operation record, operation manual, operation plan, letter - media, newspaper	- Socio economic conditions do not change drastically - Natural conditions do not change drastically - Other sub-projects are implemented
Outputs: 1 O&M activities follow the manual and O&M will improve 2 Database management is well organized (Data is accurate and complete) 3 Dam condition is measured (equipment always works properly, prevent break down)	1 Responsible staff follows procedure in manual 2 Data monitoring is conducted as required in guideline and manual, all data is available as required 3 Calibration is conducted as required in manual, all equipment works or repair plan is available	1 training record, manual 2 monitoring record, database, manual 3 calibration plan and record, manual, training record	- Skill of management staff is strengthened - Management staff have good response
Activities: 1-1 Prepare simple operation manual 1-2 Provide (distribute) operation manual (improved, extra copies) 1-3 Provide training for operation based on manual 2-1 Establish monitoring database system 2-2 Clarifying monitoring and reporting procedure including evaluation and feedback 3-1 Prepare calibration plan of monitoring equipment 3-2 Provide training on monitoring equipment maintenance	Inputs: Manpower River engineer, Structural engineer, Mechanical/Electrical engineer, Sabo engineer, PJT1 staff Equipment/supply Survey equipment, boat, vehicle, computer, other equipment		- Staff received training stay at assigned position Pre-conditions - Preparatory committee for establishment of public corporation starts functioning - Framework of the Public Corporation is prepared - Initial staff assignment is fixed

Table 13.1 Project Design Matrix (2/6)

PDM 2: Project name: Organization strengthening project (Organization operation management) Target group: Staff of the Corporation

Narrative Summary	Objective Verification Indicators	Means of Verification	Important Assumption
Overall Goal: Sustainable river basin management is achieved by improving operation and management capability of the Public Corporation	- quality water is available to beneficiaries - operation cost is covered by revenues - negative impact to environment is zero - no complaints from public	- operation record, operation manual, operation plan, letter, financial statement - media, newspaper	- Public Corporation keeps existing - Autonomy regulation does not change
Project Purpose: Jobs are properly executed (Staff follow job description)	- activity plan is executed 100% - employees do not complain	- annual business (activity) plan, annual report, accounting record - number of demonstration - mass media	- Socio economic conditions do not change drastically - Natural conditions do not change drastically - Other sub-projects are implemented
Outputs: 1 Organization structure is suitable with current needs 2 Internal regulations are implemented properly	1 Staff execute tasks according to job description, breaking rules decreases 2 regulations are available, existence of necessary documents	1 job description, organization structure, annual report 2 regulations, annual report, plan of operation	- Stakeholders agree with the function of the Corporation - Human resources development is implemented
Activities: 1-1 Formulate of necessary legislation (legal documents) 1-2 Analyze (formulate) job description, organizational structure and line of command 1-3 Preparing staffing requirement 1-4 Coordinate among departments in the Corporation 1-5 Provide training for job description and function of Corporation 2-1 Review existing regulations (rules) based on article of corporation 2-2 Prepare regulations (rules) necessary for Corporation management 2-3 Prepare annual plan, activity report 2-4 Provide training on regulations (rules)	Inputs: Manpower Management staff of the Corporation (President director, Directors) Human resources expert Equipment/supply		- Principle of Water Law does not change - Regulators (regional government, central government) support execution of regulations Pre-conditions - Preparatory committee for establishment of public corporation starts functioning - Framework of the Public Corporation is prepared - Initial management staff assignment is fixed

Table 13.1 Project Design Matrix (3/6)

PDM 3: Project name: Fund raising (new business) and empowerment project (Financial management) Target group: Promotion, Finance, Collection Section of Corporation

Narrative Summary	Objective Verification Indicators	Means of Verification	Important Assumption
Overall Goal: Sustainable river basin management is achieved by improving operation and management capability of the Public Corporation	- quality water is available to beneficiaries (allocation of water) - negative impact to environment is zero - no complaints from public	- operation record, operation manual, operation plan, letter, financial statement - media, newspaper	- Public Corporation keep existing - Autonomy regulation does not change
Project Purpose: Income sources are available	increases in revenue by 30%	- profit/loss statement (income statement) - cash flow statement - financial plan and results	- Socio economic conditions do not change drastically - Natural conditions do not change drastically - Other sub-projects are implemented
Outputs: 1 Regular payment is made on time 2 New business is running well	1 number of invoice, number of payment 2 30% increase in activity, number of new business realized, number of contract agreed.	1 invoice record, receipt, bank deposit record 2 contract with partners, minutes of meeting, profit/loss statement	- Socio economic conditions that affect new business do not change
Activities: 1-1 Prepare contract with clients 1-2 Provide tariff setting system and guideline 1-3 Monitor water distributed to clients 1-4 Provide invoice and payment procedure 2-1 Review condition of assets including equipment 2-2 Promotion of Jeneberang resources 2-3 Form coordination system with beneficiaries (potential clients or partner) 2-4 Prepare regulation among related organizations concerning with water use and new business 2-5 Provide training on contract preparation (by different type of contract)	Inputs: Manpower Business consultant (entrepreneur) Equipment/supply		- Clients or partner follow the contract - New regulations are approved by relevant organizations (Province, KIMPRASWIL, etc.) Pre-conditions - Preparatory committee for establishment of public corporation starts functioning - Framework of the Public Corporation is prepared - Initial staff assignment is fixed

Table 13.1 Project Design Matrix (4/6)

PDM 4: Project name: Financial information system improvement project (Financial management) Target group: Finance Section of the Corporation

Narrative Summary	Objective Verification Indicators	Means of Verification	Important Assumption
Overall Goal: Sustainable river basin management is achieved by improving operation and management capability of the Public Corporation	- quality water is available to beneficiaries - operation cost is covered by revenues - negative impact to environment is zero - no complaints from public	- operation record, operation manual, operation plan, letter, financial statement - media, newspaper	- Public Corporation keep existing - Autonomy regulation does not change
Project Purpose: Financial management is conducted efficiently	- all financial transactions are recorded properly	financial statement (Profit/loss statement, balance sheet, cash flow, statement, ledger), manual	- Socio economic conditions do not change drastically - Natural conditions do not change drastically - Other sub-projects are implemented
Outputs: 1 Corporate accounting system is installed and implemented 2 Staff acquire financial management knowledge	1 90% of monthly report is on time 2 number of training provided, 90% of staff understand and implement financial rules	1 monthly report, regulation approval record 2 training record	- Staff received training stay at the assigned position - Operation costs do not rise drastically - Condition of revenue generation activities does not change drastically
Activities: 1-1 Introducing cost calculation method based on O&M activities 1-2 Formulate accounting system including computer program 1-3 Prepare standardized financial rules 2-1 Prepare job description for financial management 2-2 Prepare staff requirement 2-3 Provide manual for financial management 2-4 Prepare training plan based on job description 2-5 Provide training	Inputs: Manpower Accountant (accounting specialist) Equipment/supply Computers, a payment slip		- Accounting system is approved by relevant agencies (Ministry of Finance, KMPRASWIL) Pre-conditions - Preparatory committee for establishment of public corporation starts functioning, - Framework of the Public Corporation is prepared - Initial staff assignment is fixed

Table 13.1 Project Design Matrix (5/6)

PDM 5: Project name: Management skill strengthening project (Human resources development) Target group: Staff of the Corporation

Narrative Summary	Objective Verification Indicators	Means of Verification	Important Assumption
Overall Goal: Sustainable river basin management is achieved by improving operation and management capability of the Public Corporation	- quality water is available to beneficiaries - operation cost is covered by revenues - negative impact to environment is zero - no complaints from public	- operation record, operation manual, operation plan, letter, financial statement - media, newspaper	- Public Corporation keep existing - Autonomy regulation does not change
Project Purpose: Management staff are concerned for execution of work	job executed and job description match	job description, organizational structure, required number of management staff, personnel data	- Socio economic conditions do not change drastically - Natural conditions do not change drastically - Other sub-projects are implemented
Outputs: 1 Formal coordination with PJT is conducted 2 Management staff acquire management skills 3 Number of experienced senior staff is available 4 Young staff acquire management skills	1 agreement is prepared, number of meeting, 2 number of training provided 3 number of senior staff recruited, change in regulation 4 number of training provided	1 agreement, minutes of meeting 2 training record, personnel data 3 recruitment record, change in regulation, personnel data 4 training record, personnel data	- Management staff stay at assigned position
Activities: 1-1 Establish committee for coordination of PJT1 and Jeneberang Public Corporation 2-1 Prepare management skill training plan and record 2-2 Produce training material for management training (management, entrepreneurship, river basin management) 2-3 Provide management skill development training 3-1 Regulations on personnel rule are reviewed 3-2 Provide criteria for recruitment of senior staff 4-1 Produce training material for management skills for young staff 4-2 Provide management training to young staff	Inputs: Manpower Human resources development expert Equipment/supply Training material (text)		- PJT1 supports operation of the Public Corporation Pre-conditions - Preparatory committee for establishment of public corporation starts functioning - Framework of the Public Corporation is prepared - Initial staff assignment is fixed

Table 13.1 Project Design Matrix (6/6)

PDM 6: Project name: Personnel management system improvement project (Human resources development) Target group: Staff of the Corporation

Narrative Summary	Objective Verification Indicators	Means of Verification	Important Assumption
Overall Goal: Sustainable river basin management is achieved by improving operation and management capability of the Public Corporation	- quality water is available to beneficiaries - operation cost is covered by revenues - negative impact to environment is zero - no complaints from public	- operation record, operation manual, operation plan, letter, - financial statement - media, newspaper	- Public Corporation keep existing - Autonomy regulation does not change
Project Purpose: Appropriate staff are assigned to cover all tasks required (responsible) by the Public Corporation	- planned staff is assigned and actual staff assignment match	- personnel database, job description, personnel plan	- Socio economic conditions do not change drastically - Natural conditions do not change drastically - Other sub-projects are implemented
Outputs: 1 Staff assignment and promotion is executed based on capability of staff and job description 2 Recruitment is transparent	1 promotion process is traceable, staff assignment is traceable 2 recruitment process follows the rule	1 staff evaluation record, qualifying test result, personnel database 2 evaluation record, recruitment criteria	- Other sections cooperate (support) in execution of personnel management system
Activities: 1-1 Introducing career opportunity and promotion system 1-2 Promotion criteria are implemented 1-3 Introducing personnel evaluation system 1-4 Introducing personnel database system 2-1 Establishing recruitment criteria 2-2 Establishing recruitment process 2-3 Introducing personnel database system	Inputs: Manpower Human resources development expert Equipment/supply Computer		- Clear job description is provided Pre-conditions - Preparatory committee for establishment of public corporation starts functioning - Framework of the Public Corporation is prepared - Initial staff assignment is fixed

Table 13.2 PDM of Capacity Development for Jeneberang River Basin Management

Project：Capacity Development for Jeneberang River Basin Management　　Implementation Period：2006 ~2008　　Target group：PJT Jeneberang

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal Sustainable Jeneberang river basin management is achieved.	・The cost needed for basin management can be covered by the revenue. ・Make notable negative environmental impact in the basin zero (none).	・Accounting record prepared by the government. ・Quality control record of the government.	・GOI policy on Basin Management Company and Balai PSDA related to basin management doe not change. ・The Jeneberang Public Corporation keeps existing. ・Regional autonomy regulation does not change.
Project Purpose Capacity of PJT Jeneberang and Balai PSDA Jeneberang is strengthened, and watershed management, water quality/quantity management, flood/drought management, and river area management is properly executed.	・Provide 95% of raw water annually demanded that satisfied the quality required by users (provide safe, good quality, low cost raw water stably). ・The complaints from general public and clients is properly treated.	・Water balance (demand and supply) record of raw water. ・Claim record ・Media, news paper.	・Drastic social and economic changes such as drop in value of Rupiah followed by economic crisis which make beneficiaries unable to pay fees do not occur. ・Stakeholders understand and participate in the river basin management activities.
Outputs 1 Facility O&M and management capacity will improve by the staff conducting proper O&M of facilities based on improved manuals, improved database management and improved O&M equipment	① Indicator for capacity development in O&M of river facilities: **Water use management with accurate monitoring of conditions** (hydrological observation/database available, water allocation operation, water use permit, effective use of reservoir, drought management), **River facility O&M based on database and manual** (dams/reservoir management, intake management, river facility management, sabo and sand pocket management), **River management based on manual** (river course management, water quality management, flood control, land use/river use management, sand/gravel mining management), **Watershed conservation based on manual** (sediment control, land use control, forest conservation control, ecological conservation)	① Means of verification for O&M of river facilities: Hydrological database, water distribution operation record, water use permit application record, reservoir operation rule/operation record, minutes of meeting of water resources coordination committee, maintenance and repair record, water quality observation record, flood control work record, river management record, sand/gravel mining record, inspection/dam management record/facility management record, other work record, relevant manuals and guidelines	・Beneficiary pay principle for basin management and pollutant discharger pay principle do not change. ・Drastic social and economic changes such as drop in value of Rupiah followed by economic crisis which make beneficiaries unable to pay fees do not occur. ・Water demand does not decrease drastically. ・Stakeholders agree and follow the role and function of the Public Corporation and the stakeholders. ・Drastic natural conditions (rainfall, temperature, geography) change.
2 Organization operation and management capacity will improve by proper execution of jobs resulted from efficient organizational structure, proper understanding and implementation of laws and regulation related to internal and external affairs	② Indicator for capacity development in institutional/organizational management: **Organizational management strengthening** (structuring efficient organization, clarification of job description, authority, and line of command), **Management control** (activity of management board, decision making, trouble and claims), **Availability and understanding of institutional framework** (laws and regulations for river basin management, internal rules for organization management), **Public relations** (community organizations, accountability, community education/enlightenment, community service)	② Means of verification for institutional/organizational management: Number of laws and regulations enacted, number of rules established, minutes of meeting of internal meeting, training record, interviews, minute of meeting of board meeting	
3 Financial management capacity will improve by securing income sources and fee collection, and efficient financial management resulted from improved fee collection system, installation of corporate accounting system and staff skill development, and promotion of non-water businesses	③ Indicator for capacity development in financial management: **Availability of accounting system** (installation of corporate accounting system, guidelines/manuals related to finance statement, auditing), **Tariff collection improvement** (approval of water rate, water fee collection system, revenue from tariff), **Cash flow management** (revenue/expenditure control based on accounting system), **Asset management** (balance sheet, asset management), **Non-water businesses** (formulation and operation of non-water projects)	③ Means of verification for improvement of financial management: Number of laws and regulations enacted, number of rules established, regulations at provincial level, contract with clients including agreement of water use fee collection, fee collection record, internal document, financial document, accounting record, auditing record, asset ledger, minutes of meeting of internal meeting, pilot project activity record, relevant manuals and guidelines	
4 Human resources will be developed by improving management staff skills and improving personnel system resulted from staff training, more senior staff, improving skill of young staff, and improving staff assignment/promotion/recruitment	④ Indicators for capacity development for human resources: **Proper execution of education and training** (formulation of education and training programs, execution of education and training, verification of output of education and training), **Personnel management system** (system is established and implemented, recruitment, promotion, staff assignment, incentive)	④ Means of verification for human resources: Staff database (Number of staff by age, education, specialty, qualification, personnel management record), document related to personnel management system, number of education and training, staff training record, salary record, internal rules for personnel management	・Staff who received training keeps working at PJT Jeneberang or Balai PSDA Jeneberang. ・Staff who received training keeps working at the same department or the section. ・Stakeholders agree and follow the role and function of PJT Jeneberang and the stakeholders.

Activities

1-1 Formulate facility operation and maintenance management plan
1-2 Formulate and distribute facility operation and maintenance guideline and manuals (database, operation, maintenance)
1-3 Establish data monitoring system (evaluation, reporting, feedback)
1-4 Formulate calibration plan of monitoring equipment
1-5 Formulate and conduct capacity development plan (training) related to facility operation and maintenance (data monitoring/analysis, operation, maintenance, calibration)
1-6 Monitor and evaluate the progress of capacity development and feedback to the plan and implementation

2-1 Formulate organization operation management plan (annual plan, activity report)
2-2 Analyze and formulate job description, organizational structure, line of command, staff requirement
2-3 Formulate organization operation management regulations and rules
2-4 Review and understand existing laws and regulations related to river basin management including Water Law, autonomy
2-5 Formulate and conduct capacity development plan (training) related to organization operation management plan for management and institutional aspects
2-6 Monitor and evaluate the progress of capacity development and feedback to the plan and implementation

3-1 Formulate security of revenue source for O&M management plan
3-2 Establish and install corporate accounting system (cost calculation, computer program, financial rules)
3-3 Prepare a contract with clients, tariff setting system and guideline
3-4 Promote of non-water businesses
3-5 Formulate and conduct capacity development plan related to financial management including job description, staff requirement, manuals, and training
3-6 Monitor and evaluate the progress of capacity development and feedback to the plan and implementation

4-1 Evaluate manpower and personnel system, execution and system of education and training
4-2 Introduce personnel management system including career development, personnel evaluation, recruitment, promotion, and personnel database
4-3 Formulate and conduct manpower and human resources development plan including management and technical skill development
4-4 Monitor and evaluate the progress of manpower and human resources development and feedback to the plan and implementation

Inputs

Japan/Foreign

Manpower
(1) JICA Study Team (monitoring and evaluation for Phase III)
(2) Experts

Materials
(1) Computers and other office equipment
(2) Computer soft (GIS)
(3) Financial management system (Administration management system)
(4) Manuals and guidelines

Indonesia

Manpower
Counterpart (Region)
(1) Public Corporation staff
(2) JRBDP staff who are likely to be transferred to the new corporation
(3) Balai PSDA Jeneberang Staff (limited to those responsible for Jeneberang River Basin Management)
(4) PJT 1 staff
Counterpart (Central)
・Staff of General Directorate of Water Resources Development, Ministry of Public Works
Capacity Development Monitoring Committee
・Composed of South Sulawesi government and Kabupaten government
Materials
・Office space, computer, hydrological observation equipment and other equipment necessary for basin management work
Local costs
・Project management and operation costs

Pre-conditions

・The concept of basin based water resources management (one basin one management) does not change.
・Government regulations (PP) necessary for establishment of the Public Corporation is drafted.
・Budget from regional government and central government is allocated for initial operation of the Jeneberang Public Corporation.
・Initial staff assignment is fixed.

Table 13.3 Indicators for Capacity Development

Sectors	Monitoring Indicators	Means of Verification
1 Capacity building for facility management (O&M)		
Water use management (monitoring & analysis of dam and reservoir conditions)		
Hydrology & meteorology observation	All observation, database accumulation, data analysis specified in operation manual is available	- List of observation & data specified in operation manual - Monitoring record (database)
Water allocation	Water is allocated based on the plan, analyzed database for dam conditions and manual	- Allocation record & contents - Facility operation manual & record - Monitoring record (database)
Water use permit	- Permit is issued based on relevant legislation - Application is not be kept without reason	- Laws and regulation - Number of permit/application stock
Effective use of reservoir	Operation is based on rule & database	Operation record and rule
Drought management	Quickly responded to drought management with effective operation and water allocation	Record of drought operation, water allocation
Facility management		
Dam/Reservoir	- Operation is based on the data of dam conditions, operation rule and water demand - Conduct maintenance work based on manual	- Operation manual, operation record, water demand volume - Number of maintenance/repair
Intake	- Operation is based on the data of dam conditions, operation rule and water demand - Conduct maintenance work based on manual	- Operation manual, operation record, water demand volume - Number of maintenance/repair
River infrastructure	- Operation is based on the data of dam conditions, operation rule and water demand - Conduct maintenance work based on manual	- Operation manual, operation record, water demand volume - Number of maintenance/repair
Sabo dam	- Conduct maintenance work based on manual	- Operation manual, operation record - Number of maintenance/repair
River management		
River course control	Repair maintenance of sand mining etc. is based on manual and permit	- Number of maintenance/repair - Manual, permit
Water quality control	Quality check & data sent to BAPEDALDA as specified in manual	- Number of quality observation times - Manual
Flood control	- Planning & implementation according to divided area - Facility operation is based on database of dam conditions and hydrological & meteorological data	- Operation manual and operation record - Number of maintenance/repair
River use control	Routine check on illegal use based on regulation is conducted	- Number of execution/non execution - Comparing record and permit
River area use control	Routine check on illegal use based on regulation is conducted	- Number of execution/non execution - Comparing record and permit
Sand mining control	Routine check on illegal mining based on regulation is conducted	- Number of execution/non execution - Comparing mining record and permit
Watershed conservation		
Sediment control	Sedimentation observation & problem finding is conducted as specified in manual	- Observation record - Manual
Basin land use control	- Routine check is conducted - Illegal use finding & report to regional forestry is conducted	- Manual - Check record
Forest maintenance	Appropriate cooperation with regional forestry department is established and executed	- Agreement with regional forestry department - Number of cooperation/contents
Ecological maintenance	Appropriate cooperation with regional BAPEDALDA is established and executed	- Agreement with BAPEDALDA - Number of cooperation/contents
2 Capacity building for institutional and organizational management		
Organizational management strengthening		
Structuring efficient organization	- Job description, authority, line of command is clear - Authority & duty is executed as defined in the corporation rules	- Corporation management rules - Job description and authority rule - Letters of transaction
Management control		
Management meeting	Hold meetings on rule & decision making	Record of meeting/measure taken
Decision making	Decision making is done at the appropriate level	Record of decision at each level and job description

Sectors	Monitoring Indicators	Means of Verification
Trouble and claims	Troubles and claims in organization/labor/ customer control is minimized	Record of trouble raised/settled
Legislation		
Organizational management regulation	Regulation needed for management is available and understood by responsible staff	Organization rules, staff knowledge test results
Laws and regulations related to river basin management	Relevant laws and regulations are available and understood by responsible person	Water laws, water right, water allocation, autonomy, property ownership, staff knowledge
Public relations		
Organizing residents	Resident participate in the basin management	Record of resident organizations and activities
Accountability	Necessary data and information is disclosed to public	Number of disclosure/publicity
Education/enlightenment	Resident awareness of water use/ conservation/flood control increases	Record of education/enlightenment
Community service	Contact point for consultation/claim from community is established	Record of consultation/claim settled
3 Capacity building for financial management		
Accounting system		
Accounting system	Corporate accounting system is installed and implemented	Financial statements, manual for accounting system, computer program
Financial /accounting rules	Manuals as proposed in the study is available and used	Manual, financial statement
Auditing	Audit by internal auditor as required	Auditing record/comments
Tariff collection		
Tariff approval	Tariff is approval by the responsible person	Approval documents
Tariff collection system	- Tariff collection system from PDAM/PLN/industry/government is established - Tariff is collected 100%	- Agreement record - Actual collection amount - Invoice and receipts - Income statement
Cash flow management		
Expense control	- All expenses are recorded - Income statement and cash flow is organized as instructed	Income statement/annual report/cash flow
Revenue management	- All revenues are recorded - Income statement and cash is organized as instructed	Income statement/annual report/cash flow
Asset management		
Balance sheet management	- Balance sheet is organized as instructed - Information on assets (residual value, depreciation) are recorded	Balance sheet, manual
Non-water businesses		
Formulation and operation of new business	Plan & start operation according to the study result	- Number of business in operation - Income statement for non-water business
4 Capacity building for human resources development		
Education and training		
Improvement of education & training system	Formation of education/training system according to the proposal	Comparing plan & execution
Implementation and evaluation of education & training	- Implementation as planed in the study - Evaluation system functions	- Number of execution/understanding grade/ willingness etc. - Evaluation record
Personnel management system		
Personnel management	- Personnel management system is established - Staff is assigned as required by the department and as requested by the staff - Recruitment, job rotation, lay off is conducted based on personnel evaluation - Incentive is provided	- Personnel evaluation, staff assignment record - Staff database - Recruit/rotation/promotion record

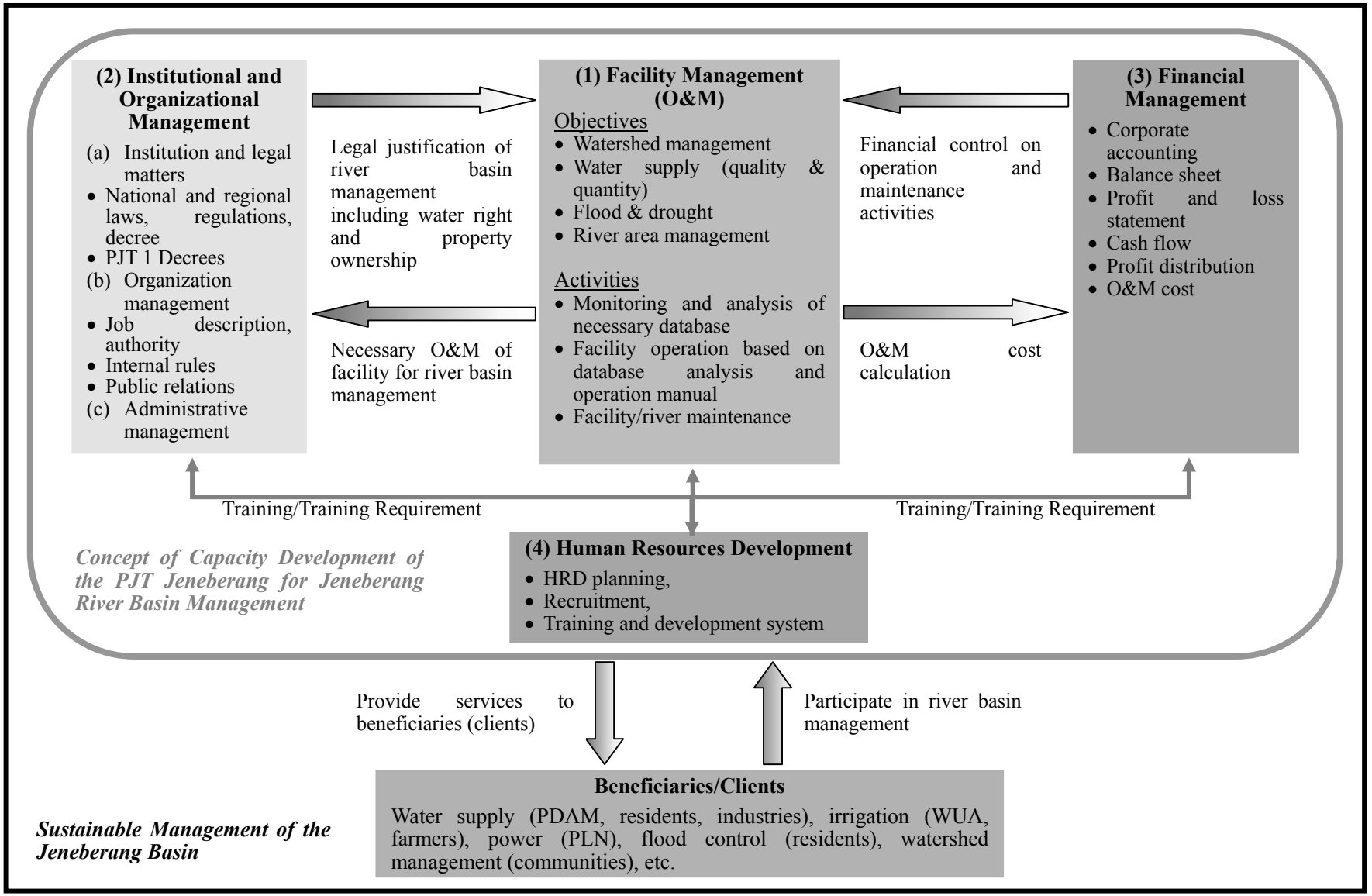
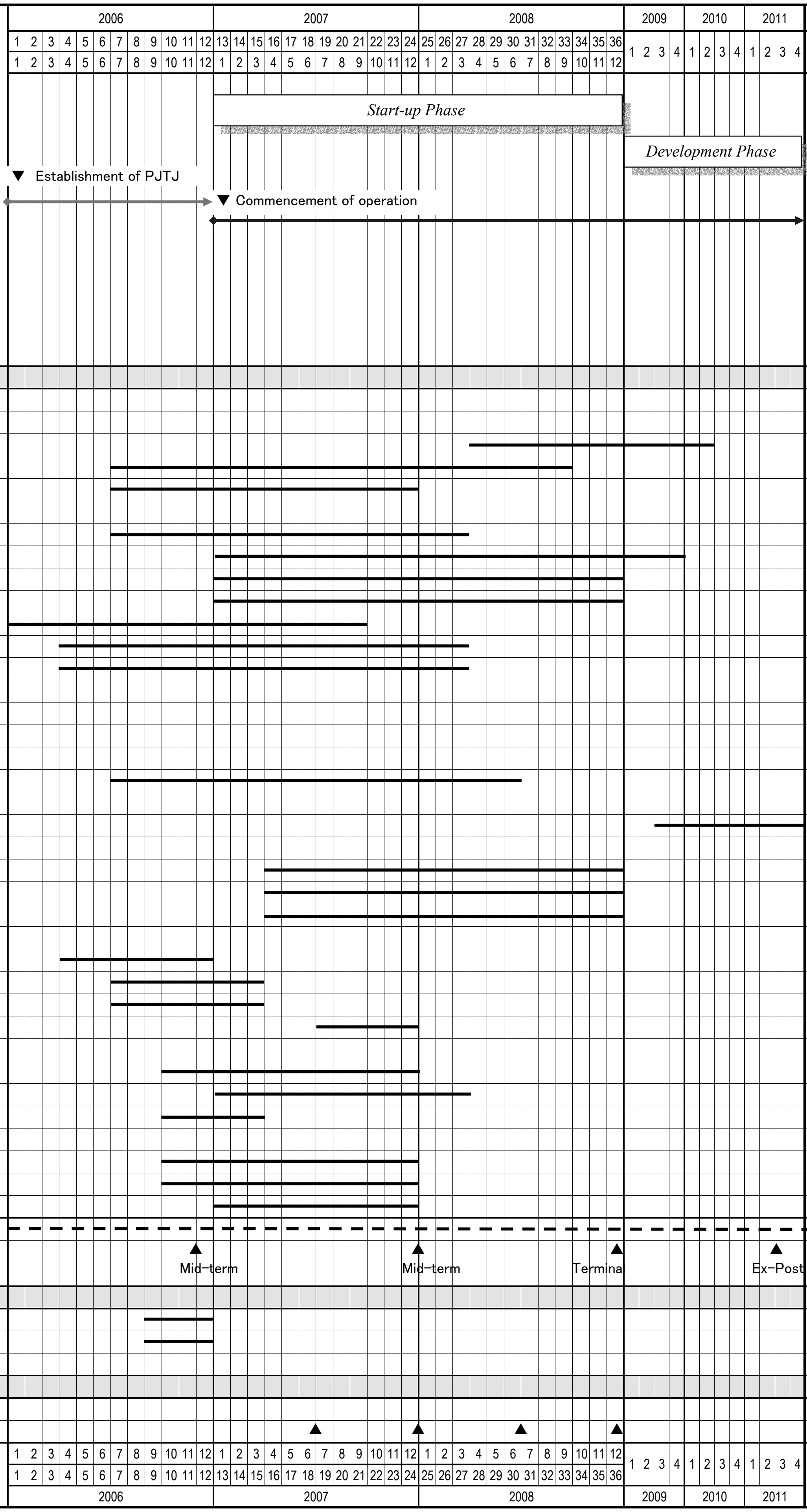


Figure 13.1 Concept of Capacity Development



PJT Jeneberang Organization and Capacity Development Program

Activity	(1) PJT Jeneberang Operation Director	(2)-0 Technical Bureau Head	(2)-1 Program Section (Head)	(2)-1 Program Section (Staff)	(2)-2 O&M and Environment Section (Head)	(2)-2 O&M and Environment Section (Staff)	(3)-0 Administration & Finance Bureau Head	(3)-1 General Affairs Section (Head)	(3)-1 General Affairs Section (Staff)	(3)-2 Finance Section (Head)	(3)-2 Finance Section (Staff)	(3)-3 Human Resources Section (Head)	(3)-3 Human Resources Section (Staff)	(3)-4 Public Relations Coordinator	(3)-5 Legal Advisor	(4)-0 Water Services Division I Head	(4)-1 General Affairs Section (Head)	(4)-1 General Affairs Section (Staff)	(4)-2 Sub-Division I-1 (Head)	(4)-2 Sub-Division I-1 (Staff)	(4)-3 Sub-Division I-2 (Head)	(4)-3 Sub-Division I-2 (Staff)	(5)-0 Water Services Division II Head	(5)-1 Sub-Division II-1 (Head)	(5)-1 Sub-Division II-1 (Staff)	(5)-2 Sub-Division II-2 (Head)	(5)-2 Sub-Division II-2 (Staff)
		(2) Technical Bureau					(3) Administration & Finance Bureau									(4) Water Services Division I							(5) Water Services Division II				
I Capacity Development Program Implementation																											
(1) Facility management																											
(1)-1 Data collection and analysis																											
(1)-1-1 Development of inventory of land use states in river administration area		★	★	★	★	★										★	★						★				
(1)-1-2 Development of inventory of facilities relevant to river management		★	★	★	★	★										★			★				★	★		★	
(1)-1-3 Hydrological data collection and analysis																★			★	★							
(1)-2 Facility operation and maintenance																											
(1)-2-1 O&M of Bili-Bili Dam and Raw Water Transmission Main (RWTM)																★			★	★							
(1)-2-2 Maintenance system for electrical equipment at Bili-Bili dam																★			★	★							
(1)-2-3 O&M for hydromechanical facility (Bili-Bili dam site)																★			★	★							
(1)-2-4 O&M for hydromechanical facility (Drainage Gate at Jeneberang river)																							★			★	★
(1)-2-5 O&M of the existing eleven drainage gates along lower Jeneberang River		★																					★			★	★
(1)-2-6 O&M of Rubber dam and Long storage																							★			★	★
(1)-2-7 O&M of irrigation weirs																							★	★	★		
(2) River basin management																											
(2)-1 Flood management																											
(2)-1-1 Flood Plain management (2012~2014)		★	★	★	★	★		★	★														★				
(2)-1-2 Flood warning, fighting and evacuation (2012~2014)		★	★	★	★	★		★	★							★			★	★			★				
(2)-2 Water quantity management		★	★	★	★	★		★	★							★			★	★			★	★	★	★	★
(2)-3 Drought management (2012~2014)		★	★	★	★	★		★	★							★			★	★			★	★	★	★	★
(2)-4 Watershed management/Implementation of watershed management services		★	★	★										★		★					★	★					
(2)-5 Water quality and pollution monitoring																											
(2)-5-1 Water quality monitoring (WQM)					★	★																					
(2)-5-2 Water pollution control					★	★																					
(2)-5-3 Waste water management					★	★																					
(3) Institutions/Organization management/human resources management																											
(3)-1 Laws and regulations in the water sector	★	★	★	★			★	★	★	★	★	★	★			★			★				★	★		★	
(3)-2 Organizational structuring & staffing, and HRA		★					★					★	★			★							★				
(3)-3 Human resources development	★	★	★	★			★	★	★	★	★	★	★			★			★		★		★	★		★	
(3)-4 Strengthening of public relation capability							★							★		★							★				
(4) Administrative management																											
(4)-1 Business planning skill training (including non-water business)	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★			★		★		★	★		★	
(4)-2 Quality management system training (ISO)	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
(5)-3 Corporate management capacity development	★	★	★				★									★							★				
(5) Financial management																											
(5)-1 Financial administration capacity development program	★	★	★		★		★	★		★	★	★				★	★		★		★		★	★		★	
(5)-2 Corporate accounting by ASGL																											
(5)-3 Revenue collection										★	★												★	★	★		
Monitoring																											
Evaluation																											
II Inventive Capacity Development at PJT I																											
(1) Capacity development for technical sector	★															★	★		★		★		★	★		★	
(2) Capacity development for management sector	★	★					★									★							★				
III JICA Study Team																											
(1) Monitoring and evaluation of capacity development**																											

** Activities to be conducted during the Phase III of the JICA Study

Figure 13.2 Capacity Development Implementation Schedule

CHAPTER 14

FURTHER PROGRAMS

14.1 Actions Towards Establishment and Operation of PJT Jeneberang

Approaching the establishment and commencing operations of the new public corporation (PJT Jeneberang), there are a number of actions to be taken by the relevant organizations. Details of these are described in the preceding Chapters 7 to 12 and are summarized in Table 14.1.

In order not to delay the commencement of operations of the new PJT Jeneberang, the agencies responsible for respective actions shall accomplish the necessary activities within the prescribed period.

14.2 Phase III Program

14.2.1 Phase III Program Originally Contemplated

After the commencement of operations of PJT Jeneberang, the Study will commence activities for Phase III (monitoring and evaluation of capacity development activities). Since it is foreseen that PJT Jeneberang will commence operating in 2007, Phase III is scheduled to start in 2007; this is deferred by 2 years from the schedule originally contemplated at the start of the Study.

The implementation method of Phase III is proposed in Chapter 13. The schedule of Phase III is shown in the bottom part of Figure 12.1.

(1) Monitoring and Evaluation of Capacity Development Activities

The implementation and monitoring of the capacity development programs will be undertaken based on the initiative of the new PJT Jeneberang. Progress will be monitored and evaluated based on target and evaluation items proposed in Chapter 13.

According to the original schedule contemplated in Scope of Work, the Study Team will be assigned on four occasions during Phase III (fourth to seventh works in Indonesia) to assist the capacity development and monitoring activities of the PJT Jeneberang. The Study Team's assignment schedule will be subject to change depending on the actual progress of program implementation. The following schedule was contemplated:

Study Team's Activities for Phase III

Assignment	Activity	Report
First Assignment	■ Monitoring, evaluation and improvements (MEI) for the activities during the first term of the program	MEI Report 1
Second Assignment	■ MEI for the activities during the second term of the program ■ Follow-up of the improvements proposed in the first term	MEI Report 2
Third Assignment	■ MEI for the activities during the third term of the program ■ Follow-up of the improvements proposed in the second term	MEI Report 3
Fourth Assignment	■ MEI for the activities during the fourth term of the program ■ Follow-up of the improvements proposed in the third term	MEI Report 4 (Final MEI Report)

During each assignment, the Study Team will (i) review the monitoring report prepared by PJT Jeneberang, (ii) conduct the Study Team's own monitoring and evaluation, and (iii) undertake discussions with the Corporation to summarize the improvement measures to be undertaken in the succeeding stage. Lectures will be held on specific subjects as required by the PJT Jeneberang or proposed by the Study Team.

(2) Holding the Third Seminar

The results of capacity development achievements in Phase III will be presented to the stakeholders at a seminar (3rd Seminar) held at the end of Phase III. Lectures on related fields will be given by the PJT Jeneberang or the Study Team based on the stakeholders' needs.

Program for the 3rd Seminar

Date: 1 week before the end of Study Team assignment
(tentatively scheduled in February 2009)
Place: At a hotel in Makassar City
Number of Participants: About 100

Issues to be Raised
(Explained by PJT Jeneberang)
- Reports on the current situation of river basin management and the activities in the last 2 years
- Problems occuring
- Detailed plans for the river basin management system in future
- Cooperation with communities and private sectors necessary for appropriate river basin management

Special Speech 1 (by a Representative of the Public Corporation)
"Benefit to the region from appropriate river basin management"
- Introduction of achievements by the PJT Jeneberang's activities

Special Speech 2 (by the Study Team)
"Achievements of the capacity development in the Study"

Exchanging Opinions (Free Discussion)
The Seminar will exchange free discussion to hear stakeholders' opinion and interests.

Program of the 3rd Workshop Originally Proposed

14.2.2 Revision of Phase III Program

As stated above, Phase III Program will commence only in year 2007 according to original schedule. On one hand, Phase III Program should preferably be commenced at an early period. In

this respect, JICA and DGWR are currently discussing the possibility of a revision of Phase III Program.

Although the revised program has not been fixed yet, the following program is one of options:

Year 2005/2006:	Capacity development of present JRBDP O&M staffs (most of them are scheduled to be transferred to PJT Jeneberang) focusing on selected item of technical aspects of water resources and river basin management
Year 2006/2007:	Capacity development in process of organizational setup of PJT Jeneberang after its establishment
Year 2007/2008:	Capacity development in various activities after the commencement of operations of PJT Jeneberang

The schedule is subject to change depending on actual progress of issuing a Presidential Decree regarding the establishment of PJT Jeneberang and actual schedule of the establishment.

Table 14.1 Actions Required toward Establishment and Operation Commencement of PJT Jeneberang (1/2)

Item	Proposed Action	Responsible Agency	Schedule of Achievement
A. Legislation:			
A1 PJT J and PJT III Initial Legislation	■ Approve Option II (PJT I + II + III option) through inter-departmental discussion, with final consent from SEKNEG	DGWR *1	March 2005
	■ Acquire consensus of Option II from SS regional governments (Province and Kabupaten)	- do. above -	March 2005
	■ Legislate new PP on establishment of PJT III (Remove Solo basin from PJT I jurisdiction and incorporate in PJT III)	- do. above -	March 2005
	■ Legislate new Keppres for inclusion of Jeneberang basin as additional working area of PJT I	- do. above -	March 2005
A2 Central Government Regulation other than A1 above	■ Legislate new PP for investment of capital of PJT J, and subsequently proceed with the transfer of assets to PJT I	MOF supported by DGWR	June 2005
	■ Issue MPW Decrees to enable the operation of PJT J in its working area (i) Decree for authorizing PJT I to collect water management fees (ii) Decree for authorizing SS Governor to issue various permits	DGWR*1	March 2006
	■ Issue SMSOE Decree for amending PJT J Supervisory Board	SMSOE assisted by DGWR	March 2006
	■ Issue MPW Decrees on basic tariff for PDAM, PLN and industries	DGWR*1	March 2006
A3 Regional Regulations and Agreements	■ Legislate four SS Provincial Regulations concerning (i) surface water permits, (ii) land use in river control area, (iii) C-class mining, and (iv) water quality and pollution management	SS Dinas PSDA, assisted by PJT I after its establishment	September 2006
	■ Issue SS Governor Decrees concerning the implementation of Provincial Regulations above, fee collection, organizational change (e.g. PTPA) and other related matters	- do. above -	December 2006
	■ Issue Decree of Head of SS Dinas PSDA on technical guidelines for implementation of the relevant Governor's Decrees	SS Dinas PSDA	December 2006
	■ Issue Decree of Head of Bapedalda on technical guidelines for implementation of the relevant Governor's Decrees	Bapedalda	December 2006
	■ Conclude joint decrees and cooperation agreements between PJT J and relevant Bupati/Walikota (primarily Gowa); among others, regarding (i) demarcation of detailed roles, (ii) borders of jurisdiction area, (iii) collection of fees for land use, C-class mining, fishery, effluent discharge, etc.	PJT J and Kabupaten/Kota governments	December 2006
B. Budgeting:			
B1 Budget for regional legislation	■ Acquire budget for expenditures for legislation work, public consultation and socialization	Dinas PSDA	September 2005

Table 14.1 Actions Required toward Establishment and Operation Commencement of PJT Jeneberang (2/2)

Item		Proposed Action	Responsible Agency	Schedule of Achievement
B2	Budget for organizational set-up	■ Provision of loan to PJT I to cover costs for initial organizational set-up	MOF supported by DGWR and SMSOE	December 2006
B3	Budget for initial operation cost	■ Provision of loan to PJT I to cover costs for initial running cost for 1st year operation	- do. above -	December 2006
C.	**Organizational Set-up of PJT J**			
C1	Office set-up	■ Set up PJT J head office at present PIPWS office at Jl. Monumen Emmy Saelan in Makassar, including reform of building	PJT J assisted by PIPWS Jeneberang	March 2006
C2	Appointment of key staff	■ Assign key staff on respective posts to conduct start-up organizational work - Nomination of personnel to be completed in previous year by PJT J and DGWR - Cost of personnel (PNS) to be borne by the relevant agencies which dispatched the personnel	PJT J assisted by DGWR and Dinas PSDA	December 2006
C3	Assistance in regional legislation and agreements	■ Assist Dinas PSDA and other agencies in conducting the following: - Preparation of regional regulations and decrees - Conduct of public consultation and socialization as needed - Conclusion of various agreements among stakeholders	PJT J	December 2006
C4	Annual work plan and budget plan	■ Prepare corporate operation plans under guidance of PJT I head office. The work includes annual work plan and budgetary plan.	PJT J supported by PJT I head office	September 2006
C5	Finalization of corporate and RBM management system	■ Establish corporate administrative, financial and river basin management systems based on PJT I regulations and recommendation from this Study	- do. above -	December 2006
C6	Initial Training of Personnel	■ Conduct initial introductory training for PJTJ management and O&M personnel, the latter is assumed to be transferred from PIPWS Jeneberang.	PJT I	December 2006
C7	Procurement of initial O&M resources	■ Procure equipment and supplies required for initial O&M operation, such as vehicles, office equipment, survey tools, etc	PJT J	December 2006
D.	**Rehabilitation of Infrastructures**			
D1	Rubber dam and groundsill	■ Scheduled to be rehabilitated by the end of 2005 dry season	PIPWS Jeneberang	November 2005
D2	Sand pocket dam No.4	■ Scheduled to be rehabilitated by the end of 2005 dry season	- do. above -	November 2005
D3	Drainage gates in levee section	■ Repair inoperable gates at 11 places between rubber dam and Sunguminasa	- do. above -	November 2005
D4	Telemeter water level gauging station at Bayang	■ Reinstall gauging equipment which was stolen in 2002, together with correction of software for data transmittal system	- do. above -	December 2005
D5	Flow meter at inlet of raw water transmission main	■ Replace inlet flow meter which is currently in malfunction	- do. above -	December 2005

Note: Refer to Chapter 7, 9, 10 and 12 for further detail

Appendix I

Scope of Work

SCOPE OF WORK

FOR

THE STUDY ON CAPACITY DEVELOPMENT FOR JENEBERANG RIVER BASIN MANAGEMENT

IN THE REPUBLIC OF INDONESIA

AGREED UPON BETWEEN

DIRECTORATE GENERAL OF WATER RESOURCES,
MINISTRY OF SETTLEMENT AND REGIONAL INFRASTRUCTURE

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

JAKARTA, August 27, 2003

Dr. Roestam SJARIEF
Director General
Directorate General of Water Resources
Ministry of Settlement & Regional Infrastructure

Dr. Takeyoshi SADAHIRO
Leader
Preparatory Study Team
Japan International Cooperation Agency

I. INTRODUCTION

In response to the request of the Government of the Republic of Indonesia (hereinafter referred to as "the Government of Indonesia "), the Government of Japan decided to conduct the Study on Capacity Development for Jeneberang River Basin Management (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan. Accordingly, Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, will undertake the Study in close cooperation with the authorities concerned of the Republic of Indonesia.

The present document sets forth the Scope of Work with regard to the Study.

II. OBJECTIVES OF THE STUDY

The objectives of the Study are;

1. (1) To assist in the establishment of Jeneberang public corporation which will be transferred from a part of the Jeneberang river basin development project
   (2) To assist Jeneberang public corporation in the capacity development in the following items
   - Administration
   - Financial management
   - River basin management
   - Human resources development
2. To formulate the operation and maintenance plan

III. OBJECTIVE AREA

The Study will cover the whole area of Jeneberang river basin (approximately 760 km^2) and the service areas as a source of Jeneberang public corporation's revenue (The study area map is shown in the Annex-1).

IV. SCOPE OF THE STUDY

Phase I: Basic Study/Analysis and Assessment of River Basin Management Plan

1. Collection and analysis of existing data and information
2. Review and assessment of the existing related development plans, policies, guidelines and manuals
3. Review and assessment of the donors' activities in the Water Resources Sector in Indonesia (Case study on capacity building and financial condition improvement)
4. Review and assessment of the river basin management in Indonesia (including Brantas river basin and Citarum river basin)
5. Assessment of the river basin management plan for the operation and maintenance plan

Phase II: Formulation for Capacity Development Plan

1. Development of the organizational framework
2. Formulation of the operation and maintenance plan of the river facilities
4. Development of strategies and plans for securing revenue
5. Formulation of the administration and financial management plan
6. Formulation of the human resources development plan

Phase III: Monitoring and Capacity Development

1. Monitoring and evaluation of the progress of the capacity development of Jeneberang public corporation
2. Review and improvement of capacity development plan
3. Enhancement of capacity development based on the results of the monitoring and evaluation

V. SCHEDULE OF THE STUDY

The Study will be carried out in accordance with the tentative schedule as attached in the Annex-2.

VI. REPORTS

JICA shall prepare and submit the following reports in English to the Government of Indonesia. JICA shall also prepare papers in Indonesian for information purpose. The English version shall remain official.

1. Inception Report:
   Thirty (30) copies at the commencement of the Study.
2. Interim Report:
   Thirty (30) copies at the end of the Phase I
3. Progress Report:
   Thirty (30) copies about three (3) months after the commencement of the Phase II
4. Draft Final Report:
   Thirty (30) copies at the end of the Phase II
   The Government of Indonesia shall submit its comments within one (1) month after receipt of the Draft Final Report.
5. Final Report:
   Thirty (30) copies within one (1) month after JICA's receipt of the comments on the Draft Final Report.
6. Report on Monitoring, Evaluation and Improvement of Capacity Development 1~4
   Thirty (30) copies at the end of the each monitoring period

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VII. UNDERTAKINGS OF THE GOVERNMENT OF INDONESIA

1. To facilitate the smooth conduct of the Study, the Government of Indonesia shall take necessary measures:

   (1) To permit the members of the Team to enter, leave and sojourn in the Indonesia for the duration of their assignment therein, and exempt them from foreign registration requirements and consular fees,
   (2) To exempt the members of the Team from taxes, duties, fees and any other charges on equipment, machinery and other materials brought into and out of the Indonesia for the conduct of the Study,
   (3) To exempt the members of the Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Team for their services in connection with the implementation of the Study,
   (4) To provide necessary facilities to the Team for the remittances as well as the utilization of the funds introduced into the Indonesia from Japan in connection with the implementation of the Study,

2. The Government of Indonesia shall bear claims, if any arise, against the members of the Team resulting from, occurring in the course of, or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the members of the Team.

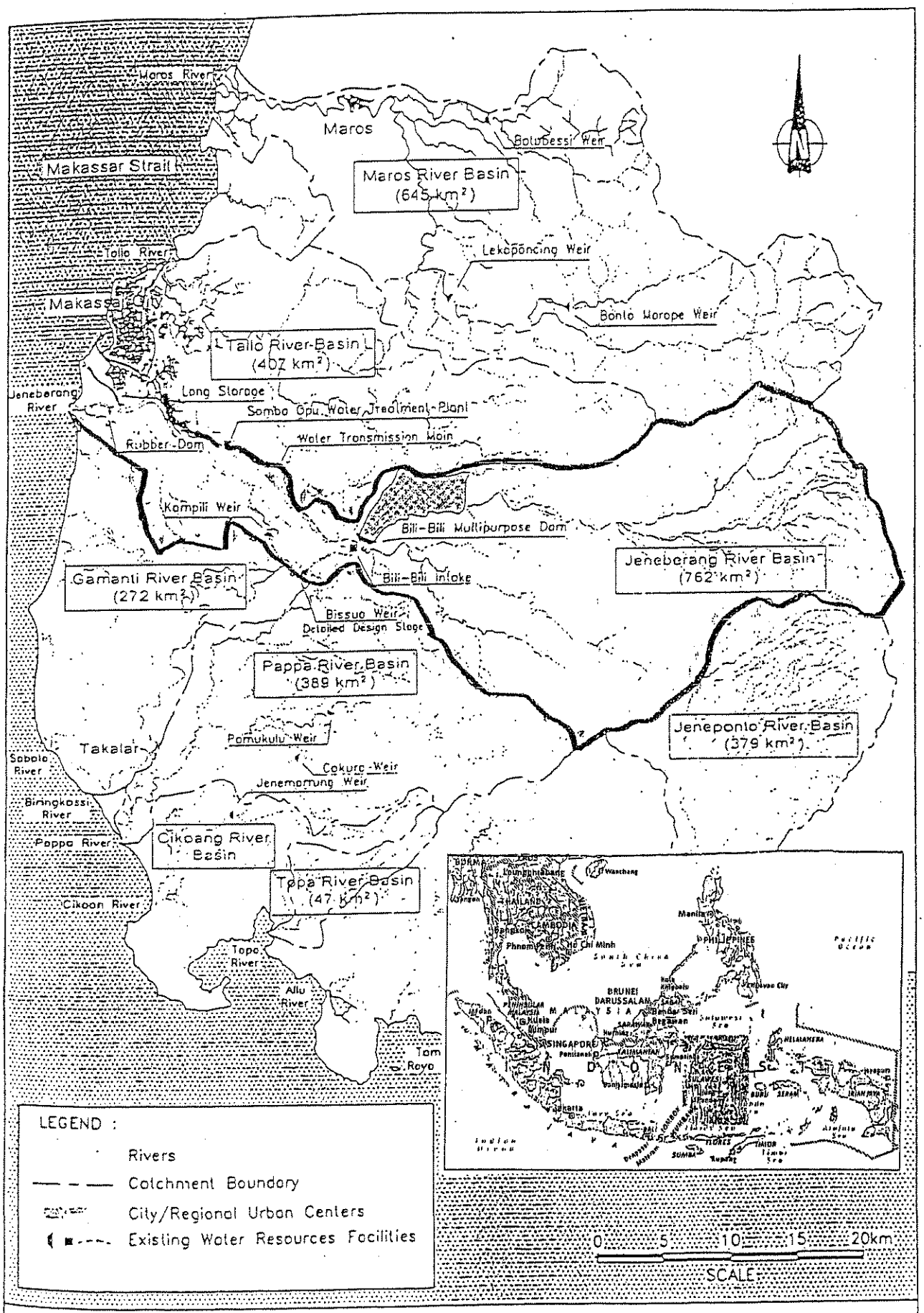
3. Directorate General of Water Resources, Ministry of Settlement and Regional Infrastructure shall act as a counterpart agency to the Team and also as a coordinating body in relation with other governmental and non-governmental organizations concerned for the smooth implementation of the Study.

4. Directorate General of Water Resources, Ministry of Settlement and Regional Infrastructure shall at its own expense, provide the Team with the following, in cooperation with other organizations concerned:

   (1) Security-related information on as well as measures to ensure the safety of the Team,
   (2) Information on as well as support in obtaining medical service,
   (3) Available data and information related to the Study,
   (4) Counterpart personnel,
   (5) Suitable office space with necessary office equipment,
   (6) Credentials or identification cards, and
   (7) Appropriate number of vehicles with drivers

VIII. CONSULTATION

JICA and Directorate General of Water Resources, Ministry of Settlement and Regional Infrastructure, will consult with each other in respect of any matter that may arise from or in connection with the Study.



GENERAL MAP

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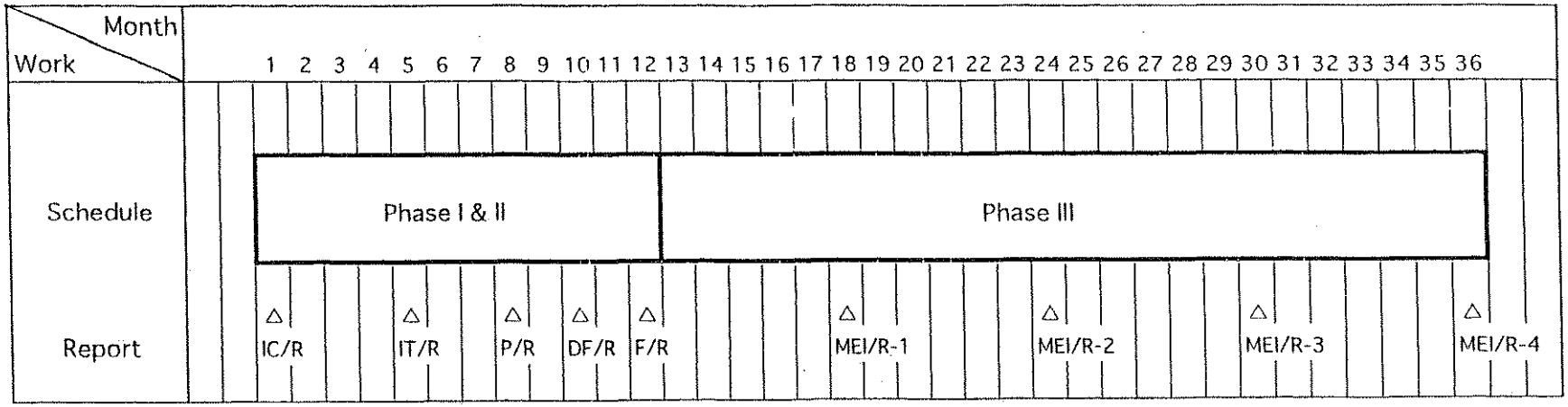
Annex-2 Tentative Schedule



IC/R : Inception Report
IT/R: Interim Report
P/R: Progress Report
DF/R: Draft Final Report
F/R : Final Report
MEI/R : Report on Monitoring, Evaluation, and Improvement of Capacity Development

MINUTES OF MEETINGS

ON

SCOPE OF WORK

FOR

THE STUDY ON CAPACITY DEVELOPMENT FOR JENEBERANG RIVER BASIN MANAGEMENT

IN THE REPUBLIC OF INDONESIA

AGREED UPON BETWEEN

DIRECTORATE GENERAL OF WATER RESOURCES,
MINISTRY OF SETTLEMENT AND REGIONAL INFRASTRUCTURE

AND

JAPAN INTERNATIONAL COOPERATION AGENCY

JAKARTA, August 27, 2003

Dr. Roestam SJARIEF
Director General
Directorate General of Water Resources
Ministry of Settlement & Regional Infrastructure

Dr. Takeyoshi SADAHIRO
Leader
Preparatory Study Team
Japan International Cooperation Agency

In response to the request of the Government of the Republic of Indonesia (hereinafter referred to as "the Government of Indonesia"), the Government of Japan decided to conduct the Study on Capacity Development for Jeneberang River Basin Management (hereinafter referred to as " the Study") through Japan International Cooperation Agency (hereinafter referred to as "JICA").

The Preparatory Study Team (hereinafter referred to as "the Team") headed by Dr. Takeyoshi SADAHIRO, was dispatched by JICA to the Republic of Indonesia from August 11th to August 30th, 2003, where field reconnaissance was carried out and a series of meetings was held in connection with Draft Scope of Work with Directorate General of Water Resources, Ministry of Settlement and Regional Infrastructure (hereinafter referred to as "DGWR"), Jeneberang River Basin Development Project (hereinafter referred to as "JRBDP") and other authorities concerned (hereinafter referred to as "the Indonesian Side").

The list of attendants is shown in the Annex-1.

The Minutes of Meetings have been prepared for better understanding of the S/W. The following are the major issues discussed and agreed by both the Team and Indonesian side in the course of the preparation of S/W.

1. Title of the Study

(1) The Study title shall be "*The Study on Capacity Development for Jeneberang River Basin Management in the Republic of Indonesia* " instead of the previous one "The Study on Empowerment Plan for Regional Water Resources Development and Management System in the Republic of the Indonesia".
(2) JENECAST made up of Jeneberang Capacity Development Study will be used as the common name of the Study.

2. Goal of the Study

Both sides recognized that the objective of the Study mentioned in S/W is set as an approach to the goal which is to develop the river basin management system for Jeneberang river.

3. Schedule and Contents of the Study

The duration of the Study is tentatively set approximately 36 months. The definite Study schedule and contents for the Phase I & II shall be decided through the discussion on the IC/R, while for the Phase III on the DF/R, taking into account the progress and status of the establishment of the Jeneberang public corporation

4. Target organizations for the capacity development

In addition to Jeneberang public corporation (or JRBDP before the establishment of Jeneberang public corporation), Balai PSDA Jeneberang will be the target organization for the capacity development in connection with the Jeneberang river basin management.

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5. Initiative of the Indonesian side

The Team requested the Indonesian side to take initiative for the capacity development. The Team expected that the Study Team is in a position to assist the Indonesian side.

6. Counterpart team as the preparation team for the establishment of the public corporation

The Indonesian side will organize a counterpart team which will act as the preparation team for the establishment of the public corporation by the commencement of the Study. The counterpart team will be composed of full-time counterpart personnel who will cooperate and actively work with the Study Team. The member list with each expertise will be informed to Indonesian side as soon as available.

7. Steering Committee

By the commencement of the Study, the Indonesian side will set up a Steering Committee that may be constituted of the following organizations:

a. Ministry of Settlement and Regional Infrastructure represented by DGWR
b. BAPPENAS
c. Ministry of Finance
d. Ministry of State-Owned Enterprise
e. JRBDP as the secretary
f. Others, if required

The Steering Committee shall monitor the progress of the Study and provide guidance and support to ensure the success of the Study.

8. Regional Committee

By the commencement of the Study, the Indonesian side will organize a Regional Committee that will monitor the progress, discuss the issues and support the Study. The results of the discussion shall be reported to the Steering Committee. The Regional Committee may be composed of the following:

a. BAPPEDA
b. Dinas PSDA of South Sulawesi
c. JRBDP
d. BAPEDALDA
e. Balai PSDA Jeneberang
f. Gowa Regency
g. Makassar City
h. Takalar Regency
i. PDAM
j. PLN
k. Others, if required

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9. Confirmation of the contents of the Study

The Team emphasized that the objective of the Study would be the capacity development in the administration and finance of the river basin management organizations and the operation & maintenance of the existing facilities. Therefore any study on new development project and new river facilities will not be included in the Study.

10. Contents of the river basin management plan

The river basin management plan in the Study will be prepared to formulate the operation and maintenance plan for the river facilities. The necessary data shall be collected from the existing organizations and previous and on-going studies/projects.

11. Information on the establishment of Public corporation

The Team requested the Indonesian side to decide and inform of the following issues as soon as possible for the smooth implementation of the Study.

(1) Framework of Jeneberang public corporation such as the tasks, the jurisdiction area & facilities, etc.
(2) Schedule of the establishment of Jeneberang public corporation

12. Formulation of the consensus among the stakeholders

The Team requested the Indonesian side to make all possible efforts to formulate the consensus among the stakeholders.

13. Securing of financial resource

Both sides confirmed that it is significant to take countermeasures in order for Jeneberang public corporation and Balai PSDA to become financially viable for the Jeneberang river basin management.

14. Seminars/Workshops

The seminars/workshops concerning the Study will be held in the course of the Study, and the plan of seminars/workshops will be discussed at the beginning of the Study.

15. Report

(1) The Study reports will be made open to the public in order to disseminate the Study results extensively and achieve maximum use of them.
(2) All reports will be prepared in English. In addition, the comprehensive summary reports in Indonesian will be prepared for IC/R, DF/R, F/R, and MEI/Rs.
(3) If any discrepancy is found between the two version, English version shall prevail.

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16. Counterpart Training

The Indonesian side requested the Japanese side to conduct the counterpart training in Japan. The Team promised to convey the request to the JICA Headquarters for consideration.

17. Undertakings of the GOI

The Indonesian side is amenable to the undertakings of the GOI as specified in the S/W. However, the Indonesian side mentioned that it would be difficult to provide the vehicles and some office equipments for the Study, and the Team promised to convey this to the JICA Headquarters.

Appendix II

(1) List of Steering Committee Members

(2) List of Regional Committee Members

(1) List of Steering Committee Members

CENTRAL COORDINATING TEAM FOR
THE STUDY ON CAPACITY DEVELOPMENT FOR JENEBERANG RIVER BASIN MANAGEMENT

NO	OFFICIAL	INSTITUTION	POSITION
1	Dr. Ir. Moch. Amron, Msc. Secretary of the Directorate General of Water Resources	Directorate General of Water Resources, Department of Settlement and Regional Infrastructure	Team Leader
2	Ir. Sukrasno Sastrohardjono, Dipl. HE Director of Water Resources management	Directorate General of Water Resources, Department of Settlement and Regional Infrastructure	Deputy Team Leader
3	Ir. Sri Nurumi Director of Technical Guidance	Directorate General of Water Resources, Department of Settlement and Regional Infrastructure	Member
4	Ir. Eddy A. Djajadireja, Dipl. HE Director of Water Resources for Eastern Region	Directorate General of Water Resources, Department of Settlement and Regional Infrastructure	Member
5	Drs. Slametro, MT Head of Financial Bureau and Administration of State Owned Enterprise	Department of Settlement and Regional Infrastructure	Member
6	Dr. Ir. Basuki Yusuf Iskandar, MSc. Director of Water and Irrigation	National Development and Planning Agency	Member
7	Drs. Hery Purnomo Director of National Treasury	Directorate General of Budgeting, Department of Finance	Member
8	Drs. Ragil Moegiyo Assistant for Department on Assessment of Services on Hospital Assessment and Other Services	Ministry of State Owned Enterprise	Member
9	Ir. Soegeng Sasomo Director of Regional Potentials	Directorate general for Regional Financial Assistance, Department of Home Afairs	Member
10	Ir. Hilman Manan, Dipl. HE Director of Utilization of Irrigation Water	Directorate General of Guidance on Agricultural Infrastructure, Department of Agriculture	Member
11	Ir. Bambang Hargono, Dipl. HE. MEng Project Manager for Jeneberang River Basin Development	Directorate General of Water Resources, Department of Settlement and Regional Infrastructure	Member
12	Ir. Suharto Sarwan, MSi Head of directorate Division for Water Resources Institution under the Directorate General of Water Resources	Directorate General of Water Resources, Department of Settlement and Regional Infrastructure	Secretary and Member

(2) List of Regional Committee Members

FORMATION OF REGIONAL COMMITTEE FOR
THE STUDY ON CAPACITY DEVELOPMENT FOR JENEBERANG RIVER BASIN MANAGEMENT

Position	Official	Institution
Advisor	H. M. Amin Syam	Governor of South Sulawesi
	H. Syahrul Yasin Limpo, SH, MSi	Deputy Governor of South Sulawesi
	Drs. H. A. Tjoneng Mallombasang	Provincial Secretary of South Sulawesi
Guider	Drs. H. M. Farid Suaib, MS	Assistant of Economy, Development & Finance
	Ir. H. Abd. Kadir Padjarangi	Head of South Sulawesi Provincial Dinas PS
	Ir. Tan Malaka Guntur, MSi	Head of South Sulawesi ProvincialBappedalda
Leader	Ir. Zainuddin Sake, MM	Deputy Head of South Sulawesi Provincial Dinas PSDA
Deputy	Ir. H. M. Rusli, M.Si	Head Division of Water Resources Development & Regional Infrastructure, South Sulawesi Provincial Bappeda
Secretary	Ir. Bambang Hargono, DipI. HE, M.Eng	Project Manager of Proyek Induk PWS Jeneberang
Members	Drs. H. Amal Natsir, MM	Head of South Sulawesi Provincial Regional Research and Development Agency (Balitbangda)
	Ir. Drs. Suwarno HP, MSi, MM	South Sulawesi Provincial Dinas PSDA
	Ir. H. Zubair Suyuthi	Head of Bureau of Economic & Development, South Sulawesi Provincial Regional Secretariat
	Ir. Soeprapto Budisantoso, M.Sc	South Sulawesi Provincial Dinas PSDA
	Drs. Ir. Roiles Bathan	Dinas Cipta Karya Makassar
	Ir. Nur Hidayat Mangarengi	South Sulawesi Plantation Agency
	Ir. Marlina	Mining and Energy Agency of Gowa Regency
	Ir. Achmad Habib, M.Si	South Sulawesi Provincial Mining and Energy Agency
	Irfan Suwarno Putra, BE	UPTD of Balai PSDA, Jeneberang River Basin
	Gunyamin, SE, MM	PDAM Makassar
	H. Tangga	Dinas PSDA of Gowa Regency
	Ir. Husain Hasan	South Sulawesi Provincial Agricultural and Horticulture Agency
	Dra. Sugiarti A	South Sulawesi Provincial Tourism Agency
	Ir. Amor Patria Adnan, M.Ed	South Sulawesi Provincial Forestry Agency
	Ir. Hasanuddin Hamzah	PT. PLN of South and South-East Sulawesi
	Ir. Andi Hasbi, MT	South Sulawesi Provincial Bapedalda
	Drs. H. A. M. Natsir Nakka	PDAM of Gowa Regency
	Ir. Muh. Alwi S	Dinas KIMPRASWIL of Takalar Regency
	Rafidah Nur, SH	South Sulawesi Provincial Dinas PSDA