REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS

REPUBLIC OF INDONESIA THE PREPARATORY SURVEY FOR IKK WATER SUPPLY SYSTEM DEVELOPMENT SECTOR LOAN PROJECT

FINAL REPORT

VOLUME IV MAIN REPORT PART 2: PROPOSED SECTOR LOAN PROJECT

NOVEMBER 2010

JAPAN INTERNATIONAL COOPERATION AGENCY

NIPPON KOEI CO.,LTD KRI INTERNATIONAL CORP.



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USD 1 = Rp. 8,452 Yen 100 = Rp. 9,768.84	Rp. 1 million = USD 118.3 Rp. 1 million = Yen 10,237
(July 3	30, 2010)

The Preparatory Survey for IKK Water Supply System Development Sector Loan Project Final Report Main Report Part 2: Proposed Sector Loan Project

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© Banda Aceh Aceh © : Provincial Island	MALAYSIA Medan North Sumatra Fiau West Sumatra Bengkulu capital	© Palembang outh Sumatra Lampung © Bandarla Serang Banten West Ja	West I Por Por Jakarta Bandung, Seman Va Central Ja	MALA Kalimantan ntianak Central Ka Ya Ya Surakaya Sast Java	YSIA East Kal Kalimantan imantan © Palangkaraya South Kalima © Banjari	imantan Samarinda West Sular Intan nasin South Sula	Gorontai Gorontai Goronra Central Sulawesi Palu South East Kendar Makassar	Manado Manado North Sulawesi Sulawesi
0 250	500 750	1,000 km	10g	<i>yakarta</i> Java]	کنیجی م		E C
Island	Drovince		Num	ber of SPAM	IKK		on-site	review
Island	Province	2008	2007	2006	2005	total	First	Second
	NAD	3	2	2	3	10		
	North Sumatra	3	1	4	4	12	2	
	West Sumatra	4	3	5	2	14		2
	Riau	3	1	1	1	6		2
	Kepulauan	2	0	0	0	2		
Sumatra	Jambi	1	1	4	2	8		2
	South Sumatra	3	2	0	2	7		2
	Bangka Belitung	2	2	1	0	5		-
	Bengkulu	2	1	2	0	5		2
	Lampung	3	1	0	1	5		1
	sub-total	26	14	19	15	74	2	1
	Banten	2	0	0	0	2		1
	West Java	8	2	0	0	10	2	4
Java	Vogyakarta	2	1	0	0	3	2	2
	Fast Java	6	4	7	2	19		5
	sub-total	22	10	10	7	49	2	15
	West Kalimantan	3	3	1	2	9	2	
	Central Kalimantan	3	0	2	2	7		2
Kalimantan	East Kalimantan	3	5	4	3	15		2
	South Kalimantan	2	3	2	0	7		2
	sub-total	11	11	9	7	38	2	6
	North Sulawesi	2	0	3	2	7		2
	Gorontalao	2	2	1	2	7		2
	West Sulawesi	2	4	0	3	9		
Sulawesi	Central Sulawesi	3	2	2	1	8		3
	South Sulawesi	6	4	2	0	12	2	2
	South-East Sulawesi	2	2	1	3	8		1
	sub-total	17	14	9	11	51	2	10
	total	76	49	47	40	212	8	42

Location Map and List of SPAM IKK (2005-2008) (Source: Menuju Pencapaian Target MDGs Bidang Air Minum)

THE PREPARATORY SURVEY FOR IKK WATER SUPPLY SYSTEM DEVELOPMNET SECTOR LOAN PROJECT

Study Period: February - November 2010 Counterpart Agency: Directorate General of Human Settlement, Ministry of Public Works, Republic of Indonesia

OUTLINE OF THE STUDY

1. **OBJECTIVES**

The following are the objectives of the Study:

- To comprehend and analyze the present conditions and issues of the Drinking water supply system in the core area of a sub-district area (SPAM IKK) implemented by the Directorate General of Human Settlements (DGHS) of the Ministry of Public Works (MPW);
- (2) To take appropriate countermeasures against present issues and support the formulation of a prospective yen-loan-financed project

2. STUDY AREA

The preparatory survey is carried out in Jakarta, and in 50 on-site review areas which are selected from the existing project sites in Sumatra, Java, Kalimantan and Sulawesi islands.

3. PRESENT CONDITIONS AND ISSUES OF SPAM IKK

During the on-site review of 50 SPAM IKK, it was observed that the facilities are operated properly in 42 SPAM IKKs, while the facilities are not properly operated or not in operation in eight SPAM IKKs. In such SPAM IKKs, several problems were observed as follows:

- 1) Planning stage
- Idling capacity of treatment plants
- Unpredictable selection results of proposal
- Weak design quality
- 2) Construction stage
- Leakage from fiber reinforced plastic (FRP) tanks.
- Insufficient coordination in implementation between APBN and APBD portions
- 3) Operation stage
- Small number of house connections
- Low treated water quality

- Low profitability of water works

4. OUTLINE OF THE PROPOSED PROJECTS

The sector loan will finance SPAM IKK projects (sub-projects) in the selected provinces to increase the piped water supply from the semi-urban population. Before considering the sector loan project, it is necessary to take actions to solve the issues described in this report.

4.1 Basic Concepts (Selection of Provinces for Sector Loan Project)

The selection of the province should be conducted under the following criteria.

- Population density (High density > Low density)
- Access to safe water (Poor access > Normal access)
- Number of district (Great number > Small number)
- Number of existing SPAM IKK (Great number > Small number)
- Number of planning SPAM IKK (Great number > Small number)
- Number of healthy Regional Drinking Water Enterprise (PDAM) (Great number > Small number)
- Capacity for SatKer (High potential capacity > Low potential capacity)

The population density, access to safe water and the number of district are indicator for necessity for water supply systems. The number of existing SPAM IKK projects and capacity for Working Unit (SatKer) are the indicators of for the potential capacity for implementation of sub-project under the sector loan project. The number of planning SPAM IKK projects and the number of healthy PDAMs, meanwhile, are indicators of the validity.

4.2 SECTOR LOAN PROJECTS

(1) Basic Concepts for the Formulations of sub-projects

As a result of the selection, the province for the sector loan project should be selected at Central Java and East Java in Region I and South Sulawesi in Region II. From 2010 to 2014, implementation of 632 SPAM IKKs is planned in Sumatra, Java, Kalimantan and Sulawesi Islands. On the average, six SPAM IKKs programs implemented in one province each one year. Finally, 60 SPAM IKKs programs are implemented in the three selected provinces (Central Java, East Java and South Sulawesi) in three years.

- (2) The Proposed sub-projects
 - A typical sub-project in the sector loan is planned as 10L/s of the size. The target number of connections is 1,000 house connections
 - The project composed of 60 sub-projects in three provinces in three years.
 - The design population to be served in 60 sub-projects in three provinces is about

300,000.

• The projected total demand of the 60 sub-projects is approximately 75,000m3/day. The number of house connection will eventually reach about 60,000.

	Number of Planned	Number of Planned	Number of Planned
	SPAM IKK (2010-2014)	SPAM IKK in Sector	SPAM IKK in Sector
		Loan in three years	Loan per one year
CENTRAL JAVA	65	27	9
EAST JAVA	39	18	6
SOUTH SULAWESI	34	15	5
TOTAL	138	60	20

Number of the Project for SPAM IKK in sector loan

Source: JICA Study Team 2010

4.3 Cost Estimates

(1) Construction costs (base cost)

The construction cost is estimated by the number of sub-project and unit cost of the sub-projects.

Construction Cost

	014.	Unit	Price	Total						
	Qty	FC (USD)	LC (mil. Rp)	FC (USD)	LC (mil. Rp)					
Sector Loan										
Central Jawa	27	0	4,879	0	131,733					
East Jawa	18	0	2,615	0	47,070					
South Sulawesi	15	0	6,295	0	94,425					
				Total	273,228					
Counterpart fur	nd (API	BD/PDAM)								
Central Jawa	27	0	2,285	0	61,695					
East Jawa	18	0	2,285	0	41,130					
South Sulawesi	15	0	2,285	0	34,275					
				Total	137,100					

Source: JICA Study Team 2010

(2) Project costs

Construction cost in the following table consists of the base cost, price escalation, and physical contingency. Total project cost is nearly USD 74 million (Rp. 625,448 million) and the total amount of sector loan is nearly USD 45 million (Rp. 380,340 million).

			Total
	FC (USD)	LC (mil. Rp)	Equivalent
			(USD)
1. Construction Cost (Sector Loan)	0	341,214	40,365,666
Base Cost	0	273,228	32,322,872
Price Escalation & Contingency	0	67,986	8,042,793
2. Construction Cost (APBD&PDAM)	0	171,214	20,254,633
Base Cost	0	137,100	16,218,930
Price Escalation & Contingency	0	34,114	4,035,703
3. Consulting Service (Sector Loan)	1,672,516	18,678	3,882,166
Base Cost	1,512,000	15,973	3,401,630
Price Escalation & Contingency	160,516	2,705	480,536
4. Land Acquisition	0	0	0
5. Administration	0	25,621	3,031,015
6. Tax	0	57,087	6,753,348
Total Project Cost	1,672,516	613,815	74,286,826
Sector Loan Portion	1,672,516	359,893	44,247,831
Interest and Commitment Charge	1,160,618	0	1,160,618
Т	otal Loan Ar	nount (USD)	45,408,449

Summary of the Project Cost

Source: JICA Study Team 2010

5. CAPACITY DEVELOPMENT FOR SPAM IKK

5.1 Overall Goal

Capacity Development (CD) is a process where the gap between APBN and APBD will be buried continuing for the achievement of MDGs and progress of the effective assistance. MDGs will be achieved as results of acquiring ability to achieve voluntarily by MPW's self efforts.

5.2 Project Purpose

The capacity of staff of MPW (PMU, DirPAM, DirBP of Cipta Karya) and Provincial SatKers of participating provinces in project planning, construction, monitoring, of the SPAM IKK projects is enhanced

5.3 Outputs

- Selection procedure and criteria of SPAM IKK is strengthened.
- Capacity of provincial SatKer staff in project planning, design and screening of SPAM IKK is strengthened.
- Capacity in training of operation and maintenance function of provincial SatKer is strengthened.
- Management capacity of PMU,Dir BP, Dir PAM, of CiptaKarya and provincial SatKer for SPAM IKK monitoring and evaluation r is strengthened.

5.4 Expertise and Advisory Functions Required/Activities

Cipta Karya and provincial SatKer are provided with the required expertise and advisory function by the technical assistance, after confirmation of organizational capacities to perm the SPAM IKK projects, and individual capacities of technical skills, knowledge and experience concerned with SPAM IKK project. The district level is also provided it through provincial SatKer.

6 MONITORING SYSTEM FOR MANAGEMNET, OPERATION AND MAINTENANCE

6.1 Monitoring System

The current capacity of the PMU is very limited as it has a few staff and no experience, therefore; Therefore, the PMU should be strengthened to perform monitoring works. The PMU and Dir BP, Cipta Karya should conduct collect and analyze the monitoring data submitted by the provincial SatKer/provincial Cipta Karya. The collection and compiling of the monitoring data shall be carried out by the PMU while the evaluation and analysis shall be done by Dir BP's their main task in term of monitoring system.

The monitoring structure is shown in below figure. The evaluation data will be taken at each stage, namely: planning stage, construction stage and operation stage. The planning stage data will be taken after submission of the proposal to provincial SatKer. The construction stage data will be taken after completion of the construction work and before facilities' handover to operation organization (PDAM). The operation stage data will be taken on the 1st, 3rd and 5th year after completion of the work. Cipta Karya should monitor the constructed SPAM IKK constantly through PDAM and provincial SatKer. Each PDAM has to establish a constant monitoring system for SPAM IKK with the assistance of provincial SatKer since SPAM IKK is conducted using the national budget.



Source: JICA Study Team 2010

Proposed Monitoring Structure

6.2 Monitoring and Evaluation Indicator

The PMU, Cipta Karya should monitor during the project period and Dir BP should also evaluate the monitoring data each year. The quantitative indicators for the sector loan should be proposed as shown in the table below. The result shall be disclosed to the organization concerned including the foreign donor.

Quantitative Indicators	Targets
The number of 24 hours/day operated	50 out of 60 SPAM IKKs within two years after construction completed by
SPAM IKK systems.	APBN.
Total water consumption (L/s)	500 L/s (around 80% of total water consumption of sub-project)
Total house connection numbers	50,000 out of 60,000 number of house connection
Number of sub-project	60 nos. (100%)
Selection ratio of approved Sub-project	>90%

Proposed Quantitative Indicators for Sector Loan Project Monitoring

Source: JICA Study Team 2010

7 **IMPLEMENTATION PLAN**

7.1 Implementation Schedule

The implementation schedule of the Sector Loan has been worked out based on the assumption that the Government of Indonesia is with its application for the project, after confirming present issues that needed to be solved through the implemented countermeasures. The implementation schedule of the outline is shown in figure below.

		Year-1						Year-2									Year-3								Year-4															
	J	FN	ΛA	Μ	J	J	A S	50	N	JD	J	F	M	ΑN	ЛJ	J	A	S	01	N) J	F	Μ	A	ИJ	J	A	S	١C	٩Ľ	J	F	M	ΑN	4 J	J	A	S	0	٩Ľ
Project Formation and Application			Ē						Γ																															Γ
Appraisal and Loan Agreement	Π		F	Η	F				I																															Γ
Selection of the Consultant																																								
Implementation of Sub-project for Year-2				P	roj	90	sal						(Со	ns	trı	101	tio	n	200																				Γ
Implementation of Sub-project for Year-3														P	ro	pc	osa	l					(Co	nst	ru	cti	ion												Γ
Implementation of Sub-project for Year-4	Π							T	Γ															F	ro	po	sa	1				0.00	(Coi	ns	tru	cti	or	1	ŝ

Source: JICA Study Team 2010

Outline of the Implementation Schedule

7.2 Proposed Project Structure

(1) Options for Project Structure

How to implement and fund the distribution network development is the key to ensure the project outcome. Presented below are the options of the funding structure and the demarcation of responsibility between the central and local governments.

Option 1: Present Structure with Sector Loan Funding

Option 2: Expanded APBN Project Scope

Option 3: Single Contract with Mixed Funding

Option 4: On-lending Loan for Distribution

(2) Proposed Project Structure

Among the four options, Option 2 (Expanded APBN Project Scope) as shown below figure is recommended to be adapted as the project structure for the proposed sector loan because it secures more funding for distribution facilities and increases control over the project scope; and it is more adaptable to the present SPAM IKK program framework due to its moderate requirement for regulatory/institutional adjustments.



Expanded APBN Project Scope

8. **PROJECT EVALUATION**

8.1 Financial Evaluation

FIRR by the sub-project type are calculated as shown in the table below. Compared with the weighted average cost of capital of 3.44% calculated from foreign loan 1.4% per annum (weight: 60%) and local budget cost assumed as the government bond coupon rate 6.5% per annum with over 10 year maturity (weight: 40%), the results show that the sub-projects under the current tariff level are not considered financially viable except for the type 1A with the least cost.

Results	of FIRR	Calculation
---------	---------	-------------

Itom	Sub-project Type									
item	Type 1A	Type 1B	Type 2A	Type 2B						
Distribution Main Length	1,000m	1,000m	5,000m	5,000m						
WTP	Without WTP	With WTP	Without WTP	With WTP						
FIRR	5.90%	3.18%	0.81%	-0.92%						

Source: JICA Study Team 2010

8.2 Economic Evaluation

EIRR by the sub-project type are calculated as shown in the table below, ranging from 13.78 to 26.51%. Compared with the generally accepted opportunity cost of capital of 10 to 12%, the results indicate that the sub-projects under the aforementioned assumptions are economically viable.

ltere		Sub-project Type										
item	Type 1A	Type 1A Type 1B Ty		Type 2B								
Distribution Main Length	1,000m	1,000m	5,000m	5,000m								
WTP	Without WTP	With WTP	Without WTP	With WTP								
EIRR	26.51%	20.73%	16.24%	13.78%								

Results of EIRR Calculation

Source: JICA Study Team 2010

9. Recommendations

Steps toward the Sector Loan Project

- 1) In order to increase the access to safe water of semi-urban population and thereby achieve MDGs targets, the existing SPAM IKK program is deemed as one of the crucial national programs implemented by MPW. To cope with its fiscal and technical constraints, financial assistance through the sector loan project is considered necessary.
- 2) However, it is recommended that MPW take necessary actions to solve the issues described in this report before considering the sector loan project for SPAM IKK to ease the foreseen risks against efficient implementation of the future financial assistance.
- 3) After completion of the Study, MPW should prepare the capacity development plan to improve the current SPAM IKK program as proposed in this report. Technical assistance from donors should also be considered to support such efforts by MPW for its capacity development.

Capacity Development for SPAM IKK Program

- 4) Based on the existing framework and guidelines for the current SPAM IKK program, it is required to make (i) clearer standards for the site selection criteria and (ii) close coordination among the concerned agencies at the central and local levels. The latter is highly important to solve imbalanced investment between APBN and APBD portions and improve project monitoring.
- 5) The Cipta Karya, PMU, the selected provincial SatKer, and concerned districts/PDAM are the main subject agencies of the capacity development. As described in Chapters 1 and 6, Main Report Part 2 in detail, the emphasis should be put in the establishment of a firm process management and monitoring system to reduce uncertainty and unpredictability in the project selection and execution.
- 6) It is recommended that MPW enhance its human resources to implement the proposed capacity development especially for PMU..

Improvement of SPAM IKK Program

7) During the planning stage, the SPAM IKK site should be selected in view of operation efficiency. Especially, a needs assessment among beneficiaries is necessary to grasp the actual demand and should be one of the prerequisites for the SPAM IKK application.

- MPW should establish clear selection criteria with definite indicators based on the existing SPAM IKK guidelines to increase predictability of site selection process for local governments to ensure their smooth implementation of APBD investment.
- APBN project scope should be amplified partially to cover investment in distribution network to reduce financial burden of local governments.
- Responsibility of provincial SatKers in project screening should be increased at local level. Close monitoring and strict appraisal by SatKers and MPW is required in project planning and construction especially on distribution network development by local governments.
- 8) Construction deficiencies are less observed by the on-site review than insufficient level of planning works and operation except several problems of construction quality in projects with FRP tanks.
 - It is recommended to reinforce provincial SatKer's function in construction supervision and inspection.
- 9) During the operation stage, the biggest issues are small number of house connections and low treated water quality.
 - High connection fee is one of the obstacles for beneficiaries willing to have tap water connections. Connection fee plan should be improved by PDAMs through introducing monthly payments, discount campaign.
 - Most household without water connections possess alternative water sources such as shallow wells attached to their residence. To ensure efficient investment based on the real demand for water connections, it is also required to do strict project screening based on needs survey and socialization on planning stage as a prerequisite of SPAM IKK site selection.
 - Lack of technical knowledge among PDAM staff causes inappropriate operation of the water works. No design plans or operating manuals are transferred in many SPAM IKK projects. Most projects do not follow five-day commissioning test requirement prescribed in the guidelines. Provincial SatKers should ensure technical transfer from contractor to PDAM in construction stage.
 - Training programs for PDAM staff should also be reinforced by utilizing the MPW training centers and PERPAMSI trainings to increase skilled operators.
- 10) Strengthening of PDAM in the financial and managerial aspects is another factor for

a sustainable SPAM IKK operation. It is recommended for district governments to consider more flexible tariff setting and connection fee plan to meet the financial burden borne by PDAMs that operate SPAM IKK. In general, the technical level of PDAM staff has to be enhanced also through other instruments such as the existing training system and other technical support.

• During the construction stage, proper inspection by the provincial SatKer and technical transfer from contractors to PDAM should be more emphasized for appropriate operation and service quality of SPAM IKK.

The Preparatory Survey for IKK Water Supply System Development Sector Loan Project Final Report Main Report Part 2: Proposed Sector Loan Project

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THE PREPARATORY SURVEY FOR

IKK WATER SUPPLY SYSTEM DEVELOPMENT SECTOR LOAN PROJECT

FINAL REPORT MAIN REPORT

PART 2: PROPOSED SECTOR LOAN PROJECT

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Abbreviations

Abbreviation	Indonesian/English				
ADB	Asian Development Bank				
APBD	Anggaran Pendapatan dan Belanja Daerah Tingkat (District Budget)				
APBN	Anggaran Pendapatan dan Belanja National (National Budget)				
BAPPEDA	Badan Perencanaan Pembangunan Daerah Tingkat-I and Tingkat-II (Development Planning				
	Board for Provincial and District Level)				
BAPPENAS	Badan Perencanaan Pembangunan Nasional (National Development Planning Board)				
BLU	Badan Layanan Umum (Public Service Agency)				
BPS	Biro Pusat Statistik (Central Bureau of Statistics)				
BPAM	Badan Pengelola Air Minum (Management Board for new Drinking Water Projects before				
	being established as a PDAM)				
BPKP	Badan Pengawas Keuangan Pembangunan (Financial Supervisory Agency for Development)				
BPPSPAM	Badan Pendukung Pengembangan Sistim Penyediaan Air Minum (Supporting Agency Water				
	Supply System Development)				
Broncapturing	Any small structure built to 'capture' a water source				
Bupati	Kepala Kabupaten (Head of a District; sometimes called "Regent")				
Camat	Kepala Kecamatan (Head of a Sub-District)				
Cipta Karya	Direktorat Jenderal Cipta Karya (Directorate General of Human Settlements DGHS)				
Dinas	Provincial or District level governmental department				
DirBP	Direktorat Bina Program (Directorate of Progamme Development)				
DirPAM	Direktorat Pengemgangan Air Minum (Directorate of Water Supply Development)				
FRP	Fiber Reinforced Plastics				
GIP	Galvanized Iron Pipe				
GSP	Galvanized Steel Pipe				
HC	House Connection (To a piped water supply system, usually metered)				
HDPE	High Density Polyethylene Pipe				
IBRD	International Bank for Reconstruction and Development (World Bank)				
IKK	Ibu Kota Kecamatan (Core Area of a Sub-District)				
JICA	Japan International Cooperation Agency				
Kabupaten	District (Local Government level II)				
Kecamatan	Sub-District (Local Government level III)				
Kotamadya	City - equivalent administrative status to a Kabupaten				
MDGs	Millennium Development Goals				
MOH	Ministry of Health				
MPW	Ministry of Public Works				
Musrembang	Musyawarah Rencana Pembangunan (The Council Development Plan)				
NGO	Non-governmental Organization				
PAM	Perusahaan Air Minum (Water Enterprises) Generic term used for PDAM and BPAMs				
PDAM	Perusahaan Daerah Air Minum (Regional Drinking Water Enterprise)				
PERPAMSI	Persatuan Perusahaan Air Minum Seluruh Indonesia (Indonesian Water Supply Association)				
PH	Public Hydrant				
PLN	Perusahaan Listrik Negara (National Electricity Enterprise)				
PMU	Program Management Unit				
RPIJM	Rencana Program Investasi Jangka Menengah (Medium Term Investment Program Plan)				
PU	Generic term for all departments of Public Works				
PVC	Unplasticized Polyvinyl Chloride (Pipe)				
Propinsi	Province (First level of local government Tk.I.)				
RC	RC (Reinforced Concrete)				

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RENSTRA	Rencana Strategis (Strategic Plan)			
RPJPN	Rencana Pembangunan Jangka Panjang Nasional (National Long Term Development Plan)			
RPJMN	N Rencana Pembangunan Jangka Menengah Nasional (National Medium Term Development Plan)			
RSF	Rapid Sand Filter (Water Treatment Plant)			
SatKer	Satuan Kerja (Working Unit)			
SPAM IKK	Program for Development of Drinking Water Supply System in Sub District Areas			
SSF	Slow Sand Filter (Water Treatment Plant))			
T/A	Technical Assistance			
UFW	Unaccounted-for-Water			
YPTD	Yayasan Pendidikan Tirta Dharma (Tirta Dharma Eduacation Foundation)			
WSLIC-2	Second Water & Sanitation for Low Income Communites Project			
WTP	Water Treatment Plant			

CHAPTER 1 PROJECT SCOPE

1.1 Overall Objectives of the Proposed Project

The proposed sector loan project has been planned according to the SPAM IKK Development Plan 2010-2014 under the Five-Year Mid-term National Development Plan 2010-2014(RPJMN 2010-2014).

The project period is assumed to be three years from 2012 to 2014.

The objectives of the proposed project are:

- Implementation of water supply facility for IKK
- Increasing water supply house connections to achieve the MDGs

1.2 Necessity and Justification of the Proposed Project

The Government of Indonesia has encouraged the development of the water sector for achieving the MDGs. The SPAM IKK program is an effective program for the development of the water sector on sub-urban areas and hence, MPW has planned the implementation of 820 SPAM IKKs in the whole Indonesia under RPJMN 2010-2014.

Although 600 SPAM IKKs had also been considered for implementation under the previous RPJMN (RPJMN 2005-2009), only 433 of these were actually implemented due to many problems such as shortage or delay in the allocation of the budget for district governments and limited house connection against system capacity. Therefore, the planned SPAM IKK program in the RPJMN (2010-2014) is also assumed to have similar problems. The Government of Indonesia needs to be supported in financial and technical aspects to implement the Program from foreign donors.



1.3 Rationale of the Project Design

As a result of the on-site review, it is found that the main course of the limited house connection against system capacity is caused by slow progress of the distribution facility funded by the district government (APBD portion), notwithstanding the fact that the APBN portion is in good progress. Therefore, the project scope funded by APBN should be expanded to certain parts of the distribution network to reduce the financial burden on the districts. Furthermore, the scope of the provincial SatKer is expanded to include that of the central government to manage and monitor the whole Project as Figure 1.3.1.

1.4 **Project Scope and Location**

Sub-projects for the sector loan will be established definitely to connect and supply to the planning area within the project period under the limited input. Therefore, the sub-projects for the sector loan should be grouped in a contiguous area for easy management.

On the sub-project structure presented in Figure 1.3.1, the provincial SatKer manages one sub-project for both APBN and APBD portions. Therefore, the location of the sector loan project should be two provinces in Region I (Sumatra and Java Island) and one province in Region II (Sulawesi and Kalimantan Island) considering the population and population density.

The selection of the province is made based on the following criteria. Each province is scored as presented in Table 1.4.1.

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- Population density (High density > Low density)
- Access to safe water (Poor access > Normal access)
- Number of districts (Great number > Small number)
- Number of existing SPAM IKK projects (Great number > Small number)
- Number of planned SPAM IKK projects (Great number > Small number)
- Number of healthy PDAMs (Great number > Small number)
- Capacity of SatKer (High potential capacity > Low potential capacity)

The population density, access to safe water and number of districts are indicators of necessity for water supply systems. The number of existing SPAM IKK projects and capacity of SatKer are the indicators of the potential capacity for implementation of sub-projects under the sector loan project. The number of planned SPAM IKK projects and number of healthy PDAMs, meanwhile, are indicators of validity.

Province		Population	density	Access to Drinking 200	o Safe Water 9	Numb Distr (Minist Home A 200	er of ict try of ffairs, 9)	Numb Existing IKK (20 from I	er of SPAM 05-2010 PMU)	Numb Planning IKK (201 from F	er of 5 SPAM 10-2014 PMU)	Number of H PDAN (Table 6.5.3 Evaluation I by Province	Iealthy I PDAM Results (2008))	Capacity for SatKer (Evaluated by JICA Study Team 2010)	Total Point
			Point		Point		Point		Point		Point		Point	2010)	
	NORTH SUMATRA	183		51.17		25	2	18		27		4		1	3
	WEST SUMATRA	108		46.68		12		20	1	28		4			1
	SOUTH SUMATRA	82		49		11		13		43	2	3			2
	RIAU	54		40.96		10		8		22		1			0
	JAMBI	56		51.31		9		12		22		0			0
ion	LAMPUNG	212		40.3	1	12		12		28		0			1
eg	BENGKULU	86		32.89	2	9		7		31		0			2
Ľ	BANTEN	957		27.24	3	4		11		28		5			3
	WEST JAVA	1,151	3	40.43		17	1	7		40	1	13	1		6
	CENTRAL JAVA	1,038	1	58.08		29	3	54	3	65	3	24	3	1	14
	EAST JAVA	792		55.57		29	3	41	2	39		15	2	1	8
	YOGYAKARTA	1,098	2	60.4		4		12		6		2			2
	WEST KALIMANTAN	28		53.53		12	1	16		44	3	1			4
	EAST KALIMANTAN	15		55.4		10		20	2	21		5	3		5
	SOUTH KALIMANTAN	88	1	51.88		11		18		35	1	4	2		4
E	CENTRAL KALIMANTAN	13		36.58	3	13	2	15		38	2	2			7
Regior	CENTRAL SULAWESI	41		44.21	2	10		19	1	24		2			3
	SOUTH SULAWESI	163	3	49.93		21	3	21	3	34		3	1	1	11
	SOUTH-EAST SULAWESI	53		59.25		10		20	2	28		1			2
	NORTH SULAWESI	159	2	44.41	1	11		18		19		0			3
	GORONTALO	84		44.83		5		11		10		0			0

Table 1.4.1Selection of Province

Note: The highest score on each indicator is awarded 3 points, second one is 2 points, and third one is 1 point in each region.

Source: JICA Study Team 2010

Based on the selection result, the provinces for the sector loan project should be Central Java and East Java in Region I and South Sulawesi in Region II.

From 2010 to 2014, implementation of 632 SPAM IKKs is planned in Sumatra, Java, Kalimantan and Sulawesi Islands. On the average, there are six SPAM IKK programs implemented in one province per year. Finally, 60 SPAM IKK programs are implemented in the three selected provinces (Central Java, East Java and South Sulawesi) in three years as shown in Table 1.4.2.

There are 65 SPAM IKK projects in Central Java, 39 SPAM IKK projects in East Java, and 34 SPAM IKKs will be in South Sulawesi to be implemented within the planning period of five years from 2010 to 2014. Then, as the result of the weighted average from 60 SPAM IKKs in three years from 2012 to 2014, 27 SPAM IKKs will be implemented in Central Java, 18 in East Java and 15 will be in South Sulawesi.

	Number of Planned	Number of Planned	Number of Planned				
	SPAM IKKs	SPAM IKKs in the	SPAM IKKs in the				
	(2010-2014)	Sector Loan	Sector Loan per year				
		(for three years)					
CENTRAL JAVA	65	27	9				
EAST JAVA	39	18	6				
SOUTH SULAWESI	34	15	5				
TOTAL	138	60	20				

Table 1.4.2Number of Planned SPAM IKKs in the Sector Loan

Source: JICA Study Team 2010

The sub-projects in the sector loan should be planned with the size of 10 L/s and 1,000 house connections as the target number of connections.

1.5 Sector Loan for SPAM IKK Sub-Components

1.5.1 Outline of the Sector Loan for SPAM IKK Sub-Components

The sub-projects are assumed as the following:

- Capacity of Sub-project size: 10L/s
- Water source: Surface water and groundwater
- Water treatment plant (WTP): Rapid sand filtration type, made of steel for surface water only, not applied to groundwater and spring water source
- Distribution system: Using distribution pump
- Target number of house connections : 1,000 nos. (around 5,000 people)
- 1.5.2 Eligibility of Sub-District Area for Sector Loan

The eligibility of sub-districts area is defined in the chapter five of the Guideline for Development of SPAM IKK on 2008. Therefore, the Guideline is applied to the eligibility of sub-district for sector loan as shown in Table 1.5.1.

1. Condition of IKK	There are potable water problems. (Using poor quality shallow well or contaminated
	surface water)
2. Status of IKK	Candidate location for SPAM IKK is not proposed by other programs funded by the local
	budget, national budget and/or loan/grant from outside the country.
3. Commitment of	To be accompanied with the confirmation letter of the fund for development of distribution
District	network and house connection signed by the head of the local government and DPRD.
	New system management by PDAM.
	Fiscal health of management organization (whether healthy or unhealthy by BPP SPAM
	evaluation).
	Availability of the fund for O&M and connection of household for new system.
	The meeting for household connection should be held in the residence to understand the
	necessity for water supply system.

Table 1.5.1Eligibility of Sub-District for the Sector Loan

Source: JICA Study Team 2010

1.5.3 Criteria and Process of Proposal Selection

The proposal selection of sector loan will be carried out following criteria and process. The evaluation criteria are prepared based on the guideline for development of SPAM IKK in 2008 as shown in Table 1.5.2.

1. Availability of Land Yes / No Necessary area and elevation, topographic conditions Necessary area and elevation, topographic conditions 2. Acceptance of Plan and Design - Matching demand and development size 2. Acceptance of Plan and Design - Matching demand and development size 9. Design of distribution system - Pressure into pipeline 1. Location and structure of intake facility - Pipeline material 9. Purification process - Electrical and mechanical facility 9. Using PLN power supply (Approved by Provincial SatKer) 3. Acceptance of annual development program and execution schedule. - Conforming to the guideline 9. Acceptance of O&M plan and cost. Operating ratio (Operation cost/Revenue) < 1.0 5. Acceptance of technique and costs according to RPIJM (Medium-term Investment Program) - Check of cost estimation 6. Statement of Regent/Mayor and district assembly Yes / No	Article of Proposal	Evaluation Criteria
Necessary area and elevation, topographic conditions2. Acceptance of Plan and Design- Matching demand and development size - Design of distribution system - Pressure into pipeline - Location and structure of intake facility - Pipeline material - Purification process - Electrical and mechanical facility - Using PLN power supply (Approved by Provincial SatKer)3. Acceptance of annual development program and execution schedule Conforming to the guideline - Matching other plan (Confirmed by Provincial SatKer)4. Acceptance of O&M plan and cost.Operating ratio (Operation cost/Revenue) < 1.05. Acceptance of technique and costs according to RPIJM (Medium-term Investment Program) 6. Statement of Regent/Mayor and district assembly- Confirmation of RPIJM Yes / No	1. Availability of Land	Yes / No
conditions2. Acceptance of Plan and Design- Matching demand and development size - Design of distribution system - Pressure into pipeline - Location and structure of intake facility - Pipeline material - Purification process - Electrical and mechanical facility - Using PLN power supply (Approved by Provincial SatKer)3. Acceptance of annual development program and execution schedule Conforming to the guideline - Matching other plan (Confirmed by Provincial SatKer)4. Acceptance of O&M plan and cost.Operating ratio (Operation cost/Revenue) < 1.05. Acceptance of technique and costs according to RPIJM (Medium-term Investment Program)- Check of cost estimation - Confirmation of RPIJM6. Statement of Regent/Mayor and district assemblyYes / No		Necessary area and elevation, topographic
2. Acceptance of Plan and Design - Matching demand and development size 2. Acceptance of Plan and Design - Matching demand and development size 3. Acceptance of annual development program and execution schedule. - Conforming to the guideline 4. Acceptance of O&M plan and cost. - Conforming ratio (Operation cost/Revenue) < 1.0		conditions
 Design of distribution system Pressure into pipeline Location and structure of intake facility Pipeline material Purification process Electrical and mechanical facility Using PLN power supply (Approved by Provincial SatKer) Acceptance of annual development program and execution schedule. Conforming to the guideline Matching other plan (Confirmed by Provincial SatKer) Acceptance of O&M plan and cost. Operating ratio (Operation cost/Revenue) < 1.0 Acceptance of technique and costs according to RPIJM (Medium-term Investment Program) Statement of Regent/Mayor and district assembly Yes / No 	2. Acceptance of Plan and Design	- Matching demand and development size
 Pressure into pipeline Location and structure of intake facility Pipeline material Purification process Electrical and mechanical facility Using PLN power supply (Approved by Provincial SatKer) 3. Acceptance of annual development program and execution schedule. Conforming to the guideline Matching other plan (Confirmed by Provincial SatKer) 4. Acceptance of O&M plan and cost. Operating ratio (Operation cost/Revenue) < 1.0 5. Acceptance of technique and costs according to RPIJM (Medium-term Investment Program) Confirmation of RPIJM 		- Design of distribution system
- Location and structure of intake facility- Pipeline material- Purification process- Electrical and mechanical facility- Using PLN power supply(Approved by Provincial SatKer)3. Acceptance of annual development program and execution schedule Conforming to the guideline- Matching other plan (Confirmed by Provincial SatKer)4. Acceptance of O&M plan and cost.05. Acceptance of technique and costs according to RPIJM (Medium-term Investment Program)- Confirmation of RPIJM6. Statement of Regent/Mayor and district assemblyYes / No		- Pressure into pipeline
 Pipeline material Purification process Electrical and mechanical facility Using PLN power supply (Approved by Provincial SatKer) Acceptance of annual development program and execution schedule. Conforming to the guideline Matching other plan (Confirmed by Provincial SatKer) Acceptance of O&M plan and cost. Operating ratio (Operation cost/Revenue) < 1.0 Acceptance of technique and costs according to RPIJM (Medium-term Investment Program) Confirmation of RPIJM Statement of Regent/Mayor and district assembly Yes / No 		- Location and structure of intake facility
- Purification process - Electrical and mechanical facility - Using PLN power supply (Approved by Provincial SatKer) 3. Acceptance of annual development program and execution schedule. - Conforming to the guideline - Matching other plan (Confirmed by Provincial SatKer) 4. Acceptance of O&M plan and cost. Operating ratio (Operation cost/Revenue) < 1.0		- Pipeline material
- Electrical and mechanical facility - Using PLN power supply (Approved by Provincial SatKer) 3. Acceptance of annual development program and execution schedule. - Conforming to the guideline - Matching other plan - Matching other plan (Confirmed by Provincial SatKer) - Matching ratio (Operation cost/Revenue) < 1.0		- Purification process
- Using PLN power supply (Approved by Provincial SatKer) 3. Acceptance of annual development program and execution schedule. - Conforming to the guideline - Matching other plan (Confirmed by Provincial SatKer) 4. Acceptance of O&M plan and cost. Operating ratio (Operation cost/Revenue) < 1.0 5. Acceptance of technique and costs according to RPIJM (Medium-term Investment Program) - Check of cost estimation - Confirmation of RPIJM 6. Statement of Regent/Mayor and district assembly Yes / No		- Electrical and mechanical facility
Acceptance of annual development program and execution schedule Conforming to the guideline - Matching other plan (Confirmed by Provincial SatKer)4. Acceptance of O&M plan and cost.Operating ratio (Operation cost/Revenue) < 1.05. Acceptance of technique and costs according to RPIJM (Medium-term Investment Program)- Check of cost estimation - Confirmation of RPIJM6. Statement of Regent/Mayor and district assemblyYes / No		- Using PLN power supply
3. Acceptance of annual development program and execution schedule. - Conforming to the guideline 4. Acceptance of O&M plan and cost. Operating ratio (Operation cost/Revenue) < 1.0		(Approved by Provincial SatKer)
execution schedule. - Matching other plan (Confirmed by Provincial SatKer) 4. Acceptance of O&M plan and cost. Operating ratio (Operation cost/Revenue) < 1.0 5. Acceptance of technique and costs according to RPIJM (Medium-term Investment Program) - Check of cost estimation - Confirmation of RPIJM 6. Statement of Regent/Mayor and district assembly Yes / No	3. Acceptance of annual development program and	- Conforming to the guideline
4. Acceptance of O&M plan and cost. Operating ratio (Operation cost/Revenue) < 1.0	execution schedule.	- Matching other plan
4. Acceptance of O&M plan and cost. Operating ratio (Operation cost/Revenue) < 1.0		(Confirmed by Provincial SatKer)
1.0 5. Acceptance of technique and costs according to RPIJM (Medium-term Investment Program) - Check of cost estimation 6. Statement of Regent/Mayor and district assembly Yes / No	4. Acceptance of O&M plan and cost.	Operating ratio (Operation cost/Revenue) <
5. Acceptance of technique and costs according to RPIJM (Medium-term Investment Program)- Check of cost estimation - Confirmation of RPIJM6. Statement of Regent/Mayor and district assembly Ves / NoYes / No		1.0
RPIJM (Medium-term Investment Program)- Confirmation of RPIJM6. Statement of Regent/Mayor and district assemblyYes / No	5. Acceptance of technique and costs according to	- Check of cost estimation
6. Statement of Regent/Mayor and district assembly Yes / No	RPIJM (Medium-term Investment Program)	- Confirmation of RPIJM
	6. Statement of Regent/Mayor and district assembly	Yes / No
chairman	chairman	

 Table 1.5.2
 Evaluation Criteria for Sub-Projects in the Sector Loan

Source: JICA Study Team 2010

The proposals for the sector loan will be prepared by district governments in the three provinces (Central Java, East Java and South Sulawesi) and submit to their provincial

SatKer. The provincial SatKer will conduct the evaluation and selection of proposals by evaluation criteria for sub-project on sector loan. The selected proposals will send to the Cipta Karya of MPW from provincial SatKar. Finally, Cipta Karya and PMU for IKK will evaluate and decide the SPAM IKK projects for sector loan based on the guideline.

1.5.4 **Expenditure Items**

The expenditure items for SPAM IKK shall be covered by the sector loan and government fund, respectively, as shown in Table 1.5.3.

(1) Sector Loan

The construction cost of the intake, and treatment facilities, some portions of the distribution facility, and the consulting services cost shall be covered by the sector loan.

(2) Government Fund

The distribution pipeline cost, except for cost covered by the sector loan, the service installation cost, land acquisition cost, and monitoring and evaluation costs shall be covered by government funds.

	Table 1.5.3 Expenditure Items Covered by Sector Loan and/or Government Fund						
		Expenditure Item	Sector	Government			
			Loan	Fund			
1		Construction Cost					
1.1		Intake Facility					
	(1)	Intake structure	0				
	(2)	Pumping facility					
	(3)	Water conveyance pipeline					
1.2		Treatment Facility					
	(1)	Receiving well					
	(2)	Water treatment plant	0				
	(3)	Treated water reservoir					
	(4)	Pumping facility					
	(5)	Administration & laboratory buildings					
1.3		Distribution Facility					
	(1)	Transmission pipeline	0				
	(2)	Distribution main pipeline					
	(3)	Distribution pipeline					
1.4		Service Installation					
	(1)	Service pipeline		0			
	(2)	House connection					
	(3)	Public hydrant					
2		Consulting Services	0				
3		Land Acquisition		0			
Δ		Monitoring and Evaluation		0			

Monitoring and I Note: Prepared by JICA Study Team 2010

•: Full cost is to be covered. : Part of cost is to be covered.

1.5.5 Financial Flow

Overall financial flow of the proposed sector loan is explained as follows: GOI (MOF) receives the foreign sector loan from the donor and, after making the currency conversion, provides the loan proceeds in Rupiah to MPW. Then, MPW will transfer the proceeds to the respective provincial SatKer in-charge of each sub-project. The provincial SatKer will make payment to the concerned constructor. In addition, the concerned district government will bear the construction cost of the distribution system from its own sources (Figure 1.3.1).

The amount to be granted for each sub-project will be determined after evaluation of its application to be submitted by the concerned district government. Grant disbursement of aggregate dues of sub-projects would be made at a semi-annual basis. The schedule of this disbursement is synchronized with installment schedule of the sector loan from the donor to GOI.

The provincial SatKer, which is in-charge of the construction of most parts of the sub-project, will receive the budgeted grant for the sub-project from MPW. On the other hand, the provincial SatKer will make payments in accordance with its contracts with constructors. Payments are usually made three times per sub-project and generally, by transferring the amount to the account of the contractors.

Being partly relieved of its investment obligation for the distribution system of the sub-project in this sector loan operation, the concerned district government would not be in a tight financial position.

Regarding the burden of the investment cost of the house connections, it is observed that the selected PDAM would have enough financial sources for the investment resulting from its normal operation without borrowing from banks. PDAM, however, may need to borrow for a short-term bridge loan for the investment-related expenditure and budget allocation from the district government. With respect to PDAM's borrowing capacity, the financial rescue measures recently initiated by MOF can be introduced jointly with this sector loan.

1.5.6 Particulars of the Sector Loan

The sector loan project will be part of the SPAM IKK Project. Thus, this will be undertaken in line with the Decision of Director General of Cipta Karya, MPW No.13/KPTS/DC/2009 outlining the guidelines for the implementation of the development program of SPAM IKK. The implementation procedure of the sector loan project will be in line with the government regulation No.2, 2006 regarding

procurement procedure of foreign loan as well as the donor's ODA guideline. Accordingly, the following matters should be noted:

(1) Scope of the Project

Based on the project proposal submitted from each province, implementation of sub-projects of SPAM IKK in a fiscal year is decided just one year before its execution. Therefore, the concrete list of sub-projects will not be described in the loan agreement.

(2) Project Organization

1) Executing Agency and Project Management Unit (PMU)

The Directorate General of Cipta Karya, MPW will be the executing agency of the sector loan project. The Project Management Unit (PMU) under the executing agency that is in-charge of the implementation of SPAM IKK will also manage the sector loan and will undertake the coordination in determining the sub-projects.

2) Provincial Working Unit (Provincial SatKer)

In coordination with the district/city governments, provincial SatKers play a great role in the preparation of sub-project proposals and their subsequent implementation.

(3) Selection of the Contractor

Selection of the contractor for SPAM IKK is being administered by the respective provincial SatKers through local competitive bidding (LCB). The selection of the contractor for the sector loan project will be carried out in the same manner, i.e., the construction cost of the project will be the local currency portion of the sector loan.

(4) Implementation Procedure

The process for the implementation of the sector loan will be as follows:

1) Project formation and application

Indonesian side will prepare an implementation program of the Project and apply for it to the donor.

2) Project appraisal and loan agreement

Donor will dispatch an appraisal mission and hold a consultation meeting. Then, a loan agreement will be concluded.

3) Implementation

The Project will be implemented as a part of the development program of SPAM IKK. The required procedure is as follows: The Preparatory Survey for IKK Water Supply System Development Sector Loan Project Final Report Main Report Part 2: Proposed Sector Loan Project

- a. Project identification
- b. Proposal for sub-project
 - Detailed engineering design and cost estimate
 - Entry to the regional development plan (RPIJM)

- Commitment by the local government for implementation and allocation of local budget

- Confirmation of land and water sources
- c. Determination of the implementation of the sub-project by PMU
- d. Implementation of the sub-project by respective provincial SatKers
- e. Monitoring of the project by PMU
- 4) Post Evaluation

The project completion report will be submitted to the donor. In turn, the donor will monitor the performance of the project outcomes.

1.5.7 Procurement Methods (including packaging)

As mentioned in Section 1.4, the project area is distributed in the three provinces: Central Java, East Java and South Sulawesi, then procurement procedure is carried out by each province. Each provincial SatKer procures the contractor by several contract packages composed of several sub-projects every year.

In line with the guidelines of SPAM IKK, the procurement procedure will be as follows:

1) Preparation of tender documents:

Provincial SatKer prepares the tender documents in conformity with the standard tender documents prepared by Cipta Karya.

- Review of design and preparation of the cost estimate.
 The ceiling price is determined based on the cost estimate.
- 3) Tender
 - a. Pre-qualification of the contractor
 - b. Preparation of the shortlist of contractors
 - c. Invitation to the shortlisted contractors
 - d. Submission of tender
 - e. Evaluation of tender
 - f. Contract negotiation
 - g. Determination of the contract award
- 4) Conclusion of the contract
- 5) Commencement of the work
 - a. Site transfer
 - b. Setting up of a work control system
- 6) Commissioning and training

1.5.8 Project Effects/Impacts

The impacts of the project implementation are presented below and in the following Table 1.5.4.

Present Conditions and Problems on	Measures to be Taken in the	Effects/Impacts of Project
Selected Sub-project Area	Sector Loan Project	Implementation
The sub-project area for SPAM IKK has drinking water problem. Therefore, unless the public water supply system is drastically improved or developed, the essential requirement for sustaining life and access to safe and sanitary water are not obtainable.	In order to provide sufficient amount of water for 24 hours, the intake, WTP, distribution main and distribution network facilities shall be provided in the SPAM IKK Program.	 The people in the each sub-project area will be able to obtain safe and sufficient water. The number of house connection will be increased in the selected provinces.

 Table 1.5.4
 Effects/Impacts of Project Implementation

Source: JICA Study Team 2010

Direct effect:

- The people in each sub-project area can obtain safe and sufficient water.

Indirect effect:

- Sanitary condition is improved in each sub-project area.

1.5.9 Evaluation and Monitoring

Monitoring and evaluation should be conducted by the PMU and Cipta Karya. PMU bear part of responsibility for monitoring of SPAM IKK project. Dir BP of Cipta Karya is responsible for evaluation of SAPM IKK project. Subsequently, PMU's and Cipta Karya's capacity should be strengthened through the Technical Assistance (TA) program, as will be discussed in Chapter 18 of this report.

Evaluation and monitoring is carried out from planning stage through construction stage to operation stage.

The intake facility, WTP, and part of the distribution facility are funded by APBN. The distribution network is funded by APBD. Therefore, the provincial SatKer/provincial Cipta Karya should conduct the monitoring and evaluation of the APBN part during planning and construction stages. The District/PDAM should conduct the monitoring of the APBD part. However, monitoring of APBN part (mainly WTP) and APBD part in operation stage should be carried out by PDAM as operator of SPAM IKK. The provincial SatKer has responsibility to collect and arrange the monitoring data in all stages of SPAM IKK project. The evaluation and monitoring responsibility structures are shown in Figure. 1.5.1.

All information and data should be sent to the PMU. The PMU arranges and analyzes the data and sends these to Cipta Karya Dir BP for evaluation. The result of the evaluation should be disclosed to all concerned organizations (provincial SatKer, provincial Cipta Karya, district, PDAM, and so on) and consequently, each organization concerned should reflect the results for the next sub-project.



Source: JICA Study Team 2010

Figure 1.5.1 Responsible Organizations for Monitoring and Evaluation

1.6 Capacity Development for the Central and Local Functions

1.6.1 Objectives and Targets

Cipta Karya is a responsibility stakeholder for MDGs, but capacities of current organizations and staff are not enough to achieve the MDGs target. Because, many problems are found in SPAM IKK projects during the sites survey. MDGs should be an achieved as results of acquiring ability to achieve voluntarily by Cipta Karya itself. Therefore, the Capacity Development (CD) of concerned organizations and staff of SPAM IKK are proposed to ensuring smooth implementation sector loan for the SPAM IKK projects.

1.6.2 Concerned Organizations and Staff for CD

Concerned organizations for CD are divided into central and local organizational levels. Central level organization consists of MPW (Staff of PMU, Dir PAM, and Dir

BP of Cipta Karya). Local level organizations divide into provincial SatKer and district PU and PDAM. Main character of local level organization is provincial SatKers. The main capacity of organizational level is panning and implementation ability to perform the SPAM IKK projects. The capacity of staff is composed of technical skills, knowledge and experience of SPAM IKK projects.

1.6.3 Central Level Functions (Cipta Karya)

(1) Planning and Implementation

The Guideline for Development of SPAM IKK in 2008 is clearly described the substance of work for implementation of SAPM IKK. However, implementation agency and related organizations of SAPM IKK are not indicated clearly in the guideline such as selection criteria for sub-project, necessary documents for proposal, evaluation criteria. Therefore, practical guide for the guideline should be prepared by the PMU, Dir PAM and DirBP of Cipta Karya through work shop and on-the job training (OJT) by technical assistance

(2) Proposal Evaluation

Sub-projects of SPAM IKK by financed APBN are approved by Cipta Karya based on the proposal evaluation by DirPAM and PMU. However, many problems are found in present projects by 50 sites survey. This is indicated that proposal evaluation is not properly carried out. Therefore, capacity building of proposal evaluation procedure and individual knowledge are required to implement the proper evaluation through lesson learn from past failure projects and work shop by technical assistance.

(3) Progress Management and Monitoring

Progress management and monitoring of SPAM IKK project is responsibility of Dir PAM and PMU. However, capacity of organizational level of DirPAM and PMU is not enough for progress management and monitoring, so that they are not grasped actual progress of SPAM IKK project. The progress of the SPAM IKK project should be managed by provincial SatKer under supervision of PMU. The report should include implementation progress, disbursement, event, problem and countermeasure etc based on the monitoring of individual sub-project. The capacity of PMU, DirPAM, and DirBP of Cipta Karya should develop organizational and staff levels through preparation of progress report and OJT by assistance of provincial SatKer.

1.6.4 Provincial Level Functions (Provincial SatKer)

(1) Assistance to Preparation of Proposal

There are times that the proposal is prepared by the district PU/PDAM himself with the guidance of the provincial SatKer. However, some provincial SatKer has not enough capacity to assist the district PU/ PDAM for preparation of proposal. The capacity of provincial SatKer should develop organizational and staff levels through work shop and OJT by technical assistance.

(2) Selection of candidate sub-projects for APBN portion

The provincial SatKer conducts the selection of candidate sub-projects for APBN portion. However, only 50% of candidate sub-projects are determined as APBN projects. It is shown that the capacity of provincial SatKer for selection of candidate sub-projects for APBN portion is required to strengthen. The capacity of provincial SatKer should developed organizational and staff levels for selection of sub-projects through work shop and OJT by technical assistance.

(3) Progress Management and Monitoring

At present, the actual progress management of the SPAM IKK is not carried out by any related organizations. The progress report of the sub-project both APBN part and the APBD part should be arranged by provincial SatKer cooperation with district PU/PDAM. The progress of the SPAM IKK project should be managed by provincial SatKer under supervision of PMU. The report should include implementation progress, disbursement, event, problem and countermeasure etc based on the monitoring of individual sub-project. The capacity of provincial SatKer should developed organizational and staff levels through preparation of progress report and OJT by technical assistance.

1.6.5 District Level Functions (District / PDAM)

(1) Sub-Project Selection

At present, sub-project selection could not be carried out under satisfactory conditions due to lack of understanding of the guideline and lack of experience in the procedure. The district PU/PDAM selects a highly potential area which has high demand and good condition for the SPAM IKK program, in accordance with the guideline. After the project area is selected, socialization should be conducted, and the residential needs are confirmed immediately. Therefore, the capacity of district PU/PDAM for sub-project selection should develop organizational and staff levels through sub-project selection and OJT by assistance of provincial SatKer.

(2) Preparation of Proposal

Proposal of SPAM IKK sub-project is prepared by district PU/ PDAM. However,
some District PUs/PDAMs have insufficient number of staff and knowledge to prepare an appropriate proposal. These districts/PDAMs should be trained to prepare the proposal according to the guideline and other documents. Therefore, the capacity of district PU/PDAM for proposal preparation should develop organizational and staff levels through preparation of proposal and OJT by assistance of provincial SatKer.

(3) Coordination of APBN and APBD parts

At present, the district/PDAM conducts the preparation of tender documents, tender opening, and evaluation and contract with the contractor for the APBD part but they could not undertake the information of the contract of the same SPAM IKK project for the APBN part. Hence the interface between the APBN and APBD part of the construction schedule and component should be taken into consideration and adjusted as necessary. Therefore, the coordination capacity of Dinas PU should develop organizational and staff levels through OJT by assistance of provincial SatKer.

(4) Progress Management and Monitoring

At present, the implementation progress report of the sub-project of the APBD is not prepared by district Dinas PU. The progress report of the sub-project of the APBD part should be submitted to the provincial SatKer. The report should include implementation progress, disbursement status, events, problems and countermeasures, etc based on the monitoring of individual sub-project. The management and monitoring capacity of Dinas PU should develop organizational and staff levels through OJT by assistance of provincial SatKer.

1.7 Expertise and Advisory Functions Required

Cipta Karya and provincial SatKer are provided with the required expertise and advisory function by the technical assistance, after confirmation of organizational capacities to perm the SPAM IKK projects, and individual capacities of technical skills, knowledge and experience concerned with SPAM IKK project. The district level is also provided it through provincial SatKer.

1.7.1 Consulting Services for the Central Level (Cipta Karya)

The consultant of technical assistance assists to the central level for the sector loan project. The counterpart is the PMU, Dir BP and Dir PAM in Cipta Karya. The PMU conducts the selection, implementation and monitoring works for sub-projects. On the other hand, Dir BP conducts the evaluation, analysis and feedback works for sub-projects. The Dir PAM, meanwhile, prepares the guideline and related documents..

(1) Assistance to PMU

The Consultant should assist in the selection of sub-projects. After the contract for a sub-project is finalized with the provincial SatKer, the PMU should allocate the sector loan fund. The consultant also assists in this evaluation.

The PMU is main player in the implementation of the sector loan project. Therefore, the PMU has to coordinate the work between concerned organizations. The consultant assists in all implementation works of the PMU for the sector loan project.

The PMU compiles the monitoring report submitted by each provincial SatKer and monitors the sub-projects and sector loan project. The monitoring work is also required to be assisted by the Consultant.

(2) Assistance to the Dir Bidder BP as main player of the monitoring and evaluation work for the sector loan project. The Consultant also assists them. Dir BP takes all monitoring data through the PMU. The Consultant assists in the evaluation, analysis and feedback work of the Dir BP.

(3)Assistance to the Dir PAM

The selection criteria for sub-project, necessary documents for the proposal, evaluation criteria, and operation are unclear in the present guideline for the SPAM IKK. Therefore, administrative instructions or sample case books should be prepared with assistance/support from the Consultant.

1.7.2 Consulting Services for the Provincial Level (Provincial SatKer)

The consultant of technical assistance assists to the provincial level for the sector loan project. The counterpart is the provincial SatKer and provincial Cipta Karya. The provincial SatKer conducts the preparation of the proposal for selection, implementation and monitoring work for the sub-projects. The provincial Cipta Karya conducts the monitoring for sub-projects mainly at the operation stage in cooperation with district PU/PDAM.

The Consultant assists in all the works for the related sector loan project such as in the preparation of proposal, coordination of concerned organizations, construction supervision of the APBN part, management of district works, and the monitoring which is conducted by the provincial SatKer and provincial Cipta Karya.

1.8 Implementation Schedule

The implementation schedule of the sector loan has been worked out based on the assumption that the Government of Indonesia is ready with its application for the project, after confirming present issues that needed to be solved through the implemented countermeasures.

1) Projec	et formation and application	: 3 months							
(Prep	paration of the implementation program)								
2) Appra	isal and loan agreement	: 3 months							
3) Select	ion of the consultant	: 6 months							
(Sho	rt list, evaluation of the proposal, donor's concu	rrence)							
4) Imple	mentation of sub-projects (for each fiscal year)	: 12 months							
Prep	aration (previous year)								
-	- Proposal for sub-project by the provincial SatKer : 8 months								
-	- Determination of the implementation by PMU : 4 months								
Cons	struction of APBN portion (Sector Loan portion)								
-	Tender and contract signing	: 4 months							
-	WTP fabrication	: 3 months							
-	Construction	: 3 months							
-	Commissioning and training	: 2 months							
Cons	struction of APBD/PDAM portion (Service Connection)	ction)							
-	Tender and contract signing	: 2 months							
-	- Construction : 4 months								
-	- Commissioning and training : 2 months								
	- Commissioning and training . 2 months								

The implementation schedule is shown in Figure 1.8.1 and the outline is shown in Figure 1.8.2.

			Y	ea	r-1						Y	ea	r-2	2						Ye	ear	-3						1	Ye	ar	-4		
	JF	M	ΑM	J.	ΙA	sc	NI	D.	J F	M	١M	J.	JA	s	0	JD	J	FN	1A	М.	JJ	А	sc	N	D.	J F	М	A	ИJ	J	AS	01	N D
Project Formation and Application	▦	E						I														Π				Τ					Τ	Π	
Appraisal and Loan Agreement	Π	Π		Ħ		Τ	Π	Ι	Π					Π		Π			Π			Π	Τ			Τ				Π	Τ	Π	
Selection of the Consultant	Π	Π		F	H	Ⅲ	Ħ	ł	Π	Π				Π		Π			Π			Π	Τ			Τ				Π	Τ	Π	
Implementation of Sub-project for Year-2			Р	rop	osa	ıl				(Cor	istr	uc	tio	n								Ι			Τ					Τ	Π	Τ
Implementation of Sub-project for Year-3	Π						Π				Pı	op	osa	ıl				Q.	Сс	ns	tru	cti	on	200		Τ						Π	
Implementation of Sub-project for Year-4							Π						Ι	Π]	Pro	po	sal	1			88	ĺ	Со	ns	tru	ctio	m	8

Source: JICA Study Team 2010



	Figure 1.8.1 II	nplementation Scheudle						
	Year-1	Year-2		Year-3		Υ€	ar-4	
	I 2 3 4 5 6 7 8 9 10 1 I F M A M I I A S O N	12 1 2 3 4 5 6 7 8 9 1 1 F M A M J J A S 0	0 11 12 1 2 3 0 N D J F M	4 5 6 7 8 9 A M I I A S	9 10 11 12 1 S O N D J	2 3 4 5 6 F M A M J	7 8 9 1 I A S (0 11 12 0 N D
Project Formation and Application								1
Appraisal and Loan Agreement								
Selection of the Consultant								
Implementation of Sub-project for FY 2012								
Proposal for sub-project by the provincial SatKer								
Determination of the implementation by PMU								
Construction of APBN portion (Sector Loan portion)								
Tender and Contract signing								
WTP fabrication								
Construction								
Commissioning and training								
Construction of APBD/PDAM portion								
Tender and Contract signing								
Construction								
Commissioning and training								
Implementation of Sub-project for FY 2013				_		_		
Proposal for sub-project by the provincial SatKer								
Determination of the implementation by PMU								
Construction of APBN portion (Sector Loan portion)								
Tender and Contract signing								
WTP fabrication								
Construction								
Commissioning and training								
Construction of APBD/PDAM portion								
Tender and Contract signing								
Construction								
Commissioning and training								
Implementation of Sub-project for FY 2014								
Proposal for sub-project by the provincial SatKer								
Determination of the implementation by PMU								
Construction of APBN portion (Sector Loan portion)								
Tender and Contract signing								
WTP fabrication								
Construction								
Commissioning and training								
Construction of APBD/PDAM portion								
Tender and Contract signing								
Construction								
Commissioning and training								
Source: JICA Study Team 2010								

1.9 Procurement and Consultant

1.9.1 Rationale Behind Contract Packages

In the past case of SPAM IKK project (FY 2008), several sub-projects were bundled as one contract package. Accordingly, sub-projects of the Sector Loan Project will be procured through several contract packages, in accordance with relevant Indonesian regulations.

1.9.2 Consultant's Role (Draft Terms of Reference (TOR))

In order to support the project management of the Sector Loan Project by Cipta Karya, a consultant will be employed in accordance with the donor's guideline for employment of consultants. The outline of the TOR for consulting services will be as follows.

(1) Objective

The objective of consulting service is to support Cipta Karya in the management of the sector loan project for securing:

- Proper and smooth implementation of the project in line with relevant Indonesian regulations, the donor's guidelines and the loan agreement
- Sustainable performance of project outcomes
- Planned project effects and benefits
- (2) Scope

1) Assistance to PMU in:

- Allocation of the sector loan fund for implementation of the selected sub-projects
- Coordination between Central Government and the provincial SatKers in the determination of implementation of sub-projects
- Monitoring of the progress of sub-projects
- Compiling the project completion report
- Monitoring of overall project performance

2) Assistance to the provincial SatKers in:

- Review of detail engineering design and cost estimate
- Entry of the sub-projects to the regional development plan (RPIJM)
- Confirming the commitment by the local government, allocation of the local budget, land acquisition, and availability of water source
- Setting up of a work control system
- Supervision of mechanical installation
- Supervision of commissioning and training
- Monitoring of overall project performance

(3) Required expertise

(Professional A: Foreign consultant, Professional B: Indonesian consultant)

The following expertise is required:

Team Leader (Professional A)

- Overall management of the consulting service
- Assistance to PMU in:
 - Allocation of the sector loan fund for implementation of the selected sub-projects
 - Coordination between Central Government and the provincial SatKers in the determination of implementation of sub-projects
 - Compiling the project completion report
 - Monitoring of overall project performance

Program Coordinator (Professional A)

- Assistance to PMU in:
 - Coordination between Central Government and the provincial SatKers in the determination of implementation of sub-projects
 - Monitoring of the progress of sub-projects
 - Monitoring of overall project performance
- Assistance to the provincial SatKers in:
 - Entry of the sub-projects to the regional development plan (RPIJM)
 - Confirming the commitment by the local government, allocation of local budget, land acquisition, and availability of water source
 - Monitoring of overall project performance

Area Manager 1, 2, 3 (Professional B)

- Assistance to the provincial SatKers in:
 - Review of detail engineering design and cost estimate
 - Entry of the sub-projects to the regional development plan (RPIJM)
 - Confirming the commitment by the local government, allocation of local budget, land acquisition, and availability of water source
 - Setting up of a work control system
 - Supervision of mechanical installation
 - Supervision of commissioning and training

Water Supply Planner 1, 2, 3 (Professional B)

- Assistance to the provincial SatKers in:
 - Review of detail engineering design and cost estimate
 - Entry of the sub-projects to the regional development plan (RPIJM)
 - Confirming the commitment by the local government, allocation of local budget, land acquisition, and availability of water source

Civil Engineer 1, 2, 3 (Professional B)

- Assistance to the provincial SatKers in:
 - Review of detail engineering design and cost estimate

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- Setting up of a work control system

Plant Engineer 1, 2, 3 (Professional B)

- Assistance to the provincial SatKers in:
 - Supervision of mechanical installation
 - Supervision of commissioning and training

(4) Assignment Schedule

The assignment schedule is shown in Figure 1.9.1

		I					Ye	ar	-2					Т					Y	'ea	ır-3	3									Y	<i>l</i> ea	ar-4	1			
		J	F	7 N	1 A	N	1 J	J	A	1 2	5 0) [۱D	J	F	N	1 A	۱I	М	J	J	А	S	0	Ν	D	J	F	М	А	М	J	J	А	S (ΟN	I D
Team Leader	36 MM									+																											
Program Cordinator	27 MM																																				
Area Manager 1	36 MM																																				
Area Manager 2	36 MM				-		-								-																					-	
Area Manager 3	36 MM		-	-	-	-	-	-	-	+	-	-	-	-	-	+	+	+					-	-	-								_			-	
Water supply planner 1	24 MM		-	-	-		-	-						-	-		-	-															_				
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Civil engineer 1	24 MM		-		-					-					-	-																					
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Plant engineer 2	24 MM					-	-	-	-	-	-												_	_												╇	
Plant engineer 3	24 MM																																				

Source: JICA Study Team 2010



(5) Reporting

The following reports will be prepared and submitted to Cipta Karya:

- Inception report
- Monthly progress report
- Annual report
- Completion report

CHAPTER 2 PROJECT COST AND FINANCE PLAN

2.1 Estimated Project Cost

2.1.1 Estimate Condition

1) Price level	· July 3	0 2010
2) Evaluation and a		1 - Dr = 0.452 Dr 1 million - USD 119.2
2) Exchange rate	: 05D	I = Kp 8,452 Kp I million = USD 118.3
	(Bank	of Indonesia Buy Exchange Rate)
	: Yen 1	00 = Rp 9,768.84 Rp 1 million = Yen 10,237
	(Bank	of Indonesia Buy Exchange Rate)
3) Price escalation		
Foreign currency (FC) portion	: 2.4 % per annum (2000-2010: 26.2%)
Local currency (LC) p	ortion	: 4.3 % per annum (2008-2010: 8.98%)
4) Physical Contingency		
Construction cost		: 10 %
Consulting service		: 3 %

2.1.2 Project Cost Items and Demarcation

The project cost items and their demarcation are shown in Table 2.1.1.

	ind Then Den	
	Sector Loan	Counterpart Fund
Construction Cost		
Intake facility	\bigcirc	
Treatment facility	\bigcirc	
Distribution facility	0	\bigcirc
Service installation		\bigcirc
Consulting Service	0	
Land Acquisition		\bigcirc
Administration		0
Tax		0
Interest during Construction	0	
Commitment charge	0	

 Table 2.1.1
 Project Cost Items and Their Demarcation

Source: JICA Study Team 2010

It is assumed that 50% of the cost of distribution facility will be covered by the sector loan while the remainder will be covered by the counterpart fund (Local budget: APBD/PDAM).

2.1.3 Estimated Project Cost

The estimated project cost is shown in Table 2.1.2 and summarized in Table 2.1.3.

			Total
	FC (USD)	LC (mil. Rp)	Equivalent
			(USD)
1. Construction Cost (Sector Loan)	0	341,214	40,365,666
Base Cost	0	273,228	32,322,872
Price Escalation & Contingency	0	67,986	8,042,793
2. Construction Cost (APBD&PDAM)	0	171,214	20,254,633
Base Cost	0	137,100	16,218,930
Price Escalation & Contingency	0	34,114	4,035,703
3. Consulting Service (Sector Loan)	1,672,516	18,678	3,882,166
Base Cost	1,512,000	15,973	3,401,630
Price Escalation & Contingency	160,516	2,705	480,536
4. Land Acquisition	0	0	0
5. Administration	0	25,621	3,031,015
6. Tax	0	57,087	6,753,348
Total Project Cost	1,672,516	613,815	74,286,826
Sector Loan Portion	1,672,516	359,893	44,247,831
Interest and Commitment Charge	1,160,618	0	1,160,618
	otal Loan Ar	nount (USD)	45,408,449

Table 2.1.3 Summary of the Project Cost

Source: JICA Study Team 2010

The cost estimation process is as follows.

(1) Construction Cost

The base cost is estimated based on the number of sub-project and unit cost of the sub-projects. As mentioned in 13.4, 60 sub-projects (Central Java: 27, East Java: 18, South Sulawesi: 15) will be implemented in three fiscal years.

	O'ty	Unit	Price	Тс	otal
	Qty	FC (USD)	LC (mil. Rp)	FC (USD)	LC (mil. Rp)
Sector Loan					
Central Jawa	27	0	4,879	0	131,733
East Jawa	18	0	2,615	0	47,070
South Sulawesi	15	0	6,295	0	94,425
				Total	273,228
Counterpart fur	nd (API	BD/PDAM)			
Central Jawa	27	0	2,285	0	61,695
East Jawa	18	0	2,285	0	41,130
South Sulawesi	15	0	2,285	0	34,275
				Total	137,100

 Table 2.1.4
 Construction Cost (Base Cost)

Source: JICA Study Team 2010

The basis of the unit cost is described in section 2.2.

(2) Consulting Services

The base cost for consulting services is composed of the remuneration of expertise and direct cost. The remuneration of expertise is estimated by man-months basis. The required expertise and their tasks were described in Section 13.9.2. The direct cost is estimated at 5% of FC and 70% of LC.

The estimated cost is shown in Table 2.1.5.

		MM	Unit	Price	To	otal
		IVIIVI	FC (USD)	LC (Rp)	FC (USD)	LC (mil. Rp)
A.	Remuneration					
	Team Leader	36	25,000		900,000	
	Program cordinator	27	20,000		540,000	
	Area managaer 1, 2, 3	108		30,000,000		3,240
	Water supply planner 1, 2, 3	72		25,000,000		1,800
	Civil engineer 1, 2, 3	72		25,000,000		1,800
	Plant engineer 1, 2, 3	72		25,000,000		1,800
	Supporting Staff	216		3,500,000		756
	Sub-total				1,440,000	9,396
Β.	Direct Cost				72,000	6,577
	Total				1,512,000	15,973

 Table 2.1.5
 Consulting Services Cost (Base Cost)

Source: JICA Study Team 2010

(3) Land Acquisition

In a SPAM IKK project, the availability of the land is a prerequisite of the project proposal. The necessary land is to be secured by the local government prior to the commencement of the sub-project. Moreover, in most cases, the necessary cost for land acquisition is not so high. Thus, the cost of land acquisition has not been included in the project cost.

(4) Administration

The administration cost is estimated at 5 % of the sum of the construction cost.

(5) Tax

Value added tax (VAT) is estimated at 10 % of the total cost.

(6) Interest During Construction

The interest during construction is estimated at 1.4 % for the construction cost and 0.01 % for the consulting service cost.

(7) Commitment Charge

The commitment charge is estimated at 0.1 % of the remaining loan amount at the end of the fiscal year.

		Total			Year-2			Year-3			Year-4	
			Total			Total			Total			Total
	FC (USD)	LC (mil. Rp)	Equivalent	FC (USD)	LC (mil. Rp)	Equivalent	FC (USD)	LC (mil. Rp)	Equivalent	FC (USD)	LC (mil. Rp)	Equivalent
			(USD)			(USD)			(USD)			(USD)
Construction Cost (Sector Loan)												
Base Cost	0	273,228	32,322,872	0	91,076	10,774,291	0	91,076	10,774,291	0	91,076	10,774,291
Price Escalation (4.3%/year)	0	36,967	4,373,187	0	8,001	946,511	0	12,261	1,450,505	0	16,705	1,976,171
Physical Contingency (10%)	0	31,019	3,669,606	0	906'6	1,172,080	0	10,334	1,222,480	0	10,778	1,275,046
Sub-toal of 1.	0	341,214	40,365,666	0	108,985	12,892,882	0	113,671	13,447,276	0	118,559	14,025,508
. Construction Cost (Counterpart fund)	(
Base Cost	0	137,100	16,218,930	0	45,700	5,406,310	0	45,700	5,406,310	0	45,700	5,406,310
Price Escalation (4.3%/year)	0	18,549	2,194,372	0	4,015	474,939	0	6,152	727,833	0	8,382	991,601
Physical Contingency (10%)	0	15,565	1,841,330	0	4,971	588,125	0	5,185	613,414	0	5,408	639,791
Sub-toal of 2.	0	171,214	20,254,633	0	54,686	6,469,374	0	57,038	6,747,557	0	59,490	7,037,702
3. Consulting Service (Sector Loan)												
Base Cost	1,512,000	15,973	3,401,630	504,000	5,324	1,133,877	504,000	5,324	1,133,877	504,000	5,324	1,133,877
Price Escalation (2.4%, 4.3%/year)	111,802	2,161	367,463	24,482	468	79,816	37,166	717	121,964	50,154	277	165,683
Physical Contingency (3 %)	48,714	544	113,073	15,854	174	36,411	16,235	181	37,675	16,625	189	38,987
Sub-toal of 3.	1,672,516	18,678	3,882,166	544,337	5,966	1,250,104	557,401	6,222	1,293,516	570,778	6,490	1,338,546
I. Land Acquisition	0	0	0	0	0		0	0	0	0	0	0
5. Administration (5% of 1.+2.)	0	25,621	3,031,015	0	8,184	968,113	0	8,535	1,009,742	0	8,902	1,053,161
5. Tax (VAT: 10%)	0	57,087	6,753,348	0	18,242	2,158,047	0	19,018	2,249,809	0	19,827	2,345,492
Total Project Cost	1,672,516	613,815	74,286,826	544,337	196,062	23,738,519	557,401	204,484	24,747,899	570,778	213,268	25,800,409
Sector Loan (Construction)	0	341,214	40,365,666	0	108,985	12,892,882	0	113,671	13,447,276	0	118,559	14,025,508
Sector Loan (Consultant)	1,672,516	18,678	3,882,166	544,337	5,966	1,250,104	557,401	6,222	1,293,516	570,778	6,490	1,338,546
Sector Loan (Total)	1,672,516	359,893	44,247,831	544,337	114,951	14,142,985	557,401	119,893	14,740,791	570,778	125,049	15,364,055
Source: JICA Study Team 2010										1 mil. Rp =	118.3	USD

Table 2.1.2 Project Cost

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2.2 Breakdown of the Cost and Evidences

The unit cost of the sub-project has been worked out referring to the unit price standard of SPAM presented in MPW's regulation No. 21/PRT/M/2009 "*Pedoman Teknis Kelayakan Investasi Pengembangan SPAM*" (Appendix III, Table 3.A).

The unit cost of each facility applied for the cost estimate is shown in Table 2.2.1.

 Table 2.2.1
 Unit Cost of Each Facility

Type 1: Length of Dis	stribution Main: 1,00	0 m
	Unit Cost	Unit Cost
	(million Rp./HC)	(House Connection: 1,000)
Intake Facility	0.22	Rp. 220 million
Treatment Facility	2.08	Rp. 2,080 million
Distribution Facility	2.71	Rp 2,710 million.
Service Installation	0.93	Rp. 930 million

Type 2: Length of Distribution Main: 5,000 m

<u> </u>		
	Unit Cost	Unit Cost
	(million Rp./HC)	(House Connection: 1,000)
Intake Facility	0.22	Rp. 220 million
Treatment Facility	4.72	Rp. 4,720 million
Distribution Facility	2.71	Rp. 2,710 million
Service Installation	0.93	Rp. 930 million

Source: "Pedoman Teknis Kelayakan Investasi Pengembangan SPAM" (Appendix III, Table 3.A). No. 21/PRT/M/2009, arranged by JICA Study Team 2010

1) Unit cost of sub-project in South Sulawesi

Type 2 (Length of Distribution Main: 5,000 m) has been applied.

- Sector Loan portion (Intake + Treatment + half of Distribution): Rp (220+4,720+2,710/2) million = Rp 6,295 million
- Counterpart Fund (APBD/PDAM) portion (half of Distribution + Service installation):
 - Rp (2,710/2 + 930) million = Rp 2,285 million

2) Unit price of sub-project in Central Java

Type 2 (Length of Distribution Main: 5,000 m) has been applied. In Central Java, the availability of groundwater is relatively high in comparison with the national average. Therefore, the unit cost for the treatment facility has been set at 70 % of the standard unit cost.

- Sector loan portion (Intake + Treatment x 0.7 + half of Distribution): Rp (220+4,720 x 0.7 + 2,710/2) million = Rp 4,879 million
- Counterpart Fund (APBD/PDAM) portion (half of Distribution + Service installation):

Rp (2,710/2 + 930) million = Rp 2,285 million

3) Unit price of sub-project in East Java

Type 1 (Length of Distribution Main: 1,000 m) has been applied. In East Java, the availability of groundwater is high in comparison with the national average. Therefore, the unit cost for the treatment facility has been set at 50 % of the standard unit cost.

- Sector Loan portion (Intake + Treatment x 0.7 + half of Distribution): Rp (220+2,080 x 0.5 + 2,710/2) million = Rp 2,615 million
- Counterpart Fund (APBD/PDAM) portion (half of Distribution + Service installation):

Rp (2,710/2 + 930) million = Rp 2,285 million

2.3 **Project Finance (Counterpart Fund, Fund Flow, etc.)**

Under the present SPAM IKK program, the water supply systems for 820 IKKs are scheduled to be constructed within five years starting in 2010, with the required budget amounting to Rp. 4,929 billion. BAPPENAS envisages using ODA loans from the donors for the construction of the most feasible projects.

Considering the insufficient results of the last SPAM IKK program (2005-2009), MPW has now a policy to select only limited feasible projects. In this regard, more concerns have been paid to the financial plan for the construction of distribution and connections of which cost would have to be borne by district government. In this respect, it is proposed that a part of investment cost of distribution would be borne by MPW on behalf of the district government, which is suffering from tight financial situation. This ensures faster completion of the whole water facility.

The expected foreign loan will be provided in foreign currency in the form of sector loan for water supply system installation along with SPAM IKK program in the selected provinces. Upon the receipt of the loan proceeds, MOF will exchange them into Rupiah currency and deposit in a special account allotted for the project. GOI will receive the proceeds at six tranche on a semi-annual basis for three years. This disbursement schedule on a semi-annual basis would be synchronized with the payments from SatKer to contractors.

MOF will on-finance the proceeds to MPW for the construction of upper stream part of the water supply system. In addition, MOF will also on-finance exceptionally in this sector loan a part of the distribution portion in the downstream part, which were supposed to be financed by local governments under the normal SPAM IKK projects. The total loan amount for construction is expected to be USD 45 million including USD 12 million for distribution.

2.4 Annual Fund Requirement

The annual disbursement schedule is assumed as shown in Table 2.4.1 based on the proposed implementation schedule and project cost. The number of sub-projects is the same for three years of the project implementation period.

				(USD)
	Year-2	Year-3	Year-4	Total
Construction Cost	12,892,882	13,447,276	14,025,508	40,365,666
Consulting Service	1,250,104	1,293,516	1,338,546	3,882,166
Total	14,142,985	14,740,791	15,364,055	44,247,831
Interest during Construction Construction: 1.4% Consultant: 0.01%	180,625	369,017	565,508	1,115,149
Commitment Charge 0.1%	30,105	15,364	0	45,469
Disbursement	14,353,715	15,125,172	15,929,562	45,408,449

Table 2.4.1 Disbursement S	Schedule
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Source: JICA Study Team 2010

As shown in the above table, the total amount of loan is proposed at USD 45,408,449.

CHAPTER 3 IMPLEMENTATION STRUCTURE AND MONITORING SYSTEM

3.1 Implementation Structure

3.1.1 Executing and Implementation Agencies

The executing and implementation agencies for SPAM IKK consist of the related organizations at the central, provincial and district levels as shown in Table 3.1.1.

Organization		Directorate /Agency		
Central Level				
Ministry of	Directorate General of	Directorate of Programme Development		
Public Works	Human Settlements	(DirBP)		
	DGHS (Cipta Karya)	Directorate of Water Supply Development		
		(DirPAM)		
		Project Management Unit (PMU)		
	Central SatKer			
	Cabinet Secretary	Support Agency for Water Supply System		
		(BPP-SPAM)		
		Bukasi & Surabaya Training Center		
Provincial Level				
Dinas I	PU/ Cipta Karya	Provincial SatKer,		
District Level		-		
Local Government		Development Planning Board for District		
		Level (BAPPEDA)		
		Dinas PU		
	PDAM (Regional Drinking Water Enterprise)			

Table 3.1.1 Executing and Implementation Agencies

Source: JICA Study Team 2010 based on the present organization of SPAM IKK.

3.1.2 Organization's Role

The role of the organizations related to SPAM IKK is clearly mentioned in the SPAM IKK Guidelines (Guidelines for Implementation of Program for Development of Drinking Water Supply System in Cities in Sub District, SPAM IKK, Decision No. 24-/KPTS/DC/2008). However, the present activity taken by the related organizations is not consistent with the SPAM IKK Guidelines.

The role of each organization is different at the stage of project planning, construction and operation of facility. The sub-project (SPAM IKK) under the sector loan shall be implemented through the following manner:

(1) Planning Stage

1) Preparation of Master Plan (M/P)

Water Supply Development M/P of the sub-project is essential for the local government in terms of appropriated regional development. M/P shall be prepared by BAPPEDA in association with Dinas PU and PDAM.

2) Explanation to residents and socialization

PDAM is required to discuss and exchange opinions with residents concerning the sub-project (SPAM IKK) during the preparation stage. Proposal to be submitted to the provincial government (SatKer) shall fully reflect the resident's view of IKK. Socialization is important in the process of living conditions to be improved by piped water supply system. Since PDAM is called for to fully recover cost for the cost of SPAM IKK operation, it is necessary to explain and get residents consensus for the basic management factors, i.e. water production cost and tariff structure. It is also important that PDAM's management attitude explains to residents the measures that should be taken towards administrative and maintenance cost reduction.

3) Implementation of Feasibility Study (F/S)

F/S for sub-project (SPAM IKK) shall be conducted by PDAM in association with Dinas PU on the basis of M/P. Based on the result of F/S, the related organizations such as PDAM, BAPPEDA and Dinas PU should discuss the financial aspect, especially APBD budget allocation viability of proposal from the viewpoint of the project scale against water supply demand.

Although PDAM is the water supply operator, it is required to participate in the planning and construction stage of the sub-project in order to reflect the opinions (service level) of district residents in the development plan.

4) Land acquisition

Land acquisition shall be performed by Dinas PU for the intake facility and WTP after getting approval for the permission requested from the land owner, based on the result of F/S, if necessary.

5) Obtaining water right

The water right shall be obtained by PDAM from relevant ministries and agencies,

based on the result of F/S, if necessary.

6) Submission of proposal

The sub-project proposal shall be prepared by Dinas PU in association with BAPPEDA and PDAM. The sub-project proposal attached with the required documents stipulated in the SPAM IKK Guidelines shall be submitted by Dinas PU to the provincial SatKer after acquiring recognition of Bupati for APBD budget allocation, as required for the project implementation.

7) Preparation of Detailed Design for APBD Portion

On the basis of screening of proposal by the provincial SatKer, the detailed design of APBD portion in the sub-project shall be prepared by Dinas PU in cooperation with PDAM, considering its past experience as operator. The Consultant may be employed by Dinas PU, if required.

8) Review and screening of proposal

The contents of SPAM IKK proposal submitted by different district governments shall be examined by the provincial SatKer from the viewpoint of the validity of a business plan based on the drinking water demand and the burden capability of APBD budget. The proposal may be revised by provincial SatKer. The sub-project screening process should be more conventional to the provincial SatKer through timely APBN budget allocation process, by strengthening its function in project screening at provincial level.

9) Preparation of Detailed Design for the APBN portion

Detailed design for the APBN portion of the sub-project shall be prepared by the provincial SatKer. Detailed design for APBD portion shall be approved by the provincial SatKer from the viewpoint of water supply system component. The Consultant may be employed by the provincial SatKer, if required.

10) Submission of selected proposal by the provincial SatKer

The sub-project proposal attached with necessary documents shall be prepared by the provincial SatKer in accordance with the SPAM IKK Guidelines. The selected proposal shall be submitted by the provincial SatKer to the central government (PMU) after selection of sub-projects according to the SPAM IKK Guidelines.

11) Selection of sub-project and APBN budget allocation

The sub-project proposal prepared by the provincial SatKer shall be studied by DirPAM, Central SatKer and the PMU, based on the urgency of proposal and

reliability of APBD budget allocation. After selection of proposal submitted by different provincial governments, APBN budget for the selected sub-projects shall be allocated by the PMU.

12) Allocation and confirmation of APBD budget

According to the result of sub-project selection made by the PMU, the provincial SatKer shall convey the selection result to BAPPEDA and Dinas PU, and reconfirm APBD budget allocation.

13) Explanation to residents

The detailed development plan such as water supply targeted area, construction schedule, phased development, etc. of the sub-project shall be explained by PDAM in cooperation with Dinas PU to residents in IKK, in order to obtain consensus to cope with the project.

- (3) Construction Stage
- 1) Selection of contractors/suppliers

Tendering of sub-project and selection of contractor shall be performed by the provincial SatKer and Dinas PU, respectively. provincial SatKer and Dinas PU should coordinate and harmonize APBN and APBD portions of the construction works to be executed by different contractors.

2) Approval of construction method and schedule

The sub-project construction schedule and method submitted by the contractor or supplier shall be examined by the provincial SatKer. All system components including APBD portion in the sub-project shall be reviewed and coordinated by the provincial SatKer.

3) Construction supervision

Construction supervision of APBN and APBD portions in SPAM IKK shall be carried out by Consultants under contract with the provincial SatKer and Dinas PU, respectively. However, the whole construction works including APBD portion shall be the responsibility of the provincial SatKer. The progress of construction works shall be periodically reported to PDAM. Hence, PDAM will be able to start operational preparation such as personnel allocation, training of staff, public relations to residents, etc.

4) Staff training

Prior to commissioning of water supply system component, PDAM shall train his staff

at Bukasi or Surabaya Training Center so as to smoothly operate the facilities and provide good service to the customers in IKK.

5) Approval of As-build drawings and operation manuals

Prior to the commissioning stage, the provincial SatKer shall request the contractor to submit the training schedule of the PDAM personnel, ans-built drawings and operation manuals of SPAM. Such documents should be approved by the provincial SatKer, Dinas PU and PDAM.

6) Commissioning and trial operation

At the commissioning stage of SPAM, the contractor or supplier should transfer the technology on operation and maintenance (O&M) method to PDAM personnel. Technology transfer shall be carried out during the trial operation in accordance with the SPAM IKK guidelines. SPAM shall be handed over to PDAM after confirmation of smooth operation during trial operation. A quality assurance with one-year guarantee period from the contractor/supplier shall be established for the mechanical and electrical equipment.

7) Explanation to residents

PDAM is required to explain its service level to residents in IKK for them to understand the water supply targeted area, water quality, operation hours, tariff structure, fee collecting method, etc., before SPAM operation.

(3) Operation Stage

1) Operation and maintenance (O&M)

PDAM/BLU have total responsibility for all O&M of all aspects of SPAM IKK system under the jusidiction of district government. Moreover, technical assistance for O&M will be provided by the Dir PAM and provincial SatKer.

2) Monitoring and establishment of database

The central level is required to collect the monitoring data complied by provincial SatKer about the actual conditions of SPAM IKK program. However, the PMU has not enough the information on the SPAM IKK operation program. Periodically monitoring of SPAM IKK project shall be conducted by provincial SatKer. PDAM shall arrange the monitoring data based on the monthly report of SPAM IKK and submitted to the provincial SatKer/provincial Cipta Karya. The provincial SatKer/provincial Cipta Karya should make the database based on the monitoring data and deliver an electric copy to the PMU/Cipta Karya.

3) Data Analysis and Evaluation

The PMU shall review the database based on the monitoring index set up in Chapter 16.1 Evaluation shall be conducted by Dir BP Cipta Karya. If the actual output would be different from the planned output of the sub-project, the consequences and reasons shall be analyzed.

The roles and responsibilities of the related organizations mentioned above are shown in Table 3.1.2.

			Responsible Organization							
			Central Level			Provinc	District Level		vel	
		Role		Contrai			e Level	5.		
				Central	Dir	Dir	Provinc	BAPPE	Dinas	
			PMU	SatKer	BP	PAM	ial	DA	PU	PDAM
-	Dla						SatKer			
	P1a	Dreparation of Master Dian (M/D)								
	$\frac{1}{2}$	Explanation of Master Plan (M/P)								
	2) 2)	Explanation and Socialization to								
	3) 4)	Implementation of Feasibility Study								
	4) 5)	Charling Weter Disht								
	$\frac{3}{2}$	Setwississ of Deepers						•		
	6)	Submission of Proposal								
	7)	Preparation of Detailed Design for								
	Ó	APBD Portion								
	8)	Review and Screening of Proposal								
	9)	Preparation of Detailed Design for								
	- /	APBN Portion								
	10)	Submission of Selected Proposal by								
	,	Provincial SatKer					_			
	11)	Selection of Sub-Project and APBN								
	,	Budget Allocation								
	12)	Allocation and Confirmation of								
	, í	APBD Budget								
	13)	Explanation to Residents								
2	Co	nstruction Stage								
	1)	Selection of Contractors/Suppliers								
	2)	Approval of Construction Method &								
	_/	Schedule					_			
	3)	Construction Supervision								
	4)	Staff Training								
	5)	Approval of As-build Drawings &								
	5)	Operation Manuals					-			
	6)	Commissioning and Trial Operation								
	7)	Explanation to Residents								
3	Op	eration Stage								
	1)	Operation and Maintenance								
	2)	Monitoring and Establishment of								
	<i>∠)</i>	Database								
	3)	Data analyzed and Evaluation								
		Source: JICA Study Team 2010								

■: Core player

▲: Co−player

3.1.3 Organizational Chart

According to the role of executing and implementation agencies mentioned earlier, the organizational chart for the implementation of SPAM IKK is shown in Figure 3.1.1.



- Command line
- Co-work/Coordination line

Reporting line

Source; JICA Study Team 2010 based on the present organization of SPAM IKK.

Figure 3.1.1 SPAM IKK Implementation Organizational Chart

3.1.4 Financial Position and Capacity

APBN and APBD budgets for the project implementation shall be allocated by the MPW (Cipta Karya) and the local government (Dinas PU). APBN budget for the construction of the facility shall be covered by the sector loan from foreign donor.

Construction cost for the facility (intake, treatment and a part of distribution facilities) shall be covered by APBN budget.

APBD budget is required for the execution of the project's initial stages such as the preparation of M/P, implementation of F/S and land acquisition. A part of the distribution facility and service installation cost during construction stage shall be also covered by the local government (district level). Monitoring and evaluation costs after facility construction shall be borne by the related organizations at the central, provincial and district levels,

The project cost shall be borne by the related organization as shown in Table 3.1.3.

	Item	MPW	Provincial	BAPPEDA	Dinas	PDAM
		(Cipta	SatKer		PU	
		Karya)			(District)	
		APBN (S	ector Loan)		APBD	
1	Preparation of M/P			0		
2	Implementation of F/S				0	0
3	Land Acquisition				0	
4	Construction Cost of Facility	0			0	

 Table 3.1.3
 Project Cost Covered by Related Organization

Source: JICA Study Team 2010, \circ means the cost is to be covered by each organization.

3.2 O&M and Management (Including Monitoring)

- 3.2.1 Structure and the Number
 - (1) Operation and Maintenance

No water supply facility area will be basically selected for the sub-project site. Therefore, the branch office of PDAM will be established for each sub-project except for those connected to the existing system. The target number of the connection is 1,000 in 10 L/s system. The office's tasks include the operation of WTP for 24 hours, maintain the pipelines, meter reading, tariff collection and accounting. It is noted that the works inside the WTP needs the operator and water quality management.

BPP SPAM expects an average of 8 numbers of staff per 1,000 connections to ensure efficiency of PDAM management. However, the said branch office is small and a stand-alone system. Therefore, it is assumed that the following ten staff members should be suitable at the branch office of WTP for the operation of the system:

- Head of branch office: 1 person
- Administration staff: 1 person

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-	WTP operator:	2 persons (two twelve-hour shifts)
-	Water quality management staff:	2 persons (two twelve-hour shifts)
-	Pipe management staff:	2 persons
-	Meter reading staff:	2 persons

Two technical staff members for WTP consisting of an operator and one water quality management personnel should work 24 hours on two twelve-hour shifts.

The branch office should make the monthly report and submit to the head office of PDAM. The head office should submit the report to the PMU/Cipta Karya and provincial SatKer/provincial Cipta Karya regarding the monitoring of works for the sub-project. The monthly report should be used as the base data for monitoring. The report is composed of the following items:

Monthly water collection fee amounts and rate; production and supply volume (m³/month); WTP operation hour (average operation hours per day); number of connection (contract numbers and suspended numbers at end of month); complain from customer (water supplied hours, suspended hours, water volume, water quality, water fee payment), expected and total actual revenue (Rupiah/ month) and total actual cost (electric fee, cost of chemicals, administrative expense; and employment cost).

The branch office should compile the data and submit to the head office of PDAM. The head office should deliver a copy of the report to the provincial SatKer/provincial Cipta Karya.

Provincial SatKer should prepare the standard format of the monthly report based on the instructions of Cipta Karya (Dir BP) and PMU.

(2) Monitoring

The monitoring structure is shown in Figure 3.2.1. The PMU and Dir BP, Cipta Karya, should collect and analyze the monitoring data submitted by the Provincial SatKer/Provincial Cipta Karya. The collection and compilation of the monitoring data shall be carried out by the PMU while the evaluation and analysis shall be done by Dir BP's as their main task in terms of the monitoring system.

The current capacity of the PMU is very limited as it has a few staff and has no experience. Therefore, the PMU should be strengthened to perform monitoring works. On the sector loan, PMU staff is proposed to consist of the following:

Head: 1 staff Monitoring manager for each province: 3 staff Monitoring staff for each province: 3 staff The data analyzed by Dir BP, Cipta Karya, should be disclosed to the organizations concerned (District Dinas PU, PDAM BAPPEDA and so on) within one year after data collection, to be used as basis for the execution of the next project .



Figure 3.2.1 Proposed Monitoring Structure for the Sub-Project

1) Planning stage

The district/PDAM should arrange and present to the provincial SatKer, the data with corresponding technical, financial and management indicators shown in section 4.1, after selecting the sub-project. The provincial SatKer should then make an electronic file containing the monitoring reports and deliver a copy to the PMU/Cipta Karya.

2) Construction stage

The provincial SatKer should monitor the sub-project twice (one at the end of the tender and one during construction) using the indicators shown in section 4.1. The provincial SatKer and district should arrange the monitoring data with respect to the APBN part and APBD part. It should further prepare an electronic file (containing spread sheets and documents) of the monitoring report, considering all the APBN and

APBD data, and deliver a copy of the report to the PMU/Cipta Karya.

3) Operation stage

The monitoring index set up in section 4.1 and the benchmark and target number of house connections mentioned in the 1st year and 2nd year after completion of the SPAM IKK project shall be in accordance with the Guideline of SPAM IKK 2008. Therefore, the provincial SatKer/provincial Cipta Karya should carry out the monitoring of the sub-project periodically in the 1st year, 2nd year and 5th year. The purpose of the 1st year's monitoring is to confirm the system and progress of house connection (the target progress for house connection in the 1st year is 50% according to the guideline). The purpose of 2nd year's monitoring is to confirm each achieved monitoring target and determine the success of the sub-project. The purpose of the 5th year's monitoring is to confirm stability. The success of the sub-project is determined based on the comprehensive quantitative and qualitative indicators, which will be described in Chapter 4.

PDAM will arrange the monitoring data based on the monthly report submitted by the branch office and the indicator presented in section 4.1. Each data will be submitted to the provincial SatKer/provincial Cipta Karya periodically year by PDAM. The provincial SatKer/provincial Cipta Karya should make an electronic file containing the monitoring reports and deliver a copy to the PMU/Cipta Karya.

Although BPP-SPAM carries out the analysis of the management situation of PDAM, it needs to feed back the analysis results to provincial SatKer, provincial Cipta Karya and PDAM, in order to improve the management system.

3.2.2 Qualification and Skill of Staff

Cipta Karya is preparing a technical qualification system for water supply. This states that the new organization on the professional certification institute cooperating with PERPAMSI should issue a certificate to engineers upon meeting requirements. Moreover, the PDAM shall employ at least one qualified staff at the head office. He shall monitor each branch office to maintain a certain technical level.

At least one operation staff of the branch office should be trained to obtain knowledge on rapid sand filter purification process, assuming that the sub-project is planned to employ such system of WTP. He needs to participate in technical seminars at least once a year.

3.2.3 Other Conditions Necessary to Maintain the Outputs and the Benefits of the Project The branch office is required to set up a window (customer service unit) which is supposed to receive complaints from residents. Complaints and requests from customers shall be recorded by the branch office which will be reported to the head office for the improvement of their services. The provincial SatKer shall be informed about the actual problems that arise during the operation stage due to planning. This information will be useful in drafting the plan for other sub-projects in the following fiscal years.

3.2.4 O&M Cost and Budget

The annual O&M Cost per one SPAM IKK is estimated for determining the demand for the budget for operation. It is assumed that the facility's capacity is 10 L/s and the operating time is 24 hours per day.

- (1) O&M Cost Items
- 1) Manpower

The manpower cost is estimated based on the number of staff members in the water treatment facilities including those in the distribution facilities working for 24 hours operation, and for two shifts a day. The staff is assumed to consist of chief manager, WTP and pump operator, water quality control staff, pipe maintenance staff, water meter reader.

2) Electricity expense

An electricity expense is estimated based on the following assumptions:

- Power supply received from the electric company (PLN).
- Distribution is done by pumping. Regarding equipment specifications, two pumps are required with consumer power of 7.5 kW per one unit.
- 3) Repair cost

Repair cost is assumed at 1% of the total construction cost.

4) Chemicals (chlorine, PAC)

About 1.0 kg of chemicals (chlorine, PAC) is assumed to be used per 1,000 m³ water production.

5) Administrative cost

Administrative cost is estimated at 10% of the total of items 1) to 4).

(2) Computation of O&M Cost

The annual O&M costs and administration costs are estimated based on the above condition as shown in Table 3.2.1. Further detailed calculations are given in Table

3.2.2 to 3.2.4

(3) Budget

The O&M cost of Rp. 424,300,000 /year is estimated as shown in Table 3.2.1. Therefore, the operation organization (PDAM) for the sub-project considered that for the facility capacity of 10 L/s, a yearly O&M budget of around Rp. 425,000,000 is required.

Item	Cost (Rp)	Remarks
1. Manpower	160,600,000	See Table 15.2.4.2
WTP & Pump operator	83,000,000	
Water quality control staff	41,600,000	
Pipe maintenance staff	38,800,000	
Water meter reader	38,800,000	
2. Electricity	157,200,000	See Table 15.2.4.3
Nomal time cost	78,800,000	
Night time cost	39,400,000	
Basic charge	39,000,000	
3. Repair	59,400,000	1% of Construction cost
		(5,940,000,000 Rp)
4. Chemicals	8,500,000	See Table 15.2.4.4
Sub-total	385,700,000	
5. Administration	38,600,000	10% of total O&M cost (1 4.)
Total	424,300,000	

Table 3.2.1 O&M and Administration Costs

Source: JICA Study Team 2010

	Number	Remarks
	of Staff	
	(no.)	
Cheef Manager	1	
WTP & Pump Operator	3	1 Administrator, 1 Operator * 2 shifts
Water Quality Control Staff	2	1 manager * 2 shifts
Pipe Maintenance Staff	2	1 manager * 2 shifts
Water Meter Reader	2	
Total	10	
	Unit Price	Unit
Cheef Manager	24,800,000	Rp/year
WTP & Pump Operator	19,400,000	Rp/year
Water Quality Control Staff	20,800,000	Rp/year
Pipe Maintenance Staff	19,400,000	Rp/year
Water Meter Reader	19,400,000	Rp/year
Total		

Table 3.2.2 Manpower Cost

Source: JICA Study Team 2010

Table 3.2.3 Electricity Cost

	Consumer	Number	Operation	Operation	Operation Volume
	Power	of Pump	time	day	per Year
	(kW)	(no.)	(hour/day)	(day/year)	(kWh)
Nomal time	7.5	2	18	365	98,550
Night time	7.5	2	6	365	32,850
Total					131,400

Note) The electric cost is divided into night time (18:00 to 22:00) and normal time

	Unit Price	Unit
Nomal time	800	Rp/kWh
Night time	1200	Rp/kWh

Source: JICA Study Team 2010

Water Production	Water Production	Chemicals	Chemicals
per Second	per Year	Amount	Yeary Amont
(L/sec)	(m3/year)	(kg/1000m3)	(kg/year)
10	315,360	1.0	315
Unit Cost of Chemica	als		_
	Unit Price	Unit	
Chlorine	17,000	Rp/kg	_
PAC	10,000	Rp/kg	

Table 3.2.4 Cost of Chemicals

Source: JICA Study Team 2010

3.3 Precautions (Points which Require Special Attention in the Implementation Phase) and Countermeasures

The purpose of the sector loan project is achieving MDGs, i.e., increasing number of house connections. Therefore, households shall be connected to the newly implemented system as soon as the sub-project is completed. Moreover, it is important that socialization activity is continually carried out during the planning stage, as well as during the implementation stage.

O&M of the implemented facility of the sub-project is carried out by PDAM. However, the O&M costs shall be borne by the customers/users in the supply area. Thus, from the planning stage, it is important to explain the sub-project outline to residents getting in order to obtain consensus for the undertaking. Consequently, it is necessary to carry out information dissemination at an early stage of the sub-project. PDAM needs to explain to the residents about the provision of good water supply service in terms of effective management. Management issues of PDAM and implementation issues of the sub-project shall be derived from the disclosed information. Furthermore, the respective roles and the manner of cooperation among related organizations shall be clarified during the information dissemination.

CHAPTER 4 MONITORING AND EVALUATION INDICATORS

4.1 Quantitative Indicators

4.1.1 Indicators for the Monitoring and Evaluation of the Entire Sector Loan Project

The PMU, Cipta Karya, should perform monitoring during the project period while Dir BP should evaluate the monitored data each year. The quantitative indicators for the sector loan should be proposed as shown in Table 4.1.1. The results shall be disclosed to the organization concerned including the foreign donor. Table 4.1.1 assumed that 60 sub-projects are implemented with the sector loan.

Table 4.1.1 Proposed Quantitative Indicators for Sector Loan Project Monitoring

Quantitative Indicators	Targets
The number of 24 hours/day operated SPAM IKK systems.	50 out of 60 SPAM IKKs within two years after construction completed by APBN.
Total water consumption (L/s)	500 L/s (around 80% of total water consumption of sub-project)
Total house connection numbers	50,000 out of 60,000 number of house connection
Number of sub-project	60 nos.(100%)
Selection ratio of approved Sub-project	>90%

Source: JICA Study Team 2010

The provincial SatKer/provincial Cipta Karya should take the monitoring data from each responsible organization. Subsequently, the PMU and Dir BP, Cipta Karya, should evaluate and analyze the background of successful and unsuccessful cases. The monitoring data will be taken for each stage, namely: planning stage, construction stage and operation stage. The planning stage data will be taken after the sub-project has been selected by the PMU. The construction stage data will be taken after completion of the tender opening and before facilities' handover to operation organization (PDAM) by the provincial SatKer or district. The operation stage data will be taken on the 1st, 2nd and 5th year after completion of the work by the provincial SatKer or provincial Cipta Karya. These data should be evaluated within three months after taking data on each stage by PMU and Dir BP.

4.1.2 Indicators for the monitoring and evaluation of individual sub-projects

The detailed quantitative indicators for sub-project monitoring shown in Table 4.1.2 are proposed.

		Evaluation						
age	Indicator				Description			
Sta		Indicator	Responsibility	1st year	2nd year	5th year	Target	
		Water Sources	River/Well/Spring	District		-	-	-
e	Technical	Actual Demand (connection)	Nos.(HC)	District/PDAM		-	-	>1000
tag		Design Review	Yes / No	SatKer		-	-	-
ы S	Financial	APBN	Rp.	SatKer		-	-	-
nin	Financial	APBD	Rp.	District		-	-	-
Plan	Management	Operation Organization	PDAM/BLU	District		-	-	-
	Management	Land Acquisition	Yes / No	District		-	-	Y
		Water Right	Yes / No	District		-	-	Y
		Tenderer, Contractor	company	SatKer/District		-	-	-
	Procurement	Price (for APBN, APBD)	Estimated price / Tender price	SatKer/District		-	-	-
tage		Company Evaluation	(Period/Quality/ Training/Drawing)	SatKer/District		-	-	
Construction St	Construction	Construction Period (for APBN, APBD)	Plan / Actual	SatKer/District		-	-	-
		Price (for APBN, APBD)	Construction price	SatKer/District		-	-	-
		Documents	Drawings/ Operation manual /Commissioning test result	SatKer/District		-	-	-
		Production	L/s	PDAM				10 L/s
		Operation hours for WTP	hour	PDAM				24 h
	Technical	Supply hours	hour	PDAM				24 h
		Connection	Actual/Plan (HC)	PDAM				>1000
age		Claim for water quality	Nos.	PDAM				0
St		Cost/ Revenue	-	PDAM				<1.0
ration	Financial	Tariff Collection rate	%	PDAM				80%
Jpe		Tariff	Rn_{m}/m_{3}	PDAM				_
		Operation staff	People	PDAM				4
		Trained Staff	People	PDAM				1
	Management	Documents	Drawings/ Operation manual /Commissioning test result	PDAM				all

Table / 1 2	Proposed Indicators for Sub Project Manitoring and Evaluation
Table 4.1.2	Proposed indicators for Sub-Project Monitoring and Evaluation

Source : JICA Study Team 2010

4.2 Qualitative Indicators

4.2.1 Monitoring and Evaluation Methods

The PMU and Dir BP, Cipta Karya, should monitor and evaluate the sub-project using qualitative indicators, through interview surveys with provincial SatKer/provincial Cipta Karya. Provincial SatKer should take the necessary information from the district and PDAM. The monitoring with qualitative indicator should be carried out at each stage.

- Planning Stage: Dir BP, Cipta Karya, and PMU collect the information and evaluation of the capacity of Provincial SatKer and district at the end of the planning stage.
- Construction Stage: Dir BP, Cipta Karya, collects the information and evaluation of the capacity of provincial SatKer and district at the end of the construction stage.
- Operation Stage: Dir BP, Cipta Karya, also collects the information and evaluation of capacity of provincial Cipta Karya and district/PDAM on the 1st year, 2nd year and 5th year, after handing over the facility to PDAM.
- The purpose of the 1st year's monitoring is to confirm the setting up condition of the operation structure. Meanwhile, the purpose of the 2nd year's monitoring is to confirm if the sub-project was successful. Finally, the purpose of 5th year's monitoring is to confirm stability. The success of the sub-project is confirmed based on the comprehensive use of quantitative and qualitative indicators.

4.2.2 Qualitative Indicators of Stages

Monitoring and evaluation is carried out at three stages. The qualitative indicators for each stage are shown below. Each indicator should be reviewed and revised after evaluating the capacity of organizations concerned, to be utilized as feedback for the next program.

- (1) Planning Stage
 - Planning of proposal
 - Selection procedures for sub-project
 - Realization of the Guideline
 - Results of socialization
- (2) Construction Stage
 - Condition of construction and inspection for facility

- Progress of disbursement of APBN and APBD
- Performance of house connection
- (3) Operation Stage
 - Monitoring system
 - Condition of supply service (water quantity, pressure and quality)
 - Beneficiaries' satisfaction
 - Issues of tariff and water fee collection
 - Skills of operator
 - Leakage management

4.3 Financial and Economic Evaluation (FIRR and EIRR)

This section presents the financial and economic evaluation of subprojects under the sector loan. Since the sub-projects have not been identified yet at the time of the study, it should be noted that the evaluation results are limited to a preliminary basis. Moreover, the analysis and evaluation presented below are elaborated for certain types of sub-projects envisaged for future sector loans relying on a number of assumptions, which can be greatly different from the actual sub-projects to be selected.

4.3.1 Financial Evaluation

The financial evaluation aims at evaluating the sub-project's financial viability through calculation of average cost for the operation and the financial internal rate of return (FIRR), through cost-benefit analysis.

(1) Assumptions

Project Life

The project life considered in the analysis is 21 years; i.e. 20 years service life of the constructed facilities and one year construction period.

Cost Estimates

Construction cost estimates applied in the analysis are presented in Section 14.1, Chapter 14, based on July 2010 price level.

Price Escalation

Price escalation is not considered in the analysis; economic values are expressed at constant price.

Interest during Construction

Interest during construction is excluded from the calculation since the analysis aims at the calculation of the project IRR of total capital used.

(2) Financial Cost

Construction Cost

Four types of sub-projects with production capacity of 10 L/s are assumed based on the results of the construction cost estimates in Chapter 14. The sub-project types are distinguished by (i) length of distribution main and (ii) with/without WTP. The construction cost according to distinguished type are shown in Table 4.3.1, which range from Rp.6,554 million to Rp.11,159 million.

Itom		Sub-project Cost (Rp. million)					
item	Type 1A	Type 1B	Type 2A	Type 2B			
Distribution Main Length	1,000m	1,000m	5,000m	5,000m			
WTP (Rp.1,000 million)	Without WTP	With WTP	Without WTP	With WTP			
Intake Facility	220.00	220.00	220.00	220.00			
Treatment Facility	1,080.00	2,080.00	3,720.00	4,720.00			
Distribution Facility	2,710.00	2,710.00	2,710.00	2,710.00			
Service Installation	930.00	930.00	930.00	930.00			
Construction Base Cost	4,940.00	5,940.00	7,580.00	8,580.00			
Physical Contingency	494.00	594.00	758.00	858.00			
Consulting Services BC	269.20	269.20	269.20	269.20			
Physical Contingency	8.08	8.08	8.08	8.08			
Total Construction + CS	5,711.28	6,811.28	8,615.28	9,715.28			
Administration	247.00	297.00	379.00	429.00			
VAT	595.83	710.83	899.43	1,014.43			
Total Cost	6.554.11	7.819.11	9.893.71	11.158.71			

 Table 4.3.1 Construction Cost (Financial Cost)

Source: JICA Study Team 2010

Operation and Maintenance (O&M) Cost

Annual O&M cost by sub-project type is calculated in accordance with the estimates presented in 15.2, Chapter 15. The O&M costs vary depending on the base cost and the number of required personnel. For the type 1B and 2B without WTP, the required personnel for (i) WTP and pump operators and (ii) Water quality control staff is reduced by one person each. Table 4.3.2 shows the results of the estimates.

Itom	Sub-project O&M Cost (Rp.)					
item	Type 1A	Type 1B	Type 2A	Type 2B		
Distribution Main Length	1,000m	1,000m	5,000m	5,000m		
WTP (Rp.1,000 million)	Without WTP	With WTP	Without WTP	With WTP		
1. Manpower (with WTP)	141,200,000	160,600,000	141,200,000	160,600,000		
WTP & Pump operation	63,600,000	83,000,000	63,600,000	83,000,000		
Water quality control	20,800,000	41,600,000	20,800,000	41,600,000		
Pipe management	38,800,000	38,800,000	38,800,000	38,800,000		
Water Meter Reader	38,800,000	38,800,000	38,800,000	38,800,000		
2. Electricity	157,200,000	157,200,000	157,200,000	157,200,000		
Nomal time cost	78,800,000	78,800,000	78,800,000	78,800,000		
Night time cost	39,400,000	39,400,000	39,400,000	39,400,000		
Basic charge	39,000,000	39,000,000	39,000,000	39,000,000		
3. Repair (1% of Construction)	49,400,000	59,400,000	75,800,000	85,800,000		
4. Chemicals	8,500,000	8,500,000	8,500,000	8,500,000		
Sub-total	356,300,000	385,700,000	382,700,000	412,100,000		
5. Administration (10%)	35,600,000	38,600,000	38,300,000	41,200,000		
Total	391,900,000	424,300,000	421,000,000	453,300,000		

 Table 4.3.2 Annual O&M Cost (Financial Cost)

Source: JICA Study Team 2010

Besides the annual O&M cost, house connection cost estimated at Rp.850,000 per connection is borne by PDAM in the first year of operation. It is assumed that the same connection fee is paid by connected households to PDAM as financial benefits.

(3) Financial Benefit

Financial benefit of the sub-projects is considered as water tariff revenue paid by the connected households, estimated based on the following assumptions:

- Water Tariff: Rp. 3,200 per m³ at 2010 price level, estimated from the national average of Rp. 2,951/m³ in 2008 and price escalation of 4.3% per annum.
- House connections: 1,000 connections are completed by the first year of operation
- UFW rate: 5%

The annual water tariff revenue is calculated as Rp. 958.69 million (Table 4.3.3).

 Table 4.3.3 Annual Water Tariff Revenue (Financial Benefit)

Water Production - 10L/s(m3)	315,360
UFW amount at 5% (m3)	15,768
Water Sold (m3)	299,592
Water Tariff (Rp.)	3,200
Water Revenue (Rp. million)	958.69

Source: JICA Study Team 2010

(4) Average Production Cost

As shown in Table 4.3.4, average water production costs are estimated from Rp. 2,402 to Rp. 3,375 by sub-project type. The operation ratios, calculated to show comparison with the assumed water tariff of Rp. $3,200/m^3$, are below 1.0, except for Type 2B (1.05). The results indicate that the sub-project types with greater construction costs

(Type 2A and 2B) require higher water tariff level than average to accomplish operational surplus.

Itom	Water Production Cost (Rp. million)					
item	Type 1A	Type 1B	Type 2A	Type 2B		
Distribution Main Length	1,000m	1,000m	5,000m	5,000m		
WTP (Rp.1,000 million)	Without WTP	With WTP	Without WTP	With WTP		
Construction Cost	6,554.11	7,819.11	9,893.71	11,158.71		
Annual Depreciation Cost /1	327.71	390.96	494.69	557.94		
Annual O&M Cost	391.90	424.30	421.00	453.30		
Total Annual Cost	719.61	815.26	915.69	1,011.24		
Water Sold per Year (m3)	299,592	299,592	299,592	299,592		
Average Production Cost (Rp./m3)	2,401.95	2,721.22	3,056.44	3,375.37		
Operation Ratio /2	0.75	0.85	0.96	1.05		

Table 4.3.4 Average Production Cost and Operation Ratio

/1 Calculated under average depreciation period of the system assumed as 20 years. /2 Operation ratio = average production cost / average water tariff (Rp.3,200/m3)

Source: JICA Study Team 2010

(5) FIRR

Cash flow projection is developed based on the aforementioned assumptions and estimates. As shown in Table 4.3.5, the calculated FIRR is 5.90% for Type 1A.

	Un							nit: Rp. million	
Voar		Cos	st		Benefit				
Tear	Construction	Connection	O&M	Total Cost	Connection Fee	Water Sold (m3)	Water Revenue	Total Benefit	Net Dellent
1	6,554.11			6,554.11				0.00	-6,554.11
2		850.00	391.90	1,241.90	850.00	299,592	958.69	1,808.69	566.79
3			391.90	391.90		299,592	958.69	958.69	566.79
4			391.90	391.90		299,592	958.69	958.69	566.79
5			391.90	391.90		299,592	958.69	958.69	566.79
6			391.90	391.90		299,592	958.69	958.69	566.79
7			391.90	391.90		299,592	958.69	958.69	566.79
8			391.90	391.90		299,592	958.69	958.69	566.79
9			391.90	391.90		299,592	958.69	958.69	566.79
10			391.90	391.90		299,592	958.69	958.69	566.79
11			391.90	391.90		299,592	958.69	958.69	566.79
12			391.90	391.90		299,592	958.69	958.69	566.79
13			391.90	391.90		299,592	958.69	958.69	566.79
14			391.90	391.90		299,592	958.69	958.69	566.79
15			391.90	391.90		299,592	958.69	958.69	566.79
16			391.90	391.90		299,592	958.69	958.69	566.79
17			391.90	391.90		299,592	958.69	958.69	566.79
18			391.90	391.90		299,592	958.69	958.69	566.79
19			391.90	391.90		299,592	958.69	958.69	566.79
20			391.90	391.90		299,592	958.69	958.69	566.79
21			391.90	391.90		299,592	958.69	958.69	566.79
Total	6,554.11	850.00	7,838.00	15,242.11	850.00	5,991,840	19,173.89	20,023.89	4,781.78

Table 4.3.5 Calculation of FIRR (Type 1A)

FIRR 5.90%

Source: JICA Study Team 2010

Likewise, FIRR by sub-project type are calculated as per Table 4.3.6. Compared with the weighted average cost of capital of 3.44% calculated from foreign loan 1.4% per anum (weight: 60%) and local budget cost assumed as the government bond coupon rate of 6.5% per annum with over 10-year maturity (weight: 40%), the results show
that the sub-projects under the current tariff level are not considered financially viable except for type 1A which has the least cost.

Itom	Sub-project Type					
item	Type 1A	Type 1B	Type 2A	Type 2B		
Distribution Main Length	1,000m	1,000m	5,000m	5,000m		
WTP	Without WTP	With WTP	Without WTP	With WTP		
FIRR	5.90%	3.18%	0.81%	-0.92%		

Table 4.3.6 Results of FIRR Calculation

Source: JICA Study Team 2010

4.3.2 Economic Evaluation

The economic evaluation aims at measuring the economic benefits of the Construction of sector loan sub-projects to the national economy through cost-benefit analysis, by calculating economic internal rate of return (EIRR).

(1) Assumptions

The same assumptions as for the financial evaluation are applied for the project life, cost estimation, price escalation and interest during construction. Taxes and duties such as VAT are considered transfer items and excluded from the analysis. To acquire the economic values, labor costs in the O&M cost are shadow-priced at 0.8 of the wage rates, while local currency portion of other inputs in the construction and O&M costs are adjusted using a standard conversion factor of 0.85.

(2) Economic Cost

Construction Cost

Construction cost of each sub-project type is converted into economic value (See Table 4.3.7)

Itom	Sub-project Cost (Rp. million)									
itein	Type 1A	Type 1B	Type 2A	Type 2B						
Distribution Main Length	1,000m	1,000m	5,000m	5,000m						
WTP (Rp.1,000 million)	Without WTP	With WTP	Without WTP	With WTP						
Intake Facility	187.00	187.00	187.00	187.00						
Treatment Facility	918.00	1,768.00	3,162.00	4,012.00						
Distribution Facility	2,303.50	2,303.50	2,303.50	2,303.50						
Service Installation	790.50	790.50	790.50	790.50						
Construction Base Cost	4,199.00	5,049.00	6,443.00	7,293.00						
Physical Contingency	419.90	504.90	644.30	729.30						
Consulting Services BC	229.27	229.27	229.27	229.27						
Physical Contingency	6.88	6.88	6.88	6.88						
Total Construction + CS	4,855.05	5,790.05	7,323.45	8,258.45						
Administration	209.95	252.45	322.15	364.65						
Total Cost	5,065.00	6,042.50	7,645.60	8,623.10						

Table 4.3.7 Construction Cost (Economic Cost)

* Economic value of construction cost is calculated with Standard Conversion Factor of 0.85 for local costs.

Source: JICA Study Team 2010

O&M Cost

Annual O&M cost by sub-project type is calculated in accordance with the estimates presented in 15.2, Chapter 15. The O&M costs vary depending on the base cost and the number of required personnel. For the type 1B and 2B without WTP, the required personnel for (i) WTP and pump operators and (ii) Water quality control staff is reduced by one person each. Table 4.3.2 shows the results of the estimates.

Itom	Sub-project O&M Cost (Rp.)								
item	Type 1A	Type 1B	Type 2A	Type 2B					
Distribution Main Length	1,000m	1,000m	5,000m	5,000m					
WTP (Rp.1,000 million)	Without WTP	With WTP	Without WTP	With WTP					
1. Manpower (with WTP)	112,960,000	128,480,000	112,960,000	128,480,000					
2. Electricity	133,620,000	133,620,000	133,620,000	133,620,000					
3. Repair (1% of Construction)	41,990,000	50,490,000	64,430,000	72,930,000					
4. Chemicals	7,225,000	7,225,000	7,225,000	7,225,000					
Sub-total	295,795,000	385,700,000	382,700,000	412,100,000					
5. Administration (10%)	29,579,500	38,570,000	38,270,000	41,210,000					
Total	325,374,500	424,270,000	420,970,000	453,310,000					

Table 4.3.8 Annual O&M Cost (Economic Cost)

* Economic value of manpower cost is calculated with wage rate of 0.8, whareas others are calculated with Standard Conversion Factor of 0.85.

Source: JICA Study Team 2010

House connection cost estimated at Rp. 850,000 per connection is also converted into Rp. 722,500, to be borne during the first year of operation.

(3) Economic Benefits

Economic benefits of sub-projects will greatly vary depending on the project site. It is considered in general that the benefits include improvement of living and health conditions of beneficiaries, conservation of water resources, etc. Therefore, it is not yet possible to determine the economic benefits of the sub-project to be identified unless certain assumptions are set for a typical case. In this economic evaluation, it has been assumed that the existing water source used by beneficiaries will be substituted by the water supply from the sub-projects; thus, economic benefit of the sub-project is calculated as the reduction in the cost of the existing water source.

It is assumed that each household to be connected to the sub-project's water supply system has maintained a shallow well attached to its residence. Since it is a semi-permanent shallow well, the construction cost (estimated at around Rp. 12 million) is considered a sunk cost and only O&M costs for the shallow well use are recognized as economic benefits. Table 4.3.9 shows the estimates of the annual O&M cost of a shallow well corresponding to the whole sub-project cost per household. Thus annual economic benefit for 1,000 house connection is calculated as Rp. 1,833

million.

Table 4.3.9 Annual O&M Cost of Shallow Well (per Household)

Item	Unit	Quantity	Unit Price (Rp.)	Cost (Rp.)	Remarks
1. Electricity Cost	kWh	46.2	790	36,524	250w pump * 195 hours operation
Pump operation hours	hours	184.9			Annual water use (299.56m3) / Pump capacity (27L/minute)
2. Pump Reparing	Times	2.0	150,000	300,000	Repar required twice a year
3. Chemical (Alum)	Times	2.0	4,500	9,000	Putting alum twice a year during rainy season
4. Pump Replacement	Nos	0.33	4,223,000	1,407,667	Pump replacement required in every three years
5. Well cleanup	Times	0.2	400,000	80,000	Cleanup required in every five days
Total				1,833,191	

Source: JICA Study Team 2010

(4) EIRR

Cash flow projection is developed based on the aforementioned assumptions and estimates. As shown in Table 4.3.10, the calculated EIRR is 26.51% for Type 1A.

	_					Unit: Rp. million
Voar		Cos	st		Benefit	Net Benefit
Tear	Construction	Connection	O&M	Total Cost	Total Benefit	
1	5,065.00			5,065.00		-5,065.00
2		722.50	325.37	1,047.87	1,833.19	785.32
3			325.37	325.37	1,833.19	1,507.82
4			325.37	325.37	1,833.19	1,507.82
5			325.37	325.37	1,833.19	1,507.82
6			325.37	325.37	1,833.19	1,507.82
7			325.37	325.37	1,833.19	1,507.82
8			325.37	325.37	1,833.19	1,507.82
9			325.37	325.37	1,833.19	1,507.82
10			325.37	325.37	1,833.19	1,507.82
11			325.37	325.37	1,833.19	1,507.82
12			325.37	325.37	1,833.19	1,507.82
13			325.37	325.37	1,833.19	1,507.82
14			325.37	325.37	1,833.19	1,507.82
15			325.37	325.37	1,833.19	1,507.82
16			325.37	325.37	1,833.19	1,507.82
17			325.37	325.37	1,833.19	1,507.82
18			325.37	325.37	1,833.19	1,507.82
19			325.37	325.37	1,833.19	1,507.82
20			325.37	325.37	1,833.19	1,507.82
21			325.37	325.37	1,833.19	1,507.82
Total	5,065.00	722.50	6,507.49	12,294.99	36,663.82	24,368.83

 Table 4.3.10 Calculation of EIRR (Type 1A)

EIRR 26.51%

Source: JICA Study Team 2010

Likewise, EIRR by sub-project type are calculated as per Table 4.3.11, ranging from 13.78% to 26.51%. Compared with the generally accepted opportunity cost of capital

of 10% to 12%, the results indicate that the sub-projects under the aforementioned assumptions are economically viable.

Itom	Sub-project Type					
item	Type 1A	Type 1B	Type 2A	Type 2B		
Distribution Main Length	1,000m	1,000m	5,000m	5,000m		
WTP	Without WTP	With WTP	Without WTP	With WTP		
EIRR	26.51%	20.73%	16.24%	13.78%		

Table 4.3.11 Results of EIRR Calculation

Source: JICA Study Team 2010

4.4 Precautions (Points which Require Special Attention in Considering Project's Outcomes) and Countermeasures

4.4.1 Monitoring and Evaluation

Monitoring and evaluation shall be conducted by the PMU, Dir BP, under the Cipta Karya, provincial SatKer/provincial Cipta Karya. Consequently, database based on the evaluation results shall be established at provincial level and central level.

Basic information based on monitoring and evaluation is useful in selecting and implementing the sub-projects. Therefore, the PMU is required to collect the database complied by provincial SatKer about the actual conditions of sub-project. Dir BP then disseminates such database to other provinces and districts to raise awareness on the project Construction improvement of the sub-project.

4.4.2 Review of Annual Performance by the Related Organizations

The role of the organizations relating to SPAM IKK is clearly mentioned by central, provincial and district level in the SPAM IKK Guidelines (Decision of Cipta Karya, No. 24-/KPTS/DC/2008). However, the present activity taken by the related organizations is not consistence with the SPAM IKK Guideline. The related organizations should obey the role and responsible mentioned in the Guideline said above.

- At district level, Dinas PU in association with PDAM should compile performance records of APBD portion of SPAM IKK at the end of fiscal year. Countermeasures for new sub-project should be prepared based on the actual performance records and reported to Provincial SatKer.
- 2) At provincial level, provincial SatKer should compile performance records of APBN portion of SPAM IKK at the end of fiscal year. Countermeasures for new sub-project including APBD portion in the next year should be prepared based on the actual performance records and reported to PMU or central SatKer.

3) At central level, PMU should compile performance records of all SPAM IKK based on performance records including countermeasures prepared by provincial SatKer at the end of fiscal year. Necessary action for the following years should be instructed to provincial SatKer before commencement of new sub-project after getting approval of Director General of Cipta Karya.

CHAPTER 5 ENVIRONMENTAL AND SOCIAL CONSIDERATIONS AND IMPACTS OF THE NEW PROJECTS

5.1 Preliminary Impact Evaluation of Proposed Projects (tentative)

In the SPAM IKK projects proposed in this study, the individual sub-projects which will be implemented are still not identified. This chapter tentatively presents the result of preliminary impact evaluation based on the currently available information from the field survey of the on-site review.

The environmental items were considered from potential items for water supply projects referring to the 2002 Japan Bank for International Cooperation (JBIC) Guidelines for Confirmation of Environmental and Social Considerations, 2004 JICA Environmental Consideration Guideline for Development Study, IX Water Supply (Written in Japanese) and 2010 Japan for International Cooperation Agency (JICA) Guidelines for Environmental and Social Considerations (Translated from Japanese Version). The impacts of the activities under the three phases, namely, planning/design, construction, and operation, were evaluated using positive (+) and negative (-) ratings of A, B, C and ignorable impact (-). A and B ratings show some impact to the environment at different degrees (i.e., A: significant, B: less significant) and C rating means unknown impact requiring further information.

5.1.1 Typical Work in SPAM IKK

The SPAM IKK aims to establish small-scale water supply facilities in the central area of the sub-districts in the country. The typical works of the SPAM IKK that will be found in the sub-projects are shown in Table 5.1.1 below.

Main Facility	Specification	Remarks
Water Intake Facilities	-Surface water: river, irrigation canal, lake	-Direct intake with submerged motor pump
		-Sometimes associated with concrete reservoir to control water level depending on the condition of water source
	-Groundwater: deep well, spring	<deep well="">: pumping from well</deep>
		<pre><spring water="">: With protection to avoid contamination of source. Generally, the water is transmitted by gravity.</spring></pre>
Water Treatment Plant (≤ 50	-Package plant (flocculating tank,	<approximate land="" requirement="">:</approximate>
Rapid Sand Filtration	tank)	Capacity of up to 5 L/s: 2,000 m ² area
- flocculating tank		<approximate land="" requirement="">:</approximate>
- rapid sand filtration tank		Capacity of 10 to 30 L/s: 2,400 m ² area
		<approximate land="" requirement="">:</approximate>
		Capacity of 40 to 80 L/s: $3,000$ m ² area
Water Transmission	Water transmission pipe (Diameter: approx. 150 mm)	Surface or underground pipeline between water intake facilities and water treatment plant.
		The lengths depend on the locations.
Water Distribution	Water distribution network (JDU), Water divided distribution network (JDB), service network and connection to household and addition of the public hydrant (HU). (Diameter: approx. 150 mm)	Underground

Table 5.1.1 Typical Works in Proposed SPAM IKK

Source: JICA Study Team 2010 (Specification is extracted from Chapter 3 and the contents are only limited in the proposed sub-project of the JICA Study Team and do not cover the entire SPAM IKK program) Cipta Karya (2008), Guidelines for Implementation of Program for Development of Drinking Water Supply System in Cities in Sub District (SPAM IKK) for Year 2008. JICA Study Team based on the interview with the Central SatKer.

5.1.2 Preliminary Impact Evaluation of SPAM IKK Project

The potential impacts of the proposed SPAM IKK are anticipated at the time of the study based on the available information (Tables 5.1.2 and 5.1.3). In general, large impacts regarding the natural, social and public nuisance of the projects are not anticipated because of the scale of works. However, the actual sub-projects are not yet selected in the present study. Here, the possible impacts are tentatively evaluated to enable further confirmation of the required environmental and social considerations.

(1) Social Environment

The actual scale and situation are not identified at the moment because the location of the sub-project has not been decided in detail at the time of this study. Impact to some social environmental items should be confirmed at the actual application of each sub-project. These unidentified items are classified as "C" (further information is required) although most of them will not likely occur seriously.

1) Involuntary resettlement and land acquisition

Involuntary resettlement is basically not expected and it may be avoidable during planning. Generally, the sites are selected by the local government, in consultation with the community on the available land. While involuntary resettlement will not likely occur, land acquisition is required in almost all sub-projects. The acquisition process will be conducted by the district government and PDAMs. Adequate compensation process should be confirmed during the planning stage.

2) Historical and cultural heritage

Impact to historical and cultural heritage is required to be confirmed during the application and after determination of the site in consultation with administrative governmental authorities. Similar to the above case of involuntary resettlement, this may be avoidable prior to the project. This might be confirmed during the planning stage of each sub-project.

(2) Natural Environment

1) Hydrogeological situation and hydrological situation

Hydrogeological and hydrological situations should be confirmed during the planning stage if new deep wells or major water intakes are involved in the sub-project depending on the location and capacity of the water source. Although the capacities of the water treatment plants in the SPAM IKK are limited, the amount of the water intake should be considered depending on the capacity of the water resource.

2) Flora and fauna and protected areas

Impact to the flora and fauna and protected areas should be confirmed during the planning stage. The location of sub-project is not identified yet. During the application of the sub-project, impact to important species and protected areas should be identified in consultation with the administrative authority in the province (provinsi) and district (kabupaten) in order that the impact will be minimized.

(3) Public Nuisance

1) Water Quality:

The scale of the construction works may depend on the location of the sub-project. Also, the operation might be different from the situation of each facility. Depending on the water quality of the abovementioned water sources, adequate treatment of discharge including sludge treatment should be required to meet water quality standards such as KEP-51/MENLH/10/1995 ABOUT QUALITY STANDARD FOR LIQUID WASTE INDUSTRY ACTIVITY STATE MINISTER OF ENVIRONMENT if such activities will be carried out.

2) Noise and Vibration

At the moment, the construction method including transport to the site is not yet indicated. Depending on the scale of the project, noise and vibration associated with the construction should be minimized so as not to affect the people around the project site.

No. Likely Impacts Original activities of and social infrastructures and services Planning / Design Phase Construction Phase 1 Involuntary Resettlement / Land Acquisition C- C-	restriction in construction of Water supply industry	of Water quality of facility
No. Find the construction No. Fixed classing conditions of the construction I Involuntary Resettlement/ France S Development of classing cond by cut land, the construction A Fixed classing cond by cut land, the construction B B+ B+ C C C A Existing social infustructures and services B+ A Existing social infustructures and services C C C C Construction A Existing social infustructures and services C C Construction optication of construction A Existing social infustructures and services C C C Construction of construction of construction C C C C C B C C C C C C C C C C C C Socially vulnerable groups such as the poor, indigenous and ethnic people C C C C Socially vulnerable groups such as the poor indigenous	restriction in construction of Water supply industry	of Water quality of facility
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Fraffic Irea Dperatic	Maintenance Maintenance
2 Local economy such as employment and livelihood, etc. B+ B+ -		
3 (Surrounding) Land use B+ B+ - </td <td></td> <td>B + -</td>		B + -
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		
* 5 Regional severance - - - - 6 Socially vulnerable groups such as the poor, indigenous and ethnic people - - - - -		_
* C- C- C		
7 Historical and cultural heritage		
Religious matters - C - - -		
9 Water usage or water rights and rights of common C		
10 Sanitation B+	-	В + -
11 Hazardous (risk) infectious diseases such as HIV/AIDS		
12 Accident B+		В + -
13 Topography and geographical features		
14 Soil erosion		
15 Groundwater C	- C-	
16 Hydrological situation C- - <td>- C-</td> <td></td>	- C-	
17 Coastal zone		
$\begin{array}{c c} \hline \\ \hline $		
19 Protected Area C- C- C - C - C - C - C - C - C - C -		
20 Meteorology		
21 Landscape		
22 Global warming B+ B+ -		
23 Air pollution		
24 Water pollution C- -	- C-	
25 Soil contamination		- -
26 Waste		- -
2 7 Noise and vibration		
28 Ground subsidence		
Z 29 Offensive odor		
30 Bottom Sediment		
31 Disaster B+ B+		

Table 5.1.2 Preliminary Environmental Checklist for SPAM IKK

Note: * The impacts on "Gender" and "Children's Rights" might be related to all criteria of Social Environment.

<Rating>

A-: Serious impact is expected, if any measure is not implemented regarding the impact.

B-: Some impact is expected, if any measure is not implemented regarding the impact.C-: Extent of impact is unknown (Further information is needed. Impact may become clear as study progresses.)

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- -: No impact is expected. Therefore, EIA may not be required. A+: Remarkable effect is expected due to the project implementation itself and environmental improvement caused by the project.
- B+: Some effect is expected due to the project implementation itself and environmental improvement caused by the project.

Overall rating: Highest rate will be the overall rating among the negative and positive ratings of relevant project-related activities. (e.g., even if only one "A-" is included in an environmental item, the overall rating of the environmental item becomes "A-".)

<Project phase>

P. Planning and design phase, C: Construction phase, O: Operation phase

Reference : JBIC (2002). Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations

JICA (1994). Environmental Consideration Guideline for Development Study IX Water supply (Written in Japanese)

JICA (2010). Guidelines for Environmental and Social Considerations (Translation of Japanese Version)

Source: JICA Study Team 2010

		Rat	Rating		
No.	Likely Impacts	Overall	by project phase	Project phase	Explanation on Potential Impacts (Project-related activity is shown in the parenthesis.)
Socia	l Environment *				
1	Involuntary resettlement/Land acquisition	C-	С -	Р	 Land acquisition The impact should be confirmed after selection of the site. Lands for the water treatment plant should be acquired and most of these lands are likely in the agricultural area, owned by local resident and do not involve resettlement. Adequate compensation to the land owner and farmers are required. Involuntary resettlement is avoidable. Among 50 samples of SPAM IKK, there was no involuntary resettlement and it will likely not happen in the new projects.
2	Local economy such as employment and livelihood, etc.	B+/-	B+ -	P/C O	 Development of water supply networks in rural area (Improvement of clean water supply) The increased availability of clean water may increase opportunity for small businesses which had been limited by water shortage. Expenditure of vulnerable: The program aims to increase safe water availability in the area where people have comparatively low incomes. This is expected to improve their circumstances. The projects are planned to make house connection through the expenditure from the local people. For enhancing the project purpose, expenditure of the low income people should be considered. Increase work opportunity: Through the construction and operation of the SPAM IKK, work opportunity of the local residents will likely increase. Operation of water supply industry (Adequate maintenance of facility) During the operation stage, small improvement works associated with water leakage and maintenance will likely disturb local transportation to some extent
3	(Surrounding) Land use	B+	B+	Р	 Development of water supply networks in rural area The project will likely increase the area of used land where the land had not been previously used due to water shortage.
4	Existing social infrastructures and services	-/ A+	A+	P/O	 Development of water supply networks in rural area: Through the development of water supply network, vulnerability of the local community to climate change and meteorological instability is likely improved. The projects aim to construct the water supply facility to meet millennium development goal to improve rural situation on the access to clean water in Indonesia. Through the operation, the social service is expected to be improved.
5	Regional severance	-	-	Р	 The pipelines in SPAM IKK are installed under the ground and there is no regional severance that will likely happen. Small conflicts might occur between or among the communities who live in the areas of water source and distribution. Information sharing among stakeholders during planning should be enough.

Table 5.1.3 Preliminary Environmental Checklist for SPAM IKK -1/4

					•
		Rat	ting	0	
No	Likely Impacts	Overall	by project phase	Project phase	Explanation on Potential Impacts (Project-related activity is shown in the parenthesis.)
Socia	al Environment				
6	Socially vulnerable groups such as the poor, indigenous and ethnic people	-	-	P/O	◆Operation of water supply industry (Productive operation) -Expenditure of resident for water will likely increase. From the viewpoint of sustainable water supply, the responsible body requires productive operation. However, the payment system for the infrastructure (house connection) or the water use might be considered when the system targets the low income people.
7	Historical and cultural heritage	C-	C-	Р	◆Land acquisition -There is not enough information on the site for new projects at the moment. The studies on the historical and cultural heritages, especially in those locations, are expected to be confirmed during the planning of each sub-project.
8	Religious matters	-	-	Р	◆ Land acquisition -No particular issue on the matter is identified related to the project at the moment.
9	Water usage or water rights and rights of common	C-	C-	P/O	 Land acquisition Operation of water supply industry (Water supply facility using ground water) The process should be confirmed after selection of the site. Agreement with existing user/traditional user of the water source should be obtained and adequate compensation should be made. Impact to the other water source (shallow well) should be minimized. Water use permit is required in most project implementations.
10	Sanitation	B+/	B+	0	 ▲ Maintenance of water quality (Improvement of water quality) The projects aim to supply clean water to areas with water shortage. The sanitation of the people in the area will likely improve.
		C-	C-	0	 Maintenance of water quality Water quality including water source should be maintained adequately to avoid health problems of users.
11	Hazardous (risk) infectious diseases such as HIV/AIDS	-	-	0	 ◆Maintenance of water quality -Water quality test is not routinely conducted in some SPAM IKK; adequate maintenance of facility to meet the water quality is required.
		_/	-	С	-There is no particular accident risk related to the project. The construction work should follow the works standard.
12	Accident	B+	B+	0	◆ <u>Maintenance of water quality (Adequate monitoring of the water)</u> -With adequate monitoring of the water quality, the risk of accident through the water supply system should be minimized.
Natu	ral Environment				
13	Topography and geographical features	-	-	-	-No particular earthworks associated with large topographic change are envisaged.
14	Soil erosion	-	-	-	-No particular earthworks associated with soil erosion are envisaged.
15	Groundwater	C-	C-	P/O	 Maintenance of water quality (Dry out/decrease water level in ground water) Impact to the well water in surrounding area should be minimized during planning and operation if the project involves deep well. Water quality in surrounding area of the sludge treatment bed will be adequately monitored so as not to be impacted.
16	Hydrological situation	C-	C-	C	 Operation of water supply industry (Impact to the hydrological situation by water intake) The impact should be confirmed after selection of the site. Most of water intake from the river is done by installed electric pump. However, depending on the amount of water intake, the impact should be identified during planning. Also, the amount of water intake should consider the water flow in the resource during the operation phase.
1/	Cuastal ZUIIC	-	-	-	THERE IS NO COASTAL ALCA AL LIC PLOJECT SILES.

Table 5.1.3 Preliminary Environmental Checklist for SPAM IKK -2/4

		Rating		Rating		. 1)	
No.	Likely Impacts	Overall	by project phase	Project phase	Explanation on Potential Impacts (Project-related activity is shown in the parenthesis.)		
Natur	al Environment						
18	Flora, fauna and biodiversity	C-	C-	P/C	 Land clearing/tree felling: The impact should be confirmed after selection of the site. Generally, there is no large disturbance to the forest. (Two cases of SPAM IKK, among 50 samples, involved protection forests). Water treatment plant, pipeline installation Confirmation of whether rare species and endangered species are present or not at the sites. Water intake at the river is done by installed electric pump and water intake is controlled depending on the water level Mater intake at the river is done by installed electric pump and water intake is controlled depending on the water level Mater intake at the river is done by installed electric pump and water intake is controlled depending on the water level Mater intake at the river is done by installed electric pump and water intake is controlled depending on the water level Mater intake at the river is done by installed electric pump and water intake is controlled depending on the water level Mater intake at the river is done by installed electric pump and water intake is controlled depending on the water level Mater intake at the river is done by installed electric pump and water intake is controlled depending on the water level		
			C-	0	 Operation of water supply industry (Exceeded water intake) Water intake at the river is done by installed electric pump and water intake is controlled depending on the water level. 		
19	Protected area	C-	C-	Р	 Land acquisition: During planning, confirmation of the area whether it involves a protected area or not. Boundary information on the protected area may be required (There is a SPAM IKK project which is closely located to a national park). 		
20	Meteorology	-	-	-	-The activities do not directly affect meteorology at the moment. -Through the development of water supply network, vulnerability of the local community to climate change due to meteorological instability will be improved.		
			-	Р	◆Land clearing/tree felling - No particular impact to the landscape is envisaged. New construction of water treatment facilities in the agricultural land may not have serious effect.		
21 Landscape	Landscape	-	-	С	◆Change on the landscape during construction involving construction machinery: -During the construction, a little landscape disturbance might occur but it may be ignorable in terms of period and scale. Most plants used are pre-constructed plants, i.e., "package plants", which can be installed easily at the site.		
		-/	- B+	-	 ▲Land clearing /tree felling -A little forest disturbance/tree felling may accompany the construction of water treatment plant and water distribution pipe. The area is very limited. 		
22	Global warming	B+		0	◆ Development of water supply networks in rural area -Through the development of water supply network, vulnerability of the local community to climate change due to meteorological instability will likely improve		
Publi	r Nuisance			l	impiow.		
23	Air pollution	-	-	-	 ◆ Operation of the construction machinery ◆ Construction of the facilities -In relation to the operation of construction machinery, some gas emission and aerial dust will likely occur. The construction site is always close to the water source and mitigation by water spraying may mitigate dust from construction. 		
24	Water pollution	C-	C-	0	◆Operation of water supply industry (Water discharge) -At present, most SPAM IKK facilities do not have particular sludge treatment process releasing to the river. During operation, treatment of sludge will be considered depending on the requirement.		
25	Soil contamination	-	-	C/O	 Alteration to ground by cutting, filling, drilling (Earthworks associated with the construction of water treatment plant and distribution pipeline) In general, the serious impact of earthworks is not likely envisaged due to the scale of the work. Appropriate protection of the slopes such as covering vegetation and retailing might be considered. Operation of water supply industry (Treatment of sludge) At the moment, most SPAM IKKs do not have particular sludge treatment. Sludge should be adequately treated so as not to affect the soil environment based on the soil analysis on the sludge. 		
26	Waste	C-	C-	0	 Operation of water supply industry (Treatment of sludge) In the future, adequate treatment should be considered if amount of the sludge accumulates, referring to the water quality monitoring. 		

Table 5.1.3 Preliminary Environmental Checklist for SPAM IKK -3/4

		Rat	Rating		
No.	Likely Impacts	ikely Impacts Overall Overall Project phase		Project phas	Explanation on Potential Impacts (Project-related activity is shown in the parenthesis.)
Publi	c Nuisance				
	27 Noise and vibration C		C-	С	◆ <u>Operation of construction machinery:</u> -In connection with water treatment plant and pipeline installation, noise and vibration from construction machinery will likely occur in some area. These activities might include clearing land, tree felling and digging ditches, etc.
27		C-	C-	P/O	◆ Noise and vibration associated with pumping water -In connection with pumping, some noise and vibration are likely produced. Depending on the location, mitigation should be considered such as pump selection, adequate distance to the affected receptors and installation of noise break vegetation or walls. In most SPAM IKKs, the locations were not selected in the residential area and there is no particular complaint from the residents regarding noise and vibration.
28	Ground subsidence	-	-	P/O	◆ Operation of water supply industry (Groundwater pumping) -Excessive water pumping may cause ground subsidence and adequate design planning and operation so as not to cause the subsidence should be considered. In past SPAM IKK, there is no particular complaint on the subsidence.
29	Offensive odor	-	-	0	◆ Operation of water supply industry (Water intake) -Excessive water intake from river may cause offensive odor through shortage of water flow at the site or downstream in the river. In most cases, the water intake is controlled depending on the availability of the water source. Water level in the source should be monitored adequately to meet the design of facility.
30	Bottom sediment	-	-	0	 Operation of water supply industry (Water intake) No particular impact on the bottom sediment is envisaged at the moment.
31	Disaster	-/B+	- B+	- B+	Water treatment plant No particular disaster prone area is envisaged to be located with the facilities. Development of water supply networks in rural area: Through the development of water supply network, vulnerability of the local
			D+		community to water deficit disaster can be mitigated.

Table 5.1.3 Preliminary Environmental Checklist for SPAM IKK-4/4

Note: * Impacts on "Gender" and "Children's Rights" might be related to all criteria of Social Environment.

<Rating>

A-: Serious impact is expected, if any measure is not implemented regarding the impact.

B-: Some impact is expected, if any measure is not implemented regarding the impact.

C-: Extent of impact is unknown (Further information is needed. Impact may become clear as study progresses.)

No impact is expected.

A+: Remarkable effect is expected due to the project implementation itself and environmental improvement caused by the project.

B+: Some effect is expected due to the project implementation itself and environmental improvement caused by the project.

Overall rating: Highest rate will be the overall rating among the negative and positive ratings of relevant project-related activities (e.g., even if only one "A-" is included in an environmental item, overall rating of the environmental item becomes "A-".)

<Project phase>

P: Planning and design phase, C: Construction phase, O: Operation phase

Reference : JBIC (2002). Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations

JICA (1994). Environmental Consideration Guideline for Development Study IX Water Supply (Written in Japanese)

JICA (2010), Guidelines for Environmental and Social Considerations (Translation of Japanese Version)

Source: JICA Study Team 2010

5.2 Recommended Activities for the Environmental Confirmation in the SPAM IKK Scheme

Because the actual sub-projects whose actual impact shall be evaluated are not selected at the time of this study, the following items related to Environmental and Social Considerations are recommended to be identified during the implementation of the sub-project.

1) Confirmation of environmental process of sub-project (ANDAL, UKL and UPL requirement)

During the long list level of project screening (i.e., application level), environmental consideration should be confirmed using questionnaire as a screening of the sub-projects (Table 5.2.1). Some sub-projects of the whole SPAM IKK in the country may require an environmental social consideration study under the Indonesian law. Although the scales of the projects in SPAM IKK are comparatively smaller than the water supply projects which are prescribed under the AMDAL regulation, the disturbance/impacts to sensitive areas are still involved. Also, the regulation of the Ministry of Public Works (MPW) provides the UKL/UPL requirement for infrastructure development activities. During application, the provincial SatKer should encourage proponents to consider minimizing the selection of sensitive areas as project sites.

During the short list level of project screening, contents of environmental consideration such as UKL/UPL should be confirmed if required by the implementation agency. As in the abovementioned process, some sub-projects may require environmental studies at either the UKL/UPL level or ANDAL level.

2) Other required permission related to the environment

Besides the environmental evaluation under the scheme of the Ministry of Environment, other permissions associated with the implementation of the sub-projects may be required such as water use permit and lease permit for forest area use when these are involved in the sub-projects.

Also, the agreement with the landowners might be one of the important permissions during the planning stage. This should be conducted to meet the guideline of the SPAM IKK. To avoid some conflict between the implementing agency and local residents, especially landowners, the compensation process should be conducted in a transparent way, prior to the implementation. If the project is considered to be formulated as a foreign loan-financed project, the compensation should be made to

meet the sufficient amount equivalent to the full replacement cost. Also, in case resettlement is required, an adequate resettlement plan and rehabilitation plan should be prepared prior to the implementation.

3) Confirmation of implementation of legally required process on the project

Related to the abovementioned confirmation of the requirement, the actual implementation of the process should be confirmed during the planning stage and before the construction by verifying official documents.

4) Construction following legal standard, UKL and UPL

During the construction, all construction works by the contractors should follow the legal standards for the construction provided by the MPW, provincial and district governments as well as those stated in the UKL/UPL.

5) Operation following legal standard, UKL and UPL

In the same manner as in the above, operation works might be required to meet legal standards in the area as well as the statement in the UKL/UPL for operation.

It is recommendable that the water quality of the water source and water connection should be monitored in collaboration with other local government authorities, i.e., Local Environmental Board (BLHD, BLH, BAPEDALDA) in the province and district for the water quality in the rivers and Health Service Office (DINAS Kesehatan) in the province and district for the water connections. The monitoring should be conducted adequately to avoid health problem and meet the standard of drinking water qualities such as Government Regulation No. 82 /2001 About Water Quality Management and Water Pollution Control and Government Regulation No. 82 /2001 About Water Quality Management and Water Pollution Control.

6) Social consideration through responding to complaints from users

In securing the environmental and social consideration process, organizational capacity to deal with objection and complaint from the residents should be achieved through capacity development of the relevant staffs. The organizational capacity of the provincial SatKer during construction and PDAM during operation might be reinforced and the section in charge for the activities could be selected.

Item	Contents	Method	Implement	Supervisor	Period
			by		
Planning stage		•	•		
Confirmation of environmental process of sub-project (ANDAL, UKL and UPL requirement)	Confirmation of environmental process of1. Involuntary resettlementgrocess of sub-project (ANDAL, UKL and UPL requirement)1. Involuntary resettlementUPL requirement)2. Sensitive areas (historical and cultural heritage, protected area, flora and fauna) 3. Water quality 4. Others (the items are categorized as "C" since further 	-Preparation of questionnaire/ report format -Compiling information at country level	Cipta Karya	MLH/MPW /Province	Planning phase (During application at long list level*)
		-Confirm the information with the applicants using the questionnaire -Compiling at province level -Reporting to Cipta Karya	SatKer Province	MLH/MPW /Province	Planning phase (During application at long list level)
Other required permission related to environment	 Water use permit Agreement for land acquisition 	-Conducting questionnaire to applicants -Compiling at province level -Reporting to Cipta Karya	SatKer Province	Relevant authority	Planning phase (During application at long list level)
		-Compiling reports from province -Preparing questionnaire -Preparing report format	Cipta Karya	Relevant authority	Planning phase (During application at long list level)
Confirmation of implementation of legally required process on the project	Confirmation of documents such as: 1. ANDAL 2. UKL and UPL 3. SIPA	-Conducting required study -Preparation of required document	Kabupaten /PDAM	Relevant authority (Province, Kabupaten Kecamatan)	Planning phase (During application at short list level**)
	4. Lease permit for forest area use5. Schedule on the press6. Others	-Confirmation of documents on questionnaire -Compiling at province level -Reporting to Cipta Karya (with Application)	SatKer Province	SatKer Province	Planning phase (During application at short list level)
		-Compiling reports from province (Confirmation of approval) -Preparing questionnaire -Preparing report format	Cipta Karya	Relevant authority	Planning phase (During application at short list level)

Table 5.2.1Monitoring of Environmental and Social Consideration Process for the
SPAM IKK

Item	Contents	Method	Implement	Supervisor	Period	
item	contents		imprement	Supervisor	renou	
			by			
Construction Stage						
Construction	Legal standard for the	-Required	Consultants	SatKer Province	Construction	
following legal	construction works	document				
standard, UKL and		(Commissioning	/contractor	/PDAM	stage	
UPL		test)				
Operation Stage		1	L			
Operation following	UKL/UPL	-Required	PDAM	Relevant local	Operation	
legal standard, UKL	Legal standard for	document		authority (Province,	stage	
and UPL	water supply			Kabupaten		
				Kecamatan)		
Social consideration	PDAM operation	-Compliant records	PDAM	Relevant local	Operation	
through responding	standard			authority	stage	
to complaints from				(Province,		
users				Kabupaten		
				Kecamatan)		

Source: JICA Study Team 2010

*long list level indicates the application for the first screening by central government. *short list level indicates the application for the second screening by central government.

CHAPTER 6 TECHNICAL ASSISTANCE

6.1 Introduction of Technical Assistance

6.1.1 General Description of Project Objectives and Outputs

Several issues were found in the planning, construction and operation stages of the SPAM IKK program. Hence, improvement of implementation capacity is required for the concerned organizations (MPW, provincial SatKer, district, PDAM, etc.). The technical assistance for capacity development is required for smooth implementation aside from the sector loan project. The technical assistance should be implemented through consulting services and with separate funding from foreign donor(s) during the consideration and preparation of the sector loan.

Especially, the provincial SatKer has the central role for project planning and implementation. Hence, it is also responsible for applying the project plan of each local government to the central government and constructing water supply facilities through the central budget. Therefore, the organization targeted for strengthening is considered to be mainly the provincial SatKer and the related agencies should be encouraged as needed.

6.1.2 Objectives

The Government of Indonesia will need the capacity development for each concerned organization to succeed in the SPAM IKK program planned for 2010-2014. Especially, assistance for technical aspect is required in the sector loan project. Therefore, the organization strengthening program shall be conducted in the same priority areas of the sector loan (Central Java, East Java, and South Sulawesi provinces). It is expected that the Government of Indonesia will make self-help efforts to spread-out the effects of the technical assistance to other provinces.

Capacity development in project planning, construction and monitoring shall be carried out thereby ensuring smooth implementation of the SPAM IKK program and increase in piped water coverage among beneficiaries.

6.1.3 Targeted Beneficiaries and Scales

Direct beneficiaries: Provincial SatKer staff for SPAM IKK program Indirect beneficiaries: District staff for water supply sector, PDAM staff

Residents with supplied water service by SPAM IKK facilities

The Preparatory Survey for IKK Water Supply System Development Sector Loan Project Final Report Main Report Part 2: Proposed Sector Loan Project

which will be established until 2014 in targeted province and sub-district

Province	Number of SPAM IKK (2011-1014)	Beneficiary Population (1 SPAM IKK = 1,000 HC = 5,000 people)
Central Java	53	265,000
East Java	30	150,000
South Sulawesi	32	160,000
Total	115	575,000

 Table 6.1.1
 Direct Beneficiary Staff

Source: JICA Study Team 2010

6.2 Major Scheme of Technical Assistance

- 6.2.1 Overall Goal and Project Purpose
 - (1) Overall Goal

The water supply services by SPAM IKK become high coverage and good quality in Central Java Province, East Java Province and South Sulawesi Province.

(2) Project Purpose

The capacity of the Dir BP and Dir PAM of Cipta Karya and provincial SatKer staffs in Central Java Province, East Java Province and South Sulawesi Province for the planning, construction and evaluation of the SPAM IKK project is improved.

6.2.2 Outputs

- Selection procedure and criteria of SPAM IKK is improved.
- Capacity in provincial SatKer staffs in project planning, design and screening of SPAM IKK is strengthened.
- Capacity in training of operation and maintenance function of provincial SatKer is strengthened.
- Management capacity of Dir BP, Cipta Karya and provincial SatKer for SPAM IKK monitoring and evaluation is strengthened.

6.3 Outputs and Indicator for Technical Assistance

Primary focus is given on the enhancement of provincial SatKers' functions in project planning, screening and implementation. MPW (PMU, Dir BP, Dir PAM) has the role of preparing the guideline, monitoring and supervising.

(1) Output 1

Selection procedure and criteria of SPAM IKK is improved.

1) Activities (concerned organizations: Dir PAM, PMU and provincial SatKer)

On-the-job training (OJT) is carried out to clarify the criteria for each proposal according to the existing SPAM IKK guideline in order to identify the project by a third party.

Preparation of the selection criteria for project proposals to local government is carried out in order to roughly understand the evaluation of project proposal by themselves before submitting.

2) Indicator

The selection criteria for project proposals of SPAM IKK have been developed, and the adoption rate of proposals has been 50% at the present. It then becomes 75% at the end of the first year and 90% at the end of the second year.

(2) Output 2

Capacity in provincial SatKer staff in project planning, design and screening of SPAM IKK is strengthened.

1) Activities (concerned organizations: Dir BP and PMU)

OJT is carried out on review of the guideline of SPAM IKK, and preparation of the administrative instruction and manual for local government.

2) Indicator

The comments on the guideline and administrative instruction and manual is prepared in the first year and the case-based konowledge report is then prepared in the second year.

(3) Output 3

Capacity in training of operation and maintenance function of provincial SatKer is strengthened.

1) Activities (concerned organizations: provincial SatKer, District, PDAM)

The workshop / seminar are carried out on the rapid sand filter process, plan and design of water purification system for concerned organizations.

OJT is carried out to technical aspect for PDAM staffs to properly operate SPAM IKK facilities.

2) Indicator

Water treatment plant (WTP) is operated appropriately. The water quality complaints from customers are reduced.

(4) Output 4

Management capacity of Dir BP, Cipta Karya and provincial SatKer for SPAM IKK monitoring and evaluation is strengthened.

1) Activities (concerned organizations: Dir BP, PMU)

The workshop/ seminars are carried out on the monitoring and evaluation for SPAM IKK for concerned organizations.

OJT is carried out on project monitoring and evaluation of SPAM IKK, and preparation of the instruction manual of project monitoring and evaluation.

2) Indicator

The preparation of project monitoring and evaluation reports is carried out in the first year and feedback system is applicable in the second year.

The scheme for technical assistance is assumed to be implemented for two years and the expected activities for each concerned organization are shown in Table 6.3.1.

		8	
Organizati on	First Year	Second Year	
Dir PAM	 Review and improve the guideline Preparation of administrative instruction and manual 	- Collection of case-based knowledge	
Dir BP	 Preparation of Monitoring and evaluation system 	- Monitoring, evaluation and analysis	
PMU	 Improvement of selection and monitoring capacity 	 Preparation of feedback system 	
Provincial SatKer	 Improvement of proposal preparation capacity Improvement of monitoring capacity Improvement of technical capacity 	 Improvement of proposal preparation capacity Improvement of monitoring capacity Improvement of technical capacity 	
District	 Improvement of proposal preparation capacity 	 Improvement of proposal preparation capacity 	
PDAM	 Increasing of technical staff (Technical seminar by SatKer, etc.) Increasing of number of house connection 	 Increasing of technical staff (Technical seminar by SatKer, etc.) Increasing of number of house connection 	

 Table 6.3.1
 Activities for Each Concerned Organization

Source: JICA Study Team 2010

6.4 Fields of Experts

- 1) Chief Advisor/Water Supply System Management
- 2) Water Supply Planner

- 3) Water Supply Engineer
- 4) Institutional Expert
- 5) Operations and Maintenance of Water Treatment Facilities
- 6) Water Quality Management
- 7) Customer Relations Management
- 8) Monitoring and Evaluation Management

6.5 External Factors (External Conditions to be Satisfied)

(1) Prior Conditions

Province that will implement the technical assistance has to be identified.

- (2) External Conditions
- 1) External conditions to achieve the project objectives

Trained staffs have to continue working in the same organization.

2) External conditions to achieve further objectives

The SPAM IKK budgets until 2014 have to be secured, and the projects have to be implemented according to the plans for the achievement of national objectives.

CHAPTER 7 RECOMMENDATIONS

Steps toward the Sector Loan Project

- In order to increase the access to safe water of semi-urban population and thereby achieve MDGs targets, the existing SPAM IKK program is deemed as one of the crucial national programs implemented by MPW. To cope with its fiscal and technical constraints, financial assistance through the sector loan project is considered necessary.
- 2) However, it is recommended that MPW take necessary actions to solve the issues described in this report before considering the sector loan project for SPAM IKK to ease the foreseen risks against efficient implementation of the future financial assistance.
- 3) After completion of the Study, MPW should prepare the capacity development plan to improve the current SPAM IKK program as proposed in this report. Technical assistance from donors should also be considered to support such efforts by MPW for its capacity development.

Capacity Development for SPAM IKK Program

- 4) Based on the existing framework and guidelines for the current SPAM IKK program, it is required to make (i) clearer standards for the site selection criteria and (ii) close coordination among the concerned agencies at the central and local levels. The latter is highly important to solve imbalanced investment between APBN and APBD portions and improve project monitoring.
- 5) The Cipta Karya, PMU, the selected provincial SatKer, and concerned districts/PDAM are the main subject agencies of the capacity development. As described in Chapters 1 and 6, Main Report Part 2 in detail, the emphasis should be put in the establishment of a firm process management and monitoring system to reduce uncertainty and unpredictability in the project selection and execution.
- 6) It is recommended that MPW enhance its human resources to implement the proposed capacity development especially for PMU.

Improvement of SPAM IKK Program

7) During the planning stage, the SPAM IKK site should be selected in view of operation efficiency. Especially, a needs assessment among beneficiaries is necessary to grasp the actual demand and should be one of the prerequisites for the SPAM IKK application.

- MPW should definite establish clear selection criteria with indicators based the existing SPAM IKK guidelines to on increase predictability of site selection process for local governments to ensure their smooth implementation of APBD investment.
- APBN project scope should be amplified partially to cover investment in distribution network to reduce financial burden of local governments.
- Responsibility of provincial SatKers in project screening should be increased at local level. Close monitoring and strict appraisal by SatKers and MPW is required in project planning and construction especially on distribution network development by local governments.
- Construction deficiencies are less observed by the on-site review than insufficient level of planning works and operation except several problems of construction quality in projects with FRP tanks.
 - It is recommended to reinforce provincial SatKer's function in construction supervision and inspection.
- 9) During the operation stage, the biggest issues are small number of house connections and low treated water quality.
 - High connection fee is one of the obstacles for beneficiaries willing to have tap water connections. Connection fee plan should be improved by PDAMs through introducing monthly payments, discount campaign.
 - Most household without water connections possess alternative water sources such as shallow wells attached to their residence. To ensure efficient investment based on the real demand for water connections, it is also required to do strict project screening based on needs survey and socialization on planning stage as a prerequisite of SPAM IKK site selection.
 - Lack of technical knowledge among PDAM staff causes inappropriate operation of the water works. No design plans or operating manuals are transferred in many SPAM IKK projects. Most projects do not follow five-day commissioning test requirement prescribed in the guidelines. Provincial SatKers should ensure technical transfer from contractor to PDAM in construction stage.
 - Training programs for PDAM staff should also be reinforced by utilizing

the MPW training centers and PERPAMSI trainings to increase skilled operators.

- 10) Strengthening of PDAM in the financial and managerial aspects is another factor for a sustainable SPAM IKK operation. It is recommended for district governments to consider more flexible tariff setting and connection fee plan to meet the financial burden borne by PDAMs that operate SPAM IKK. In general, the technical level of PDAM staff has to be enhanced also through other instruments such as the existing training system and other technical support.
 - During the construction stage, proper inspection by the provincial SatKer and technical transfer from contractors to PDAM should be more emphasized for appropriate operation and service quality of SPAM IKK.