

**MINISTRY OF PUBLIC WORKS, SOUTH SULAWESI PROVINCE,
PDAM MAKASSAR, PDAM GOWA, PDAM MAROS AND PDAM TAKALAR,
THE REPUBLIC OF INDONESIA**

**JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT FOR WATER SERVICE IMPROVEMENT
IN MAMMINASATA METROPOLITAN AREA
IN SOUTH SULAWESI PROVINCE**

PROJECT COMPLETION REPORT

MARCH 2012

**JAPAN INTERNATIONAL COOPERATION AGENCY
NIHON SUIDO CONSULTANTS CO., LTD.
KRI INTERNATIONAL CORP.**



Location Map of Mamminasata Metropolitan Area

PHOTOS FOR THE PROJECT ACTIVITIES

1. Major Activities for the 1st Year (from Oct 2009 to July 2010), 1/6



1-01. Courtesy Call to Embassy of Japan, 7 Oct 2009



1-02. Courtesy Call to World Bank, 7 Oct 2009



1-03. Kick-Off Meeting at Jakarta, 8 Oct 2009



1-04. Courtesy Call to Vice-Governor of South Sulawesi Province, 9 Oct 2009



1-05. Courtesy Call to Kabupaten Maros, 15 Oct 2009



1-06. Courtesy Call to PDAM Maros, 15 Oct 2009

1. Major Activities for the 1st Year (from Oct 2009 to July 2010), 2/6



1-07. Courtesy Call to PDAM Gowa, 16 Oct 2009



1-08. Courtesy Call to PDAM Takalar, 16 Oct 2009



1-09. Courtesy Call to PDAM Makassar, 20 Oct 2009



1-10. Meeting with Ir. Syarif, Project Director, 20 Oct 2009



1-11. Courtesy Call to Bupati Gowa, 27 Oct 2009



1-12. Steering Committee, 2 Nov 2009

1. Major Activities for the 1st Year (from Oct 2009 to July 2010), 3/6



1-13. Steering Committee (PIU), 2 Nov 2009



1-14. Steering Committee (PIU), 2 Nov 2009



1-15. Hasanuddin Univ., 12 Nov 2009



1-16. Monthly Progress PIU Meeting 1, 16 Nov 2009



1-17. Instruction Meeting for Procured Equipment, 7-9 Dec 2009



1-18. Inspection of Procured Equipment, 10 Dec 2009

1. Major Activities for the 1st Year (from Oct 2009 to July 2010), 4/6



1-19. Monthly Progress PIU Meeting 2, 15 Dec 2009



1-20. Monthly Progress PIU Meeting 3, 23 Feb 2010



1-21. Monthly Progress PIU Meeting 4, 19 Mar 2010



1-22. Seminar on Financial and Business Management, 23 Mar 2010



1-23. Meeting with Central Government, 9 April 2010

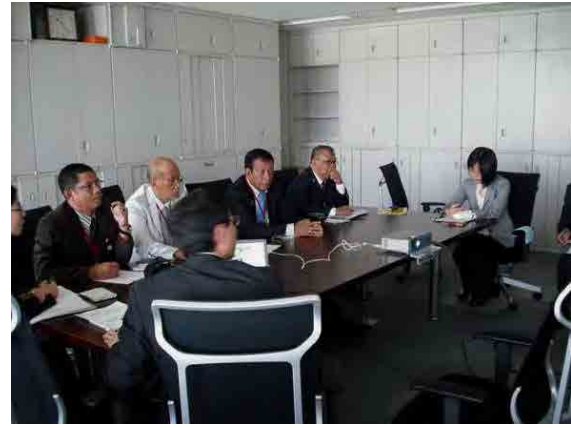


1-24. Monthly Progress PIU Meeting 5 in Takalar, 14 April 2010 (Representative of Bupati Takalar)

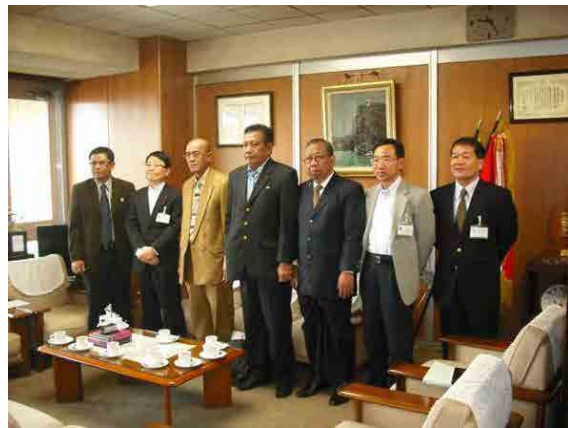
1. Major Activities for the 1st Year (from Oct 2009 to July 2010), 5/6



1-25. Monthly Progress PIU Meeting 6 in Maros, 11 May 2010 (Bupati Maros)



1-26. Training in Japan, 27 May to 12 June 2010 (Ministry of Health, Labor and Welfare)



1-27. Training in Japan, 27 May to 12 June 2010 (PDAM Nagoya)



1-28. Monthly Progress PIU Meeting 7 in Makassar, 24 June 2010 (Vice-mayor of Makassar City)



1-29. Seminar on NRW Reduction Management, 28 June 2010



1-30. Seminar on Financial Issues for Kabupaten Takalar (Bupati Takalar) , 29 June 2010

1. Major Activities for the 1st Year (from Oct 2009 to July 2010), 6/6



1-31. Steering Committee Meeting in Makassar, 13 July 2010



1-32. Steering Committee Meeting in Makassar, 13 July 2010



1-33. Steering Committee Meeting in Makassar, 13 July 2010



1-34. Monthly Progress PIU Meeting 8 in Gowa, 19 July 2010



1-35. Training in Japan, 23 July to 7 August 2010 (Ministry of Health, Labor and Welfare)



1-36. Training in Japan, 23 July to 7 August 2010 (PDAM Okayama)

2. Output Activities for the 1st Year (from Oct 2009 to July 2010), 1/4



2-01. Output 1 Activity: Inter-regional Coordination Meeting with 4 PDAMs, 5 Nov 2009



2-02. Output 1 Activity: Inter-regional Coordination PIU Meeting, 4 Feb 2010



2-03. Output 1 Activity: Inter-regional Coordination PIU Meeting., 6 July 2010



2-04. Output 1 Activity: Inter-regional Coordination Meeting between Gowa and Takalar



2-05. Output 2 Activity, Makassar



2-06. Output 2 Activity, Maros

2. Output Activities for the 1st Year (from Oct 2009 to July 2010), 2/4



2-07. Output 2 Activity, Gowa



2-08. Output 2 Activity, Takalar



2-09. Output 3 Activity, Makassar



2-10. Output 3 Activity, Maros



2-11. Output 3 Activity, Gowa



2-12. Output 3 Activity, Takalar

2. Output Activities for the 1st Year (from Oct 2009 to July 2010), 3/4



2-13. Output 4 Activity, Makassar



2-14. Output 4 Activity, Maros



2-15. Output 4 Activity, Gowa



2-16. Output 4 Activity, Takalar



2-17. Output 5 Activity, Makassar



2-18. Output 5 Activity, Maros

2. Output Activities for the 1st Year (from Oct 2009 to July 2010), 4/4



2-19. Output 5 Activity, Gowa



2-20. Output 5 Activity, Takalar

3. Major Activities for the 2nd Year (from Oct 2010 to Feb 2012), 1/6



3-01. Monthly Progress PIU Meeting 9 in Makassar, 20 Oct 2010



3-02. Water Supply Seminar, Dinas Tarkim, SulSel, 27 October 2010



3-03. Monthly Progress PIU Meeting 10 in Takalar, 15 November 2010 (Bupati Takalar)



3-04. Seminar on Financial Issues for Kabupaten Maros (Bupati Maros) , 22 November 2010



3-05. Joint Coordinating Committee (JCC) Meeting in Jakarta, 23 November 2010



3-06. Joint Coordinating Committee (JCC) Meeting in Jakarta, 23 November 2010

3. Major Activities for the 2nd Year (from Oct 2010 to Feb 2012), 2/6



3-07. Seminar of Indonesia Water Supply Association in Jakarta, 18 January 2011



3-08. Monthly Progress PIU Meeting 11 in Gowa, 25 January 2011



3-09. Monthly Progress PIU Meeting 12 in Maros, 16 February 2011



3-10. Monthly Progress PIU Meeting 13 in Makassar, 14 March 2011



3-11. Poster Contest, February - March 2011



3-12. Poster Contest, February - March 2011

3. Major Activities for the 2nd Year (from Oct 2010 to Feb 2012), 3/6



3-13. Monthly Progress PIU Meeting 14 in Takalar, 18 April 2011



3-14. Training in Japan, 25 May to 4 June 2011 (Ministry of Health, Labor and Welfare)



3-15. Training in Japan, 25 May to 4 June 2011 (Japan Water Works Association)



3-16. Training in Japan, 25 May to 4 June 2011 (PDAM Nagoya)



3-17. Monthly Progress PIU Meeting 15 in Gowa, 21 June 2011



3-18. Seminar on Financial Issues for Kabupaten Gowa (Wakil Bupati Gowa) , 30 June 2011

3. Major Activities for the 2nd Year (from Oct 2010 to Feb 2012), 4/6



3-19. Steering Committee Meeting in Makassar, 19 July 2011



3-20. Steering Committee Meeting in Makassar, 19 July 2011



3-21. Monthly Progress PIU Meeting 16 in Makassar, 18 October 2011



3-22. Presentation at Seminar of Water Supply Association in South & West Sulawesi in Makassar, 12 November 2011



3-23. Presentation at Toraja Province, 14 November 2011



3-24. Monthly Progress PIU Meeting 17 in Takalar, 16 November 2011 (Bupati Takalar)

3. Major Activities for the 2nd Year (from Oct 2010 to Feb 2012), 5/6



3-25. Terminal Evaluation of the Project in November 2011, PDAM Makassar



3-26. Terminal Evaluation of the Project in November 2011, PDAM Maros



3-27. Terminal Evaluation of the Project in November 2011, PDAM Gowa



3-28. Terminal Evaluation of the Project in November 2011, PDAM Takalar



3-29. Joint Coordinating Committee (JCC) Meeting in Jakarta, 25 November 2011



3-30. Joint Coordinating Committee (JCC) Meeting in Jakarta, 25 November 2011

3. Major Activities for the 2nd Year (from Oct 2010 to Feb 2012), 6/6



3-31. Monthly Progress PIU Meeting 18 in Maros, 8 December 2011 (Wakil Bupati Maros)



3-32. Delegation from Sri Lanka as Third Country Technical Exchange



3-33. Monthly Progress PIU Meeting 19 in Gowa, 24 January 2012



3-34. Final Seminar of the Project in Makassar, 23 February 2012



3-35. Final Seminar of the Project in Makassar, 23 February 2012



3-36. Final Seminar of the Project in Makassar, 23 February 2012

4. Output Activities for the 2nd Year (from Oct 2010 to Feb 2012), 1/4



4-01. PIU Meeting for Output 1, 14 February 2011



4-02. Output 1 Activity, Gowa-Takalar MoU Signing (June 2011)



4-03. Output 1 Activity, Makassar-Takalar MoU Signing (July 2011)



4-04. PIU Meeting for Output 1, 14 February 2012



4-05. Output 2 Activity, Makassar



4-06. Output 2 Activity, Maros

4. Output Activities for the 2nd Year (from Oct 2010 to Feb 2012), 2/4



4-07. Output 2 Activity, Gowa



4-08. Output 2 Activity, Takalar



4-09. Output 3 Activity, Makassar



4-10. Output 3 Activity, Maros



4-11. Output 3 Activity, Gowa



4-12. Output 3 Activity, Takalar

4. Output Activities for the 2nd Year (from Oct 2010 to Feb 2012), 3/4



4-13. Output 3 Activity, Paper Test



4-14. Output 3 Activity, Field Test



4-15. Output 3 Activity, NRW Reduction Committee Meeting (7th March, 2011)



4-16. Output 4 Activity, Makassar



4-17. Output 4 Activity, Maros



4-18. Output 4 Activity, Gowa

4. Output Activities for the 2nd Year (from Oct 2010 to Feb 2012), 4/4



4-19. Output 4 Activity, Takalar



4-20. Output 5 Activity, Makassar



4-21 Output 5 Activity, Maros



4-22. Output 5 Activity, Gowa



4-23. Output 5 Activity, Takalar



4-24. Output 5 Activity, Water Quality Seminar

SUMMARY

S1 PROJECT OUTLINE

S1.1 Purpose and Output of the Project

This report constitutes the **Project Completion Report** of the Project for Water Service Improvement in the Mamminasata Metropolitan Area in South Sulawesi Province (hereinafter referred to as the 'Project'), undertaken by a JICA Expert Team (JET) under the auspices of JICA. The report describes the project activities, outputs, project indicators, issues arising from the project activities, etc. during the whole project period from October 2009 to February 2012. The implementation period in Indonesia for the project was two years and five months, which was divided into two project years as shown in **Figure S1-1**.

	2009				2010								2011								2012										
	the First Year				the Second Year								the Second Year																		
	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
the First Year	█				█																										
the Second Year													█				█				█				█						
Reports	△						△				△										△										△
	IC/R						P/R(1)				P/R(2)										P/R(3)										PC/R
Major Meetings	△						△				△										△										△
	SC						JKT				SC										SC										JCC
Training in Japan									□		□												□								
Ramadan	▨											▨												▨							

IC/R: Inception Report, P/R: Progress report, PC/R: Project Completion Report, SC: Steering Committee Meeting, JCC: Joint Coordinating Committee Meeting, JKT: Meeting in Jakarta, MKS: Meeting in Makassar

Figure S1-1 Project Schedule

The overall goal, project purpose and outputs for the Project are shown in **Table S1-1**.

Table S1-1 Overall Goal, Project Purpose and Outputs

Overall Goal	The capacity and quality of water supply services by PDAMs in Mamminasata Metropolitan Area is improved.
Project Purpose	The capacity of PDAM staff in technical management (O&M) and financial administration of the water supply service in Mamminasata Metropolitan Area is enhanced.
Outputs	Output 1 : Inter-regional cooperation and coordination mechanisms among PDAMs are strengthened.
	Output 2 : PDAMs' financial administration capacity is strengthened.
	Output 3 : PDAMs' technical capacity in NRW reduction is strengthened.
	Output 4 : PDAMs' technical capacity in establishing GIS databases is strengthened.
	Output 5 : PDAMs' technical capacity in water quality management in small scale water treatment facilities is strengthened.

S1.2 Project Indicators

The improvement in the capacity of the counterpart personnel can be determined using objectively verifiable indicators. Numerical indicators which were set for each PDAM with planned and actual figures are listed in **Table S1-2**.

Table S1-2 Numerical Indicators for PDAMs

Numerical Indicators		PDAM														
		Makassar			Maros		Gowa			Takalar						
		plan	actual		plan	actual	plan	actual		plan	actual					
Project Purpose	Cost recovery ratio* ¹	2007	-	92%		-	75%	-	93%		-	77%				
		2008	-	93%		-	86%	-	108%		-	83%				
		2009	84%	94%		80%	78%	93%	105%		96%	78%				
		2010	87%	89%		92%	97%	94%	104%		96%	76%				
		2011	93%	108%		95%	115%	95%	93%		104%	75%				
	Number of connections * ²	2007	-	135,013		-	7,477	-	11,092		-	2,623				
		2008	-	140,457		-	8,441	-	12,714		-	3,344				
		2009	146,110	146,658		9,341	9,375	14,314	12,954		4,994	4,909				
		2010	154,860	150,281		10,341	9,755	15,814	14,771		6,395	6,065				
		2011	163,110	154,500		11,341	10,424	17,314	18,418		7,490	7,239				
	Number of days meeting water quality standard	Name of WTP		Antang	Maccini Sombala	Ratulangi	Bantimurung	Pattonongan	Pandang-Pandang	Tompobalang	Limbung	Borongloe	Parangloe	Pattallassang	Bonto Matene	Galesong
		Plan	%	95	80		80	70	80	70	70	70	70	70	80	
Actual 2011		%	100	100	98.9	95.3	70.7	84.9	25.8	84.7	52.3	-	30.1	98.6	92.3	
Output 2	Number of trained staff	2009	9		11		7			7						
		2010	9		11		7			7						
		2011	9		11		9			7						
	Water tariff collection ratio* ²		plan	actual		plan	actual	plan	actual		plan	actual				
		2007	-	86%		-	76%	-	94%		-	83%				
		2008	-	89%		-	82%	-	88%		-	83%				
		2009	90%	94%		82%	88%	89%	97%		85%	93%				
		2010	90%	96%		88%	84%	94%	95%		85%	92%				
	2011	93%	96%		90%	82%	96%	110%		92%	99%					
	Number of workshop/seminars and number of participants		Number of Seminar		Province	Kabupaten /Kota	PDAM Directors	PDAM Staff	Total							
Plan		3 (once a year)		6	12	13	34	approx. 65								
2009		1		4	0	7	75	86								
2010		4		17	17	12	71	117								
2011		1		0	1	1	0	2								
Output 3	Number of trained staff	2009	19		11		9			22						
		2010	19		11		9			22						
		2011	28		13		10			15						
	Budget for NWR Reduction	2010	Rp.4,976,118		Rp.157,785,600		Rp.21,992,000			Rp.6,633,000						
		2011	Rp.188,733,000		Rp.58,887,000		Rp.12,200,000			Rp.8,142,200						
		2012	Rp.40,000,000		Rp.17,111,000		Rp.17,500,000			Rp.11,620,000						
	NRW Ratio	2010.1-6	48.0%		42.5%		-			31.7%						
2010.7-12		48.0%		40.6%		42.8%			31.0%							
2011.1-6		50.4%		41.0%		44.4%			37.4%							
2011.7-12		46.9%		33.8%		36.5%			24.5%							
Output 4	Number of trained staff	2009	13		5		5			5						
		2010	13		5		5			5						
		2011	9		5		4			5						
Output 5	Number of trained staff	2010	32		20		46			14						
		2011	8		9		16			7						

*¹: Cost recovery ratio is calculated by the following formula:

$$\frac{\text{Water Revenue} + \text{Non Water Revenue}}{\text{Direct Cost} + \text{Non Direct Cost}}$$

*²: Based on PDAM's data,

S2 OUTPUTS OF THE PROJECT

S2.1 Output 1: Inter-Regional Cooperation

No.	Activity	Sub-activity	Major achievements
1-1	Outline necessary inter-regional cooperation and coordination (IRCC) mechanism through discussion with stakeholders	(1) Understand roles of MMDCB and players concerned	(1): Clarified and confirmed, findings are reflected in the institutional arrangement (Fig. 2.1-2)
		(2) Hold meeting with stakeholders concerned	(2): Individual working group meetings and overall PIU meetings were held.
		(3) Analyze performance indicators (PI) to see problem areas	(3) and (4) were abandoned because of lack of necessity.
		(4) Identify problems based on the customers' satisfaction survey	(5): Provided various advices and guidance to identify areas of needs for IRCC and issued to be solved by IRCC by way of meetings and discussions.
		(5) Advise PDAMs to explore issues to be solved by IRCC	
		(6) Identify themes in for coordination	Two priority areas identified: (i) cross-border water supply, and (ii) securing stable water sources
		(7) Discuss themes at PIU and obtain consensus at SC	Discussed the themes at PIU meetings and obtained consensus at SC meeting held on July 13, 2010.
		(8) Prepare outline of IRCC mechanism and technology transfer	- Two MoUs for cross-border water supply were realized between (i) Gowa and Takalar, and (ii) Makassar and Takalar. - Studied outline of IRCC mechanism in pursuant to laws and regulations.
1-2	Prepare agreement on how to coordinate	(1) identify items and role division of IRCC	Prepared a manual of coordination mechanism for cross-border water supply cases
		(2) Prepare draft agreement on IRCC	Draft agreement for IRCC among 4 PDAMs were prepared and presented at the final PIU meeting held on February 14, 2012.
<p>Conclusions: The inter-regional cooperation and coordination mechanisms among PDAMs were strengthened through preparation of manual for regional cooperation mechanism for cross-border water supply, recommending to sign the inter-regional cooperation agreement among the 4 PDAMs, holding of incessant meetings and discussions among related parties, sharing and confirmation of agreed matters at overall PIU meetings, etc.</p>			

S2.2 Output 2: Financial Management

No.	Activity	Activities Conducted
2-1	Monitor and develop the business plan including organizational aspects and support in making FRAP to PDAM whose FRAP is not yet made.	<ul style="list-style-type: none"> - For the PDAMs which are in the process of submitting or resubmitting business plan, JET supported them to complete their business plans by giving instruction on how to input the work sheet. - For the PDAM which was requested by Ministry of Finance to update the business plan, JET supported them to update their business plans by giving instruction on how to input the worksheet. - JET supported the PDAMs to monitor their business plans by introducing monitoring flame work. - JET supported PDAMs to develop their compact (summary) business plan which is more useful for daily works. - JET provided lectures regarding the business administration and organizational matters for 4 PDAMs.
2-2	Prepare practical water tariff setting manual and conduct OJT on optimum water tariff setting.	<ul style="list-style-type: none"> - JET explained the water calculation theory by comparing the water calculation method between Indonesia and Japan. - JET also instructed how to calculate water tariff based on "Technical Guidance" which was issued by Ministry of Home Affair. - Each PDAM had been developed a water tariff calculation manual based on the "Technical Guidance" with support of JET. - JET instructed the counterpart staffs of 4 PDAMs the basic method of financial modeling and they learned how water tariff increase would affect to the financial condition of PDAMs.

		- The manual was prepared and the water tariffs based on the Technical Guidance were calculated for 2011 and 2012.
2-3	Conduct OJT on improvement of billing and collection efficiency	<ul style="list-style-type: none"> - JET provided lectures and some advices which would lead to improved billing and collection for 4 PDAMs. - JET & PDAM staff discussed and shared the current methods / problems of meter reading, billing and collection. - Discussion of arrears actions experiment with each PDAM. - 1st arrears actions experiment was prepared and implemented in the pilot areas of PDAM Gowa, Maros and Takalar by counterparts with the support of JET. - Results of the 1st arrears actions experiment were analyzed and discussed with counterparts, and PR papers to be used inside PDAMs were prepared with the support of JET. - JET provided lectures and some advices to PDAMs regarding the customers response at the office, on the phone and at the customer's home, frequent asked questions and answers. - 2nd arrears actions were implemented in another pilot area of each PDAM Gowa, Maros, and Takalar. - Results of the 2nd arrears actions were analyzed and discussed with counterparts, and PR papers to be used inside PDAMs were prepared with the support of JET.
2-4	Conduct OJT on simulation of cost recovery of new investment and diagnosis of financial capability of new loan investment.	<ul style="list-style-type: none"> - JET instructed the counterpart staffs of 4 PDAMs how to read the financial statement and how to do basic financial analysis based on financial statements. - JET instructed them basic accounting theory and how to develop financial statement. - JET instructed them the financial modeling for profit loss statement, cash flow statement and balance sheet. - JET instructed them the method of financial modeling on cost-recovery and debt payment for new investments. - JET instructed them how to analyze and project BPP SPAM Performance Indicators by utilizing the financial model which was developed in the training. - JET instructed them how to analyze cost structure and to develop solutions to improve efficiency.
2-5	Conduct workshop / seminars for disseminating the necessity of cost recovery and financial sustainability to the concerned authorities and stakeholders.	<ul style="list-style-type: none"> - Workshops have been done for Bupati of Takalar, Bupati of Maros and Vice-Bupati of Gowa, who are the decision makers of tariff setting. JET explained them the current financial situation of PDAMs and necessity of tariff increase for sustainable development. - Seminars have been done for 3 times for the staffs of PDAM, South Sulawesi Province, Kota/Kabupaten and Directors of PDAMs.
2-6	Conduct OJT regarding enhancing customer satisfaction to PDAM staffs.	<ul style="list-style-type: none"> - JET provided lectures and some advices to PDAMs on the enhancement of customer satisfaction. - JET & PDAM staff discussed and shared the current methods of and problems related to customer service / customer relations. - PDAM staff, with the support of JET, prepared the public relations paper to present the general information on this JICA project to the customers. - Follow-up on PR paper. - JET provided lectures and some advices to PDAMs regarding the customer response at the office, on the phone and at the customer's home, frequent asked questions and answers, as well as examples of best practices in customer service.
<p>The staffs of the PDAMs improved their knowledge and skills on accounting and financial modeling through the trainings. Based on those basic skills, the staffs of PDAM further improved the skills of business plan development and its monitoring, appropriate water tariff setting, and future financial strategy development. Also, the staffs of PDAM increased their skills to increase tariff collection rate and improve customer satisfactions through lectures and pilot projects. Those improvements strengthen the financial management capacity of PDAM.</p>		

S2.3 Output 3: NRW Reduction

No.	Activity	Activities Conducted
3-1	Organize NRW reduction committee including representatives from the financial section in each PDAM.	At the beginning of the project implementation, NRW Reduction committee was organized. A total of 61 members, 19 staff in PDAM Makassar, 11 staff in PDAM Maros, 9 staff in PDAM Gowa, 22 staff in PDAM Takalar.
3-2	Install master meters and	- All PDAMs finished installing 9 master meters provided by JICA in the first

	measure accurate NRW ratio.	year. - Each PDAM has continued to monitor flow volume and to record results into the master metering sheet on a weekly basis.
3-3	Conduct OJT regarding leak detection skills and techniques.	Through NRW reduction activities, JET transferred essential technology to NRW Reduction Committee. This essential technology was classified into two prominent techniques: 1) Equipment Training in the field to understand how to operate it, 2) NRW Achievement Test to check and confirm the skills or achievements relating to NRW countermeasures for members of the NRW Reduction Committee. 1) Equipment Training for Leak Detection - District Metering - Flow Monitoring (Setting of Ultra-Sonic Flow Meter) - Pressure Monitoring (Setting of Pressure Meter) - Individual household sounding - Detecting and locating underground leakage - Pinpointing Leakage Survey - Recording information in Leakage - Liaison and responding to GIS management team (output 4) 2) NRW Achievement Test NRW Achievement Test was conducted to check the achievement level of the NRW Reduction Committee in Sombo-Opu Water Treatment Plant. After that, all the members were classified into three ranks, Advance, Intermediate, and Basic Level based on the result of the test.
3-4	Survey the number of households and house connections as well as existing NRW conditions, including illegal connections, and analyze water balance.	Customer survey was conducted for all customers in Mamminasata Area. As a result, it was found that detailed leakage conditions, information related to water meters and personal property of all customers were identified.
3-5	Set a target for NRW ratio for the next year and prepare annual implementation plan.	Each PDAM prepared for the annual implementation plan in the two pilot districts and securing cost estimation, such as customer meter replacement, leak repairs, pipe replacement, construction of chambers and district meter installation by taking into account the Indonesian fiscal year in cooperation with JET. For the second pilot district, each PDAM tackled to formulate the implementation plan by themselves.
3-6	Implement NRW reduction works as planned.	All PDAMs implemented NRW reduction activities in accordance with its plan which were composed of the following two items: 1) Leakage Survey to understand the supply condition and leak detection - Water Balance Survey(District Metering) - Flow Monitoring (Setting of Ultra-Sonic Flow Meter) - Pressure Monitoring (Setting of Pressure Meter) - Customer Meter Replacement - Confirmation of Leak repairs - Liaison NRW Reduction committee and GIS management team (output 4) for updating NRW information 2) Public Awareness Campaign Besides, some causes of NRW problems are considered to be from illegal use or vandalized meters. Public awareness campaign on NRW countermeasures play an important role to have an indirect effect as a effective tool for apparent loss. Therefore the campaigns including student's workshop and poster contest for 4 th grade through the 6 th grade in elementary schools near the Pilot District neighborhood were conducted.
3-7	Monitor the results and feedback on setting NRW ratio target and preparation of annual implementation plan for the next year.	Through a series of finalization of templates of NRW implementation plan prepared by JET, these approaches lead counterparts to successful development of NRW strategic countermeasures with feedback of result from leakage surveys. Therefore, NRW meetings in NRW reduction committee were held to discuss intensively to finalize the NRW implementation plan for the next pilot district in PU office on March 7,2011 and November 7,2011 Also, in order to give feedback smoothly to NRW implementation plan, the following agendas were take into consideration : 1) Evaluation of NRW ratio, verification of improvement of NRW activities in the pilot district, 2) To Set the next year's NRW ratio target for the next pilot district, 3) Based on lessons learnt from NRW reduction activities in 2010, a

		<p>formulation of NRW implementation plan was fed back into the NRW reduction plan for 2011</p> <p>Totally, capacity of counterparts to formulate a NRW implementation plan in each PDAM have been strengthen based on the knowledge and skills obtained from the NRW reduction activity in the pilot districts in 2010 and 2011.</p>
<p>NRW reduction committee was organized. Through a series of essential technology transfer related to planning and implementation of NRW countermeasures, NRW reduction committee could obtained the knowledge and know-how of the technologies which were composed of how to formulate NRW implementation plan, cost estimation, chamber construction, leak detection, meter reading, etc. NRW ratio has been reduced from the previous year in entire Kota/Kaupaten including each pilot district in each PDAM. Conclusively, technical capacity of each PDAM for NRW reduction has been strengthened.</p>		

S2.4 Output 4: GIS Database

No.	Activity	Activities Conducted
4-1	Allocate staff to GIS database establishment	<ul style="list-style-type: none"> Assigned staff to work exclusively on GIS database establishment (PDAM)
4-2	Prepare equipment for GIS database and conduct training on GIS establishment	<ul style="list-style-type: none"> Prepared rooms, office furniture, AC, power supply, UPS, stabilizer, internet connection, etc. (PDAM with assistance from the JET) Prepare basic training schedule (PDAM with assistance from the JET) Using local resources <ul style="list-style-type: none"> Procured hardware and software: PCs, printers, basic software, GIS software and satellite images (PDAM) Setup hardware, installation of software and setting up of local area network (LAN) (PDAM with assistance from the JET) Prepared digital base map for selected model areas based on satellite imagery (PDAM with assistance from the JET) Provided basic training on GIS software operation (JET) Provided follow-up training (JET)
4-3	Prepare data needed for GIS database (water distribution network drawings and customer data)	<ul style="list-style-type: none"> Collected available data as specified below: <ul style="list-style-type: none"> Pipeline data: e.g, diameter, length, record of leakage, record of repair, presence of flow meter, material, age or year of installation, ownership, etc.(PDAM) Customer data: name, district, address, telephone number, etc. (PDAM) Input into database (PDAM) Data collection and input for areas outside the model areas to expand the coverage of GIS database (PDAM)
4-4	Select model areas for each PDAM and establish GIS database	<ul style="list-style-type: none"> Selection of model areas (PDAM) Creation of base map (PDAM with assistance from the JET activity 4-2) Data input for model areas (PDAM) Correction/updating of GIS database (PDAM)
4-5	Conduct OJT on effective use of GIS database in distribution network maintenance and billing and collection, and updating and maintenance of GIS database.	<ul style="list-style-type: none"> JET delivered OJT to cover the following topics: <ul style="list-style-type: none"> Discussion on future plan to share water resource effectively among PDAMs (i.e. inter-regional coordination to share water resources, related to "Output 1") Utilizing base map for "Arrear Actions Experiment" (i.e. identifying customers with considerable arrears on base map, related to "Output 2). Utilizing created base map for key activities under "Output 3" (such as preparation of detailed map to identify/record location of facilities, customers, leakages, illegal users, etc.) Mid-term written exam and practical test where administered to: <ul style="list-style-type: none"> Determine the trainees understanding of basic knowledge and skill on GIS and software operation, including spatial statistics analysis identify the knowledge/skill to be reinforced Based on the result of the above tests, special attention was focused on the following aspects for the rest of the training period: <ul style="list-style-type: none"> spatial statistics analysis (eg., searching and highlighting specific objects, such as pipes more than 50 mm diameter, etc.) arranging proper layout for presentation. Another test was administered on completion of the activity of Output 4 to confirm the capability of trainees on GIS operations.
4-6	Prepare implementation	<ul style="list-style-type: none"> Formulated a plan to expand the area covered by the GIS database after

plan to expand GIS database for the whole water supply areas in each PDAM and continue establishment works.	completion of assistance from the JET (PDAM with assistance from JET)
Though giving basic training on GIS database construction, conducting OJTs on database construction and its effective use, and formulating future plan to expand database construction activities to the rest of the service area, PDAM's technical capacity in establishing GIS database has been strengthened.	

S2.5 Output 5: Water Quality Management

No.	Activity	Description
5-1	Allocate staff for WQM.	<ul style="list-style-type: none"> Laboratory staff and operators had been assigned to WQM.
5-2	Prepare water quality analysis equipment and conduct training on water quality analysis.	<ul style="list-style-type: none"> Equipment had been provided and installed to certain PDAMs. C/Ps had been trained to operate equipment. Training on periodic and daily maintenance had been conducted in order to keep equipment in good condition.
5-3	Prepare guidelines for WQM (procedure for water quality analysis, feedback on adjustment of chemical injection and recording and reporting).	<ul style="list-style-type: none"> Training on methods of deriving the right conditions for coagulation by jar tests and water quality analysis had been conducted. Training on operational procedures and data interpretation through water quality analysis (for jar tests) had been conducted. C/Ps had summarized what they had learned in hands-on training into standard operational procedures and the guideline with the assistance of JET.
5-4	Conduct training for operators regarding adjustment of chemical injection based on feedback from water quality analysis results.	Water quality analysis (WQA) is conducted as part of coagulation testing. Training on adjusting chemical injection corresponding to coagulation testing had been conducted using samples in the both wet and dry season.
5-5	Conduct OJT on WQM based on the guideline.	OJTs have been conducted according to the guideline.

C/Ps were trained to monitor water quality, to conduct coagulation tests and to adjust optimum treatment conditions. The contents of training sessions were documented in the Guideline. Water quality management is conducted based on the Guideline and compliance rate of water quality to the standards has been increasingly modified. Thus, the technical capacity is strengthened.



Output 1



Output 2



Output 3



Output 4



Output 5

S3 INPUTS TO THE PROJECT

S3.1 Dispatch Schedule of JICA Expert Team

(1) JICA Expert Team

The JICA Expert Team (JET) is listed in **Table S3-1**.

Table S3-1 Members of JICA Expert Team

No.	Name	Position
1	Takehiko OGA	Chief Advisor / Water Supply Management / Capacity Development
2	Yuji HONDA (for the 1 st Year)	Water Supply Utilities Management Advisor
3	Masaaki HANDA (for the 2 nd Year)	Water Supply Utilities Management Advisor
4	Junichi WATANABE	Deputy Chief Advisor / NRW Reduction
5	Masashi SUZUKI	Leak Detection
6	Koichi YAMASHITA	Finance Management
7	Daizo IWATA	Business Management / Customer Relations
8	Yasuo KAWAKAMI	O&M of Water Treatment Facilities
9	Koji KIMURA	Water Quality Management
10	Tetsuji KAWAMURA	GIS
11	Nobuhiro MORI	Inter-organizational Coordination Advisor
12	Rumaria WIJAYA (for the 1 st Year)	Coordinator
13	Koichi MATSUBARA (for the 2 nd Year)	Coordinator/Assistant to Water Quality Management

(2) Dispatch Schedule of JET

Figure S3-1 shows a dispatch schedule of JICA Expert Team (JET) in the second year.

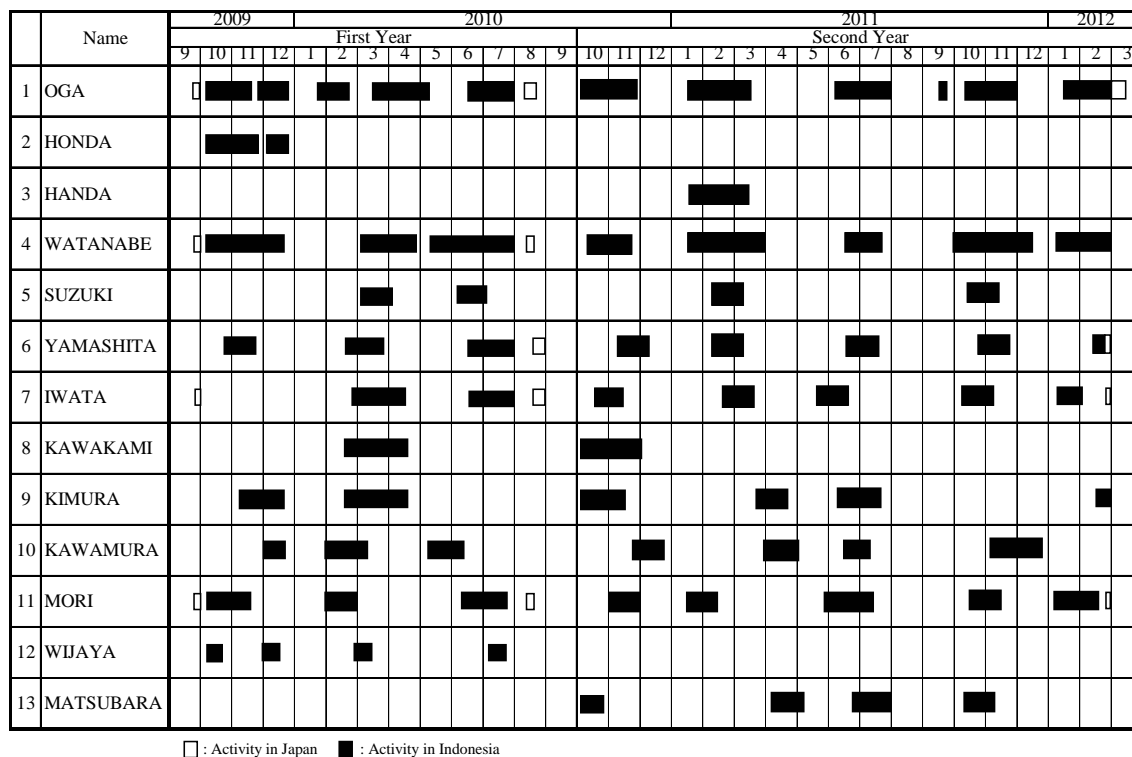


Figure S3-1 Dispatch Schedule of JET

S3.2 Training Program in Japan

In order to provide hands on experience and understanding of the Japanese management of waterworks and to reinforce the appreciation of the capability required by the project, counterpart personnel attended three training programs in Japan..

These were conducted with the support and cooperation of the Ministry of Health, Labor and Welfare, Japan Water Works Association, Nagoya City Waterworks & Sewerage Bureau and Okayama City Waterworks Bureau.

(1) First Training Program in Japan

The first training program in Japan was implemented for the president directors (Director Utama) of 4 PDAMs as listed in **Table 3.2-1** from 27th May to 12th June, 2010.

Table 3.2-1 Member of the First Training Program

No.	Name	PDAM
1	Mr. Tadjuddin	Makassar
2	Mr. Sanusi	Maros
3	Mr. Hasanuddin	Gowa
4	Mr. Syamsul	Takalar



At Ministry of Health, Labor and Welfare



At PDAM Nagoya



At PDAM Okayama

(2) Second Training Program in Japan

The second training program in Japan was implemented for the directors of 4 PDAMs as listed in **Table 3.2-3** from 22nd July to 7th August, 2010.

Table 3.2-3 Member of the Second Training Program

No.	Name	Title	PDAM
1	Mr. Rachmansyah	Technical Director	Makassar
2	Mr. Hamzah	Financial Director	Makassar
3	Mr. Rifai	Technical Director	Maros
4	Mr. Arif	Financial and Admi. Director	Maros
5	Mr. Natsir	Technical Director	Gowa
6	Ms. Nur Rahmi	Head of Financial Sec.	Gowa
7	Mr. Zainuddin	Technical Director	Takalar
8	Mr. Rustan	Financial and Admi. Director	Takalar



At Japan Waterworks Association



At PDAM Nagoya



At PDAM Okayama

(3) Third Training Program in Japan

The third training program in Japan was implemented for the officials of central and provincial governments related to the project as listed in **Table 3.2-5** from 25th May to 4th June, 2011.

Table 3.2-5 Member of the Third Training Program

No.	Name	Title and Organization
1	Ms. Meike Kencanawulan	Head of Planning Section, Division of Technical Planning, Directorate of Water Supply Development, Directorate General of Human Settlements, Ministry of Public Works
2	Mr. Syarif Burhanuddin	Director of Dinas Spatial Planning and Settlement, South Sulawesi Province
3	Mr. Soeprapto Budisantoso	Director of Dinas Water Resource Management, South Sulawesi Province
4	Mr. Kaharuddin Rachim	Head of Work unit for water supply performance management development, Dinas Spatial Planning and Settlement, South Sulawesi Province
5	Mr. Nurdin Mone	Head of Work unit for regional strategy of Mamminasata Metropolitan Area, Dinas Spatial Planning and Settlement, South Sulawesi Province



At Ministry of Health, Labor and Welfare



At Japan Water Works Association



At PDAM Nagoya

S3.3 Equipment Provision

The total amount of 52.9 million Japanese Yen (approximately equivalent to 5.51 billion Indonesian Rupiah, 1 JY = 0.00959 IDR) was allocated for the equipment. The major equipment procured in the Project was computers for financial management, equipment for leak detection, flow meters, servers/software/other necessary materials for GIS, equipment for water quality measuring, and photo copier as office equipment for Dinas Tarkim, SulSel.

S3.4 Operational Expenses

The operational expenses borne by Japanese side was 30.31 million Japanese yen (approximately equivalent to 3.13 billion Indonesian Rupiah) for the first year and 25.61 million Japanese yen (approximately equivalent to 2.72 billion Indonesian Rupiah) for the second year.

S.4 MAJOR MEETINGS AND ACTIVITIES

S.4.1 Joint Coordinating Committee Meeting

The several meetings listed below were held with the central government in order to review the progress of the project and to exchange and discuss opinions on major issues for the smooth implementing of the project.

- Kick-Off Meeting on 8th October, 2009
- Meeting with Central Government on 9th April, 2010
- First JCC Meeting on 23rd November, 2010
- Second JCC Meeting on 25th November, 2011



First JCC Meeting on 23rd November, 2010



Second JCC Meeting on 25th November, 2011

S.4.2 Steering Committee Meeting

The Steering Committee (SC) was organized at provincial level and three SC meetings were held for monitoring and coordinating entire activities of the Project.

- First Steering Committee Meeting on 2nd November, 2009
- Second Steering Committee Meeting on 13th July, 2010
- Third Steering Committee Meeting on 19th July, 2011



First Steering Committee Meeting on 2nd November, 2009



Second Steering Committee Meeting on 13th July, 2010



Third Steering Committee Meeting on 19th July, 2011

S.4.3 Seminars

Seminars were organized to report and explain project activities, share information and train staff of South Sulawesi Province, Kota Makassar, Kabupaten Maros, Kabupaten Gowa and Kabupaten Takalar. JET also attended some public seminars to report and explain project

activities for agencies and persons concerned.

- Finance and Management of PDAM on 23rd of March, 2010,
- NRW Reduction on 28th June, 2010.
- Water Supply System and Development on 27th October, 2010
- Financial Issues for Kabupaten/Kota
- Seminar for Indonesia Water Works Association in Jakarta on 18th January, 2011
- Seminar for Water Works Association in Makassar on 12th November, 2011
- Seminar for PDAM Toraja on 14th November, 2011
- Final Seminar of the Project on 23rd February, 2012



Finance and Management of PDAM on 23rd of March, 2010



Countermeasures for NRW Reduction on 28th June, 2010



Seminar of Indonesia Water Supply Association, 18th January 2011

S.4.4 Monthly Progress PIU Meeting

Monthly Progress PIU Meetings (MPM) were organized to monitor the project progress at each PDAM, to promote cooperation among PIU members, to share the problems and experiences and to hold seminars on basic training. The MPMs were attended by members of the Project Implementation Unit (PIU), JICA Expert Team, representatives of agencies concerned such as provincial and local government and PDAM staff (counterpart personnel) related to the project.



First Monthly Progress PIU Meeting (16th November, 2009)



Tenth Monthly Progress PIU Meeting (15th November, 2010)



Fifteenth Monthly Progress PIU Meeting (21st June, 2011)

JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT FOR WATER SERVICE IMPROVEMENT
IN MAMMINASATA METROPOLITAN AREA
IN SOUTH SULAWESI PROVINCE

PROJECT COMPLETION REPORT

Table of Contents

Location Map of Mamminasata Metropolitan Area

Photos for the Project Activities

Summary

List of Abbreviation & Terminology

Chapter 1	PROJECT OUTLINE	1
1.1	Background	1
1.2	Purpose and Outputs of the Project	2
1.3	Outline of the Project	2
1.3.1	Main Activities	2
1.3.2	Target Area	3
1.3.3	Project Schedule	3
1.4	Overall Progress of the Project	4
1.4.1	Project Indicators	4
1.4.2	Plan of Operation	5
Chapter 2	OUTPUTS OF THE PROJECT	8
2.1	Output 1: Inter-regional Coordination	8
2.1.1	Major Activities	8
	(1) Summary of Activities	8
	(2) List of activity outputs	10
2.1.2	Output of the Project	12
	(1) Working Group	12
	(2) Project Indicators	13
2.1.3	Lessons Learned	20
2.2	Output 2: Financial Management	21
2.2.1	Major Activities	21
	(1) Plan of Operation for Output 2	21
	(2) Activities	21
2.2.2	Outputs of the Project	36
	(1) Target Group of Each PDAM	37
	(2) Project Indicators	39
	(3) Water Tariff Collection Rate	40
	(4) Financial Indicators in General	41

(5) Financial Indicators based on BPP SPAM -----	44
(6) Training Material -----	44
2.2.3 Ideas, Lessons Learned, and Recommendations -----	46
2.3 Output 3: NRW Reduction -----	50
2.3.1 Major Activities -----	50
(1) Outputs from the Entire Period’s Activities -----	50
(2) Overall Schedule of Activities under Output 2 -----	60
2.3.2 Output of the Project -----	60
(1) Target Group -----	60
(2) Project Indicators -----	62
2.3.3 Lessons Learned -----	65
(1) Organizational Management -----	65
(2) Technical Management -----	65
2.4 Output 4: GIS Database -----	67
2.4.1 Major Activities -----	67
2.4.2 Output of the Project -----	75
(1) GIS Management Teams Formed at the PDAMs -----	75
(2) Project Indicators -----	77
2.4.3 Lessons Learned -----	79
2.5 Output 5: Water Quality Management -----	81
2.5.1 Major Activities -----	81
2.5.2 Output of the Project -----	83
(1) Target Group -----	83
(2) Project Indicators -----	83
2.5.3 Lessons Learned -----	86
Chapter 3 INPUTS TO THE PROJECT -----	87
3.1 Dispatch Schedule of JICA Experts -----	87
3.1.1 Member of JICA Expert Team -----	87
3.1.2 Dispatch Schedule of JET -----	88
3.2 Training Program in Japan -----	89
3.2.1 First Training Program in Japan -----	89
3.2.2 Second Training Program in Japan -----	90
3.2.3 Third Training Program in Japan -----	92
3.3 Equipment Provision -----	93
3.4 Operational Expenses -----	96
Chapter 4 MAJOR MEETINGS AND ACTIVITIES -----	97
4.1 Joint Coordinating Committee Meeting -----	97
4.2 Steering Committee Meeting -----	99
4.3 Seminars -----	101
4.4 Monthly Progress Meetings -----	104
ANNEX 1	Minutes of Meetings for Major Meetings
ANNEX 2	Draft Agreement for Inter-regional Cooperation among 4 PDAMs
ANNEX 3	Annexes for Output 4

LIST OF ABBREVIATION & TERMINOLOGY

ANT	Antang WTP (Makassar)
BAN	Bantimurung WTP (Maros)
BON	Bonto Mate'ne WTP (Takalar)
BOR	Borongloe WTP (Gowa)
Cipta Karya	Directorate General of Human Settlement, Ministry of Public Works
C/P	Counterpart
Dinas Tarkim	Dinas Tata Ruang dan Permukiman (Department of Spatial Planning and Settlement)
DMA	District Meter Area
FRAP	Financial Recovery Action Plan
GAL	Galesong WTP (Takalar)
GIS	Geographic Information System (or Geographical Information System)
GOI	Government of Indonesia
GOJ	Government of Japan
HH	Household
IPA	Instalasi Pengolahan Air (Water Treatment Plant)
IRCC	Inter-Regional Cooperation and Coordination
JCC	Joint Coordinating Committee
JICA	Japan International Cooperation Agency
JET	JICA Expert Team
LIM	Limbung WTP (Gowa)
MAC	Maccini Sombala WTP (Makassar)
Mamminasata	Kota Makassar, Kabupaten Maros, Kabupaten Gowa and Kabupaten Takalar
MFO	Makassar Field Office (JICA)
MKS	Makassar
MMDCB	Mamminasata Metropolitan Development Coordination Board
MM / MoM	Minutes of Meeting
MNF	Minimum Night Flow
MoU	Memorandum of Understanding
MOF	Ministry of Finance
MOHA	Ministry of Home Affairs
MPM	Monthly Progress PIU Meeting
NPV	Net Present Value
NRW	Non Revenue Water
O&M	Operation & Maintenance
OJT	On the Job Training
OVI	Objectively Verifiable Indicator
PAN	Pandang-Pandang WTP (Gowa)
PAR	Parangloe WTP (Gowa)
PDAM	Persusahaan Daerah Air Minum (Regional Water Supply Enterprise)
PDM	Project Design Matrix
PERPAMSI	PERSATUAN PERSAHAAN AIR MINUM SELURUH INDONESIA (Indonesia Water Supply Association)
PGR	Progress Report
PI	Performance Indicator
PIU	Project Implementation Unit
Project	Project for Water Service Improvement in Mamminasata Metropolitan Area in South Sulawesi Province
PT	Perseroan Terbatas (Limited Company)
PTL	Pattalassang WTP (Gowa)
PTT	Pattontongan WTP (Maros)
PU	Pekerjaan Umum (Ministry of Public Works)
RAT	Ratulangi WTP (Makassar)
R/D	Record of Discussion for the Project for Water Service Improvement in Mamminasata Metropolitan Area in South Sulawesi Province, dated July 31, 2009
ROA	Return on Asset

RW	Revenue Water
SC	Steering Committee
SOP	Standard Operating Procedure
SPAM	Sistem Penyediaan Air Minum (Water Supply System)
SulSel	Provinsi Sulawesi Selatan (South Sulawesi Province)
TARKIM	Spacial Planning and Settlement (Tata Ruang dan Pemukiman)
TIU	Technical Implementation Unit
TOM	Tompobalang WTP (Gowa)
UPTD	Technical Working Unit
WG-1	Working Group for Output 1
WQA	Water Quality Analysis
WQM	Water Quality Management
WTP	Water Treatment Plant

CHAPTER 1 PROJECT OUTLINE

1.1 Background

The development of East Indonesia, as stated in the National Medium Term Development Plan 2004-2009, is one of the priorities for the Government of Indonesia (GOI). The GOI promoted the South Sulawesi Province Regional Development Program to encourage economic activities which would turn the area into a trade and logistics centre for East Indonesia. To support these developments with the required infrastructures, the Ujung Pandang Water Supply Development Project (1993–2002) was implemented using a Japanese ODA Loan.

The Japan International Cooperation Agency (JICA) study on Implementation of Integrated Spatial Plan for the Mamminasata Metropolitan Area (2005–2006) concluded that support for the water supply sector remained as a high priority. It was also noted that high non-revenue water (NRW) ratio, low water tariff collection rates and lower water tariffs in this metropolitan area put pressure on the management of water supply enterprises (PDAMs).

Technical and management problems in the rehabilitation and expansion of transmission and distribution network systems and NRW reduction, as well as funding problems, hindered good water supply management by PDAMs in the Mamminasata Metropolitan Area. Low levels of water supply services, such as inadequate water quality control at water treatment plants, led to lowered willingness to pay water tariffs.

In this regard, the Ministry of Public Works accelerated the improvement of each PDAM's management via the PDAM Health Program 2007. In July 2008, the Ministry of Finance declared in its decree (Ministry of Finance Decree, July 2008), that PDAMs meeting certain conditions could enjoy a reduction and exemption of debt to help them recover from unhealthy fiscal status, subject to the preparation and approval of a Financial Recovery Action Plan (FRAP). FRAP was abolished and replaced by "Regulation of the Minister of Finance Number 120/PMK. 05/2008, stipulating that the interest and penalty on the loan would be exempted and the repayment would be rescheduled when PDAM submits its Business Plan which has to be approved by the Ministry of Finance.

To achieve financial and administrative improvement of PDAMs in accordance with these government policies, and to gain investments in water supply facilities (including Japanese ODA Loan) for future healthy water supply management, it was necessary to prepare and implement specific business and financial recovery action plans.

Under these circumstances, the GOI requested that the Government of Japan implement the technical cooperation project to ensure healthy water supply management and water supply service improvement for four PDAMs (Makassar, Maros, Gowa and Takalar) in the Mamminasata Metropolitan Area. In response to this request, JICA conducted the detailed planning survey in 2009 and the Record of Discussions (R/D) was signed between the GOI and JICA on July 31, 2009. Subsequently, the two and half year project was initiated in September 2009.

This report constitutes the **Project Completion Report** of the Project for Water Service Improvement in the Mamminasata Metropolitan Area in South Sulawesi Province (hereinafter referred to as the 'Project'), undertaken by a JICA Expert Team (JET) under the auspices of JICA. The report describes the project activities, outputs, project indicators, issues arising from the project activities, etc. during the whole project period from October 2009 to February 2012.

1.2 Purpose and Outputs of the Project

The purpose of this project was to enhance the capacities of PDAM staff in Kota Makassar, Kabupaten Gowa, Kabupaten Maros and Kabupaten Takalar in the Mamminasata Metropolitan Area, focusing on technical management (O&M) and financial administration of water supply services, through the following activities:

- Building capacity to respond to common issues in water supply development in Mamminasata Metropolitan Area;
- Strengthening the capacity to improve financial and administrative management to facilitate an expansion of water supply services, and
- Strengthening the capacity to supply safe water through water quality improvement.

The overall goal, project purpose and outputs are shown in **Table 1.2-1**.

Table 1.2-1 Overall Goal, Project Purpose and Outputs

Overall Goal	The capacity and quality of water supply services by PDAMs in Mamminasata Metropolitan Area is improved.
Project Purpose	The capacity of PDAM staff in technical management (O&M) and financial administration of the water supply service in Mamminasata Metropolitan Area is enhanced.
Outputs	Output 1 : Inter-regional cooperation and coordination mechanisms among PDAMs are strengthened.
	Output 2 : PDAMs' financial administration capacity is strengthened.
	Output 3 : PDAMs' technical capacity in NRW reduction is strengthened.
	Output 4 : PDAMs' technical capacity in establishing GIS databases is strengthened.
	Output 5 : PDAMs' technical capacity in water quality management in small scale water treatment facilities is strengthened.

1.3 Outline of the Project

1.3.1 Main Activities

In order to achieve the project purpose and outputs mentioned above, the activities shown in **Table 1.3-1** were implemented.

Table 1.3-1 Project Activities

Outputs	Activities	
1. Inter-regional cooperation and coordination mechanisms among PDAMs are strengthened.	1-1	Outline necessary inter-regional cooperation and coordination mechanisms through discussion with stakeholders.
	1-2	Prepare agreement on how best to coordinate.
2. PDAMs' financial administration capacity is strengthened.	2-1	Monitor and develop the business plan including institutional aspects, and support PDAMs in preparing FRAP where necessary.
	2-2	Prepare practical water tariff setting manual and conduct OJT on optimum water tariff setting.
	2-3	Conduct OJT on improvement of billing and collection efficiency.
	2-4	Conduct OJT on simulation of cost recovery of new investment and diagnosis of financial capability of new loan investment.
	2-5	Conduct workshop / seminars on the necessity of cost recovery and financial sustainability for the concerned authorities and stakeholders.
	2-6	Conduct OJT for PDAM staff regarding enhancing customer satisfaction.
3. PDAMs' technical capacity in NRW reduction is strengthened.	3-1	Organize NRW reduction committee including representatives from the financial section in each PDAM.
	3-2	Install master meters and measure accurate NRW ratio.
	3-3	Conduct OJT regarding leak detection skills and techniques.
	3-4	Survey the number of households and house connections as well as existing NRW conditions, including illegal connections, and analyze water balance.
	3-5	Set a target for NRW ratio for the next year and prepare annual implementation plan.
	3-6	Implement NRW reduction works as planned.
	3-7	Monitor the results and feedback on setting NRW ratio target and preparation of annual implementation plan for the next year.
4. PDAMs' technical capacity in establishing GIS databases is strengthened.	4-1	Allocate staff to the GIS database establishment.
	4-2	Prepare equipment for GIS database and conduct training regarding GIS database establishment.
	4-3	Prepare the data needed for GIS database (water distribution network and customer data).
	4-4	Select model areas for each PDAM and establish GIS database.
	4-5	Conduct OJT on effective use of GIS database in distribution network maintenance, billing and collection, and updating and maintenance of GIS database.
	4-6	Prepare implementation plan to expand GIS database for the whole water supply area in each PDAM and continue establishment works.
5. PDAMs' technical capacity in water quality management in small scale water treatment facilities is strengthened.	5-1	Allocate staff to water quality management.
	5-2	Prepare water quality analysis equipment and conduct training on water quality analysis.
	5-3	Prepare guidelines for water quality management.
	5-4	Conduct training for operators regarding adjustment of chemical injection based on water quality analysis results.
	5-5	Conduct OJT on water quality management based on the guidelines.

1.3.2 Target Area

The target area of this project covers the four PDAMs (PDAMs Makassar, Gowa, Maros and Takalar) which provide or supervise water supply services in the Mamminasata Metropolitan Area, as shown on the location Map of the Mamminasata Metropolitan Area at the beginning of this report.

1.3.3 Project Schedule

The implementation period in Indonesia for the project was two years and five months, which was divided into two project years as shown in **Figure 1.3-1**.

	2009				2010								2011								2012												
	the First Year												the Second Year																				
	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3		
the First Year	■				■																												
the Second Year													■				■				■				■				■				
Reports	△ IC/R				△ P/R(1)				△ P/R(2)												△ P/R(3)				△ PC/R								
Major Meetings	△ SC				△ JKT				△ SC				△ JCC				△ SC				△ JCC				△ MKS								
Training in Japan													□		□														□				
Ramadan	▨													▨														▨					

IC/R: Inception Report, P/R: Progress report, PC/R: Project Completion Report, SC: Steering Committee Meeting, JCC: Joint Coordinating Committee Meeting, JKT: Meeting in Jakarta, MKS: Meeting in Makassar

Figure 1.3-1 Project Schedule

1.4 Overall Progress of the Project

1.4.1 Project Indicators

The improvement in the capacity of the counterpart personnel can be determined using objectively verifiable indicators for each output as shown in **Table 1.4-1**.

Table 1.4-1 Indicators for Evaluation of Project Effectiveness

Narrative Summary	Objectively Verifiable Indicator
<u>Overall Goal</u> Capacity and quality of water supply service by PDAMs in Mamminasata Metropolitan Area is improved.	1. Served population is increasing to the national target level. 2. Results of daily treated water quality test always satisfy water quality standard 3. Water quality is based on standard from Ministry of Health of the Republic of Indonesia
<u>Project Purpose</u> Capacity of PDAM staff for technical management (O&M) and financial administration of water supply service in Mamminasata Metropolitan Area is enhanced.	1. Performance indicator related to management and O&M (such as cost recovery ratio, number of connections and number of days meeting water quality standard) are improved. 2. Trained skill and techniques are utilized in routine management and O&M works of water supply service.
<u>Outputs</u>	
1. Inter-regional cooperation and coordination mechanism among PDAMs is strengthened.	1-1 Outline of necessary mechanism is identified. 1-2 Agreement on how to coordinate is prepared.
2. PDAMs' financial administration capacity is strengthened.	2-1 Training manual and number of trained staff 2-2 Water tariff collection ratio is improved. 2-3 Number of workshop/seminars and number of participants
3. PDAMs' technical capacity for NRW reduction is strengthened.	3-1 Training material and number of trained staff 3-2 Annual budget for NRW reduction is secured as planned in the implementation plan 3-3 Annual NRW ratio is reduced from the previous year.
4. PDAMs' technical capacity for establishment of GIS database is strengthened.	4-1 Training material and number of trained staff 4-2 GIS database of the model areas in each PDAM are established. 4-3 GIS database expansion works are continuously conducted in accordance with the implementation plan.
5. PDAMs' technical capacity for water quality management of small scale water treatment facilities is strengthened.	5-1 Training material and number of trained staff 5-2 Daily water quality management is conducted based on the prepared guideline of water quality management.

Numerical indicators which were set for each PDAM with planned and actual figures are listed in **Table 1.4-2**. List of the training materials used for the project from October 2009 to February 2012 is shown in Chapter 2 and the materials are compiled as a separate volume and submitted to agencies concerned for future reference and PDAM's own activities.

1.4.2 Plan of Operation

A Plan of Operation for the project is shown in **Figure 1.4-1**. The plan was finalized reflecting the discussions with counterpart agencies concerned, situations of PDAM and actual project activities. The original Plan of Operation was included in the Minutes of Meeting which was signed on July 31, 2009 by the Indonesian and the Japanese sides.

Table 1.4-2 Numerical Indicators for PDAMs

Numerical Indicators		PDAM														
		Makassar			Maros		Gowa			Takalar						
		plan	actual		plan	actual	plan	actual		plan	actual					
Project Purpose	Cost recovery ratio* ¹	2007	-	92%		-	75%	-	93%		-	77%				
		2008	-	93%		-	86%	-	108%		-	83%				
		2009	84%	94%		80%	78%	93%	105%		96%	78%				
		2010	87%	89%		92%	97%	94%	104%		96%	76%				
		2011	93%	108%		95%	115%	95%	93%		104%	75%				
	Number of connections * ²	2007	-	135,013		-	7,477	-	11,092		-	2,623				
		2008	-	140,457		-	8,441	-	12,714		-	3,344				
		2009	146,110	146,658		9,341	9,375	14,314	12,954		4,994	4,909				
		2010	154,860	150,281		10,341	9,755	15,814	14,771		6,395	6,065				
		2011	163,110	154,500		11,341	10,424	17,314	18,418		7,490	7,239				
	Number of days meeting water quality standard	Name of WTP		Antang	Maccini Sombala	Ratulangi	Bantimurung	Pattonongan	Pandang-Pandang	Tompobalang	Limbung	Borongloe	Parangloe	Pattallassang	Bonto Matehe	Galesong
		Plan	%	95	80		80	70	80	70	70	70	70	70	80	
		Actual 2011	%	100	100	98.9	95.3	70.7	84.9	25.8	84.7	52.3	-	30.1	98.6	92.3
Output 2	Number of trained staff	2009	9		11		7			7						
		2010	9		11		7			7						
		2011	9		11		9			7						
	Water tariff collection ratio* ²		plan	actual		plan	actual	plan	actual		plan	actual				
		2007	-	86%		-	76%	-	94%		-	83%				
		2008	-	89%		-	82%	-	88%		-	83%				
		2009	90%	94%		82%	88%	89%	97%		85%	93%				
		2010	90%	96%		88%	84%	94%	95%		85%	92%				
	2011	93%	96%		90%	82%	96%	110%		92%	99%					
	Number of workshop/seminars and number of participants		Number of Seminar		Province	Kabupaten /Kota	PDAM Directors	PDAM Staff	Total							
Plan		3 (once a year)		6	12	13	34	approx. 65								
2009		1		4	0	7	75	86								
2010		4		17	17	12	71	117								
2011		1		0	1	1	0	2								
Output 3	Number of trained staff	2009	19		11		9			22						
		2010	19		11		9			22						
		2011	28		13		10			15						
	Budget for NWR Reduction	2010	Rp.4,976,118		Rp.157,785,600		Rp.21,992,000			Rp.6,633,000						
		2011	Rp.188,733,000		Rp.58,887,000		Rp.12,200,000			Rp.8,142,200						
		2012	Rp.40,000,000		Rp.17,111,000		Rp.17,500,000			Rp.11,620,000						
	NRW Ratio	2010.1-6	48.0%		42.5%		-			31.7%						
2010.7-12		48.0%		40.6%		42.8%			31.0%							
2011.1-6		50.4%		41.0%		44.4%			37.4%							
2011.7-12		46.9%		33.8%		36.5%			24.5%							
Output 4	Number of trained staff	2009	13		5		5			5						
		2010	13		5		5			5						
		2011	9		5		4			5						
Output 5	Number of trained staff	2010	32		20		46			14						
		2011	8		9		16			7						

*¹: Cost recovery ratio is calculated by the following formula:

$$\frac{\text{Water Revenue} + \text{Non Water Revenue}}{\text{Direct Cost} + \text{Non Direct Cost}}$$

*²: Based on PDAM's data,

