

Photos for highlights of the activities (each of 5-time PIU meeting and signing of MoUs) are shown below.

**Photo 2.1-1 First PIU meeting
(November 2009)**



**Photo 2.1-2 Second PIU meeting
(February 2010)**



**Photo 2.1-3 Third PIU meeting
(July 2010)**



**Photo 2.1-4 Fourth PIU meeting
(February 2011)**



**Photo 2.1-5 Gowa-Takalar MOU signing
(June 2011)**



**Photo 2.1-6 Makassar-Takalar MOU signing
(July 2011)**



**Photo 2.1-7 Fifth (final) PIU meeting
(February. 2012)**



(2) List of activity outputs

The main outputs of the activity are recorded in the minutes of meetings in the table below¹.

Table 2.1-2 List of Minutes of Meetings for Activities of Output 1

| MM No. | Month | Date | Place | Agenda |
|-------------|-------|------|------------------|---|
| 2009 | | | | |
| 09001 | Oct. | 15 | Kabup. Maros | Inter-regional coordination among PDAMs |
| 09002 | Oct. | 15 | PDAM Maros | Inter-regional coordination among PDAMs |
| 09003 | Oct. | 16 | PDAM Gowa | Inter-regional coordination among PDAMs |
| 09004 | Oct. | 16 | PDAM Takalar | Inter-regional coordination among PDAMs |
| 09005 | Oct. | 19 | JICA Team Office | Legal statue of MMDCB |
| 09006 | Oct. | 20 | PDAM Makassar | Inter-regional coordination among PDAMs |
| 09007 | Oct. | 21 | Bappeda, SULSEL | SULSEL provincial budget for FY 2009 |
| 09008 | Oct. | 22 | PU Tarkim | Inter-regional coordination for Dinas PU for Mamminasata |
| 09009 | Oct. | 23 | PDAM Makassar | Inter-regional coordination among PDAMs |
| 09010 | Oct. | 26 | PDAM Makassar | Inter-regional coordination among PDAMs |
| 09011 | Oct. | 27 | PU Tarkim | Who's who in Provincial/city/regency governements |
| 09012 | Oct. | 27 | Pattene, Antang | Visit to sites for IRCC between Makassar and Maros |
| 09013 | Oct. | 30 | PDAM Makassar | Proposal in Inter-regional coordination among PDAMs |
| 09014 | Nov. | 2 | Clarion Hotel | First Steering Committee |
| 09015 | Nov. | 3 | PU Tarkim | Who's who for developing water supply system |
| 09016 | Nov. | 4 | PU Tarkim | Who's who in Dinas Tarkim at provincial/local governments |
| 09017 | Nov. | 5 | PU Tarkim | First PIU meeting for output 1 |
| 09018 | Nov. | 6 | PDAM Makassar | Discussion on IRCC Cases 1 to 4 proposed by Makassar |
| 09019 | Nov. | 9 | PDAM Gowa | Discussion on IRCC Cases 7 and 8 proposed by Gowa |
| 09020 | Nov. | 9 | PDAM Takalar | Discussion on IRCC Cases 9, 10, 11 proposed by Takalar |
| 09021 | Nov. | 10 | PDAM Makassar | Furthe discussion on IRCC cases proposed by Makassar |
| 09022 | Nov. | 10 | PDAM Maros | Discussion on IRCC Cases 5 and 6 proposed by Maros |
| 09023 | Nov. | 12 | PDAM Gowa | Joint WG meeting of PDAM Gowa and Takalar for Output 1 |
| 09024 | Nov. | 13 | PDAM Makassar | Joint WG meeting of PDAM Makassar and Maros for Output 1 |
| 2010 | | | | |
| 10001 | Feb. | 2 | PDAM Gowa | Joint WG meeting of PDAM Gowa and Takalar for Output 1 |
| 10002 | Feb. | 4 | PU Tarkim | Second PIU meeting for output 1 |
| 10003 | Feb. | 8 | PDAM Makassar | Clarification of discussions in Feb. 4 meeting for output 1 |
| 10004 | Feb. | 10 | PDAM Makassar | Clarification of discussions in Feb. 4 meeting for output 1 |
| 10005 | Feb. | 11 | Dinal PSDA | Role division of Dinas PSDA, BBWS and Tarkim (Air Minum) |

¹ The minutes of meeting are compiled in a separate volume.

| | | | | |
|-------------|------|----|--------------------|---|
| 10006 | Feb. | 15 | PDAM Takalar | Discussion on cross-PDAM cooperation between Gowa and Takalar |
| 10007 | Feb. | 23 | PDAM Makassar | Discussion on cross-PDAM cooperation between Makassar and Maros |
| 10008 | Feb. | 23 | PDAM Makassar | Monthly progress meeting on JICA project activities for Output 1 |
| 10009 | | | | Cancelled |
| 10010 | June | 14 | PDAM Gowa | Regional cooperation for water supply to Kale Salejo |
| 10011 | June | 15 | PDAM Makassar | Regional cooperation for water supply between Makassar and Maros |
| 10012 | June | 15 | Dinas Tarkim | Regional cooperation for water supply for 4 PDAM |
| 10013 | June | 17 | PDAM Makassar | Regional cooperation for water supply between Makassar and Takalar |
| 10014 | June | 23 | BBWS-PJ | Regional cooperation for water supply for 4 PDAM |
| 10015 | June | 24 | PDAM Makassar | Progress of activity for output 1 |
| 10016 | June | 30 | PDAM Maros | Progress of discussion on regional cooperation for Puri Pattene |
| 10017 | July | 1 | PUTakalar | Progress of preparation of MOU for regional cooperation for Kale Salajo |
| 10018 | July | 6 | Dinas Tarkim | Third PIU Meeting for Output 1 |
| 10019 | July | 13 | Clarion Hotel | Steering Committee Meeting |
| 10020 | July | 14 | PDAM Maros | Discussion on regional cooperation in others than cross-border supply |
| 10021 | July | 14 | PDAM Gowa | - do- |
| 10022 | July | 15 | PDAM Takalar | -do- |
| 10023 | July | 21 | Dinas Tarkim | Things to do in November about regional cooperation |
| 10024 | Nov. | 3 | Dinas Tarkim | Things to do in November about regional cooperation |
| 10025 | Nov. | 4 | PDAM Makassar | Regional cooperation for water supply between Makassar and Maros |
| 10026 | Nov. | 8 | PDAM Gowa | Regional cooperation for 4 PDAMs |
| 10027 | Nov. | 9 | Dinas Tarkim | Request for PDAM MKS and Maros about Malengkeri IPA expansion |
| 10028 | Nov. | 9 | PDAM Makassar | Idea of setting up a shared service center for 4 PDAMs |
| 10029 | Nov. | 11 | Dinas Tarkim | Idea of a shared service center for Mamminasata PDAMs |
| 10030 | Nov. | 16 | PDAM Makassar | Discussion on MoU for water supply between Makassar and Maros |
| 10031 | Nov. | 19 | PDAM Makassar | Discussion on MoUs fro water supply between Makassar and Maros |
| 10032 | Nov. | 23 | PDAM Takalar | Discussion on regional cooperation among 4 PDAMs |
| 10033 | Nov. | 26 | PDAM Makassar | Discussion on regional cooperation in others than cross-border supply |
| 2011 | | | | |
| 11001 | Jan. | 20 | PDAM Takalar | Regional cooperation for a new cross-border water supply project |
| 11002 | Jan. | 15 | PDAM Makassar | Discussion on regional cooperation among 4 PDAMs |
| 11003 | Jan. | 27 | PDAM Gowa | Clarification of a new Gowa-Takalar cooperation for Desa Salajangki |
| 11004 | Jan. | 28 | PDAM Makassar | Discussion on regional cooperation with Maros and Takalar. |
| 11005 | Jan. | 31 | Sesa Salajangki | Site visit to cross-border water supply project for Desa Salajangki |
| 11006 | Feb. | 2 | Kel Barombong | Site visit to cross-border water supply project for Sholthana residence |
| 11007 | Feb. | 4 | PDAM Makassar | Discussion on MKS's cooperation with Maros and Takalar |
| 11008 | Feb. | 7 | Desa Salajo | Site visit to cross-border water supply project for Desa Salajo |
| 11009 | Feb. | 9 | Dinas Tarkim | Reporting output 1 activities to Director of Dinas Tarkim |
| 11010 | Feb. | 9 | PDAM Makassar | Discussion on MKS's cooperation with Maros and Takalar |
| 11011 | Feb. | 14 | Dinas Tarkim | 4th PIU meeting for output 1 |
| 11012 | May | 31 | Secretariat, Prov. | Clarification of regional cooperation in SULSEL government |
| 11013 | June | 1 | Dinas Tarkim | Discussion on regional cooperation among 4 PDAMs |
| 11014 | June | 1 | PDAM Gowa | Signing of MoU between Gowa and Takalar |

| | | | | |
|-------------|------|----|---------------|---|
| 11015 | June | 6 | PDAM Maros | Progress of regional cooperation between Maros and Makassar |
| 11016 | June | 7 | PDAM Makassar | Discussion on cooperation among Makassar and other PDAMs |
| 11017 | June | 9 | PDAM Takalar | Regional cooperation between Takalar and other PDAMs |
| 11018 | June | 13 | PDAM Makassar | Discussion on cooperation among Makassar and other PDAMs |
| 11019 | June | 14 | PDAM Makassar | Discussion on cooperation among Makassar and other PDAMs |
| 11020 | June | 28 | PDAM Makassar | Regional cooperation among Makassar, Takalar and Maros |
| 11021 | June | 30 | PDAM Gowa | Discussion about mutual agreement among 4 PDAMs for promoting IRC |
| 11022 | July | 1 | PDAM Maros | Discussion about mutual agreement among 4 PDAMs for promoting IRC |
| 11023 | July | 5 | PDAM Takalar | Discussion about mutual agreement among 4 PDAMs for promoting IRC |
| 11024 | July | 6 | PDAM Makassar | Discussion about mutual agreement among 4 PDAMs for promoting IRC |
| 11025 | July | 7 | PU Tarkim | Discussion about mutual agreement among 4 PDAMs for promoting IRC |
| 11026 | July | 7 | PDAM Takalar | MoU signing between Makassar and Takalar |
| 11027 | Oct. | 20 | PDAM Gowa | Progress on regional cooperation among Gowa, Takalar and Makassar |
| 11028 | Oct. | 21 | PDAM Makassar | Regional cooperation between Makassar and other PDAMs |
| 11029 | Oct. | 26 | PDAM Maros | Regional cooperation between Maros and Makassar |
| 11030 | Nov. | 1 | PDAM Takalar | Regional cooperation between Takalar and Makassar |
| 11031 | Nov. | 7 | PDAM Makassar | Regional cooperation between Makassar and Maros |
| 11032 | Nov. | 10 | PDAM Makassar | Regional cooperation between Makassar and Maros |
| 2012 | | | | |
| 12001 | Jan. | 6 | PDAM Makassar | Regional cooperation between Makassar and Maros |
| 12002 | Jan. | 18 | PDAM Makassar | Regional cooperation between Makassar and Maros |
| 12003 | Jan. | 27 | PDAM Makassar | Regional cooperation between Makassar and Maros |
| 12004 | Jan. | 30 | PDAM Gowa | Progress on regional cooperation among Gowa, Takalar and Makassar |
| 12005 | Feb. | 1 | PDAM Makassar | Regional cooperation between Makassar and Maros |
| 12006 | Feb. | 3 | PDAM Maros | Regional cooperation between Maros and Makassar |
| 12007 | Feb. | 7 | PDAM Gowa | Explanation of 4 PDAM mutual agreement for regional cooperation |
| 12008 | Feb. | 7 | PDAM Takalar | Explanation of 4 PDAM mutual agreement for regional cooperation |
| 12009 | Feb. | 8 | PDAM Makassar | Explanation of 4 PDAM mutual agreement for regional cooperation |
| 12010 | Feb. | 8 | PDAM Maros | Explanation of 4 PDAM mutual agreement for regional cooperation |
| 12011 | Feb. | 14 | Dinas Tarkim | 5th (final) PIU meeting for output 1 |

2.1.2 Output of the Project

(1) Working Group

The latest members of Working Group for Output 1(WG-1) are presented below.

Table 2.1-3 Member of working group for output 1

| PDAM | Chief | Member |
|----------|---------------|---|
| Makassar | H.Asdar Ali | Kartia, M. Yunus, Tiro Paranoan, Asfar Azis, Devi Primavera |
| Maros | Muhammad Arif | Salmar Mansyur, Faizal Tahir, Mansur, A. Irvandy |
| Gowa | Irianto Razak | Kamaluddin, Syamsuddin, Muliadi, Hasyim Yusuf Pole |
| Takalar | Rustam | Rosnani, MUH. Saleh, MUH. Safril, Dewi Warsyidah, Rahman, Salma |

(2) Project Indicators

Two performance indicators are set out to measure results and assess performance of each activity.

(i): The outline of necessary mechanism is identified

The coordination mechanism for cross-border water supply is produced separately as a guide for the involved parties in Bahasa language.

(ii): Agreement on how to coordinate is prepared.

The draft agreement (in Bahasa and English) is attached in *Annex 2* of this report.

The discussions and meetings with WG-1 members and the involved stakeholders have produced the following outputs evidencing state of achievement of the performance indicators.

1) Institutional arrangement for water supply system

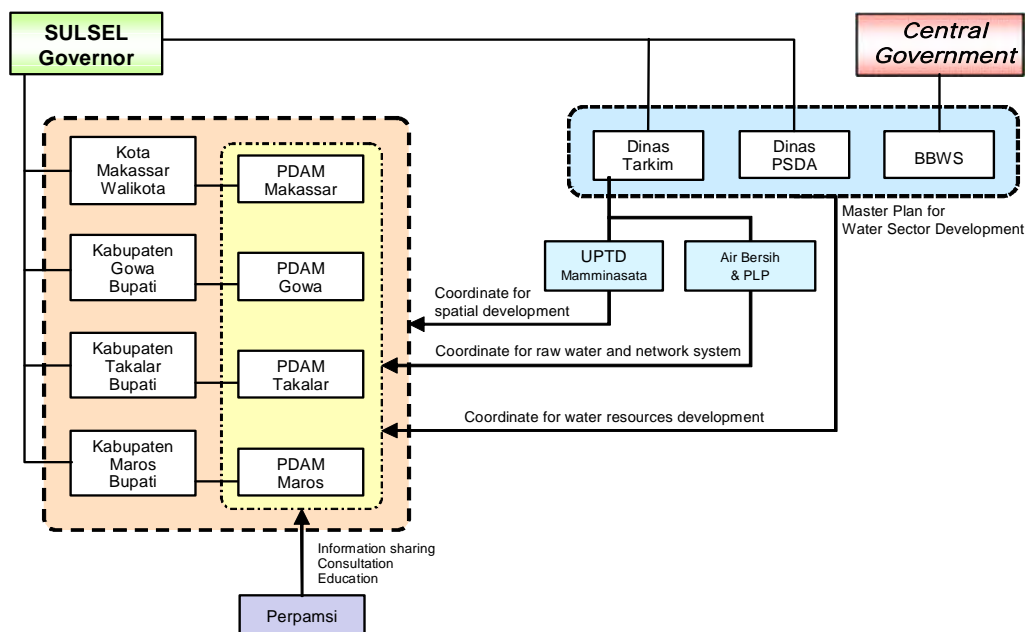
The institutional arrangement for water supply operation for Mamminasata area was discussed and confirmed as shown in **Figure 2.1-2**.

The figure indicates that the four PDAMs are intervened by three organizations of the Provincial Government will be intervened. They are (i) Dinas Tarkim (UPTD Mamminasata), (ii) Dinas Tarkim (Air Bersih & PLP) and (iii) Dinas PSDA. In addition to these direct intervention, BBWS-PJ (Pompengan-Jeneberang River Basin Development) of the Central Government will indirectly intervene.

The principal coordinator is the Air Bersih & PLP (clean water & sanitation) unit of Dinas Tarkim who will coordinate issues on raw water and network system development. Dinas PSDA (water resources development) will coordinate issues on water resources development. UPTD (technical implementation unit) of Dinas Tarkim will conduct overall coordination for the cross-sectoral matters in terms of spatial development for Mamminasata Metropolitan Area.

The water resource development in the provincial territory will be coordinated by Dinas Tarkim, Dinas PSDA and BBWS-PJ. Their demarcation follows. Dinas PSDA will execute planning and F/S for a particular river and BBWS-PJ will undertake design and construction, using funds of APBN and APBD. APBN is managed and provided by BBWS-PJ and APBD is done by Dinas Tarkim.

A typical example for fund sources for a water supply system for PDAM is as follows: (i) the land for all the system funded by APBD (Kab); (ii) intake and transmission pipes to IPA funded by APBN (PSDA); (iii) IPA and main distribution pipes funded by APBN (Cipta Karya); and (iv) distribution pipes and associated facilities funded by APBD (Prov/Kab/PDAM).



3

Figure 2.1-2 Institutional arrangement for water supply operation

2) Discussion on cross-border water supply projects

Five cases for cross-border water supply were identified as priority areas of needs for regional cooperation among PDAMs. These are summarized in the table below.

Table 2.1-4 Description of cross-border water supply projects identified

| Service area | Business plan (tentative) | | | Supplier PDAM | Recipient PDAM |
|--------------------------|---------------------------|------------------------|-----------------------------|---------------|----------------|
| | No. of HHs | Supply capacity needed | Method of water supply | | |
| Puri Pattene | 1,000 | 20 l/s | Bulk ¹ | Maros | Makassar |
| Asabri/Nirwana/Baruga II | 3,400 | n.a | Bulk or Direct ² | Makassar | Maros |
| Kale Salajo | 240 | 5 l/s | Direct | Takalar | Gowa |
| Desa Salajanki | 300 | 6 l/s | Direct | Takalar | Gowa |
| Kec. Barombong | 224. | 5 l/s | Bulk or Direct | Makassar | Gowa/Takalar |

Note: 1=The recipient PDAM delivers water service to the customers by purchasing bulk water from the supplier PDAM.

2=The supplier PDAM delivers water service directly to the customers.

The location of each project is shown in **Figure 2.1-3**.

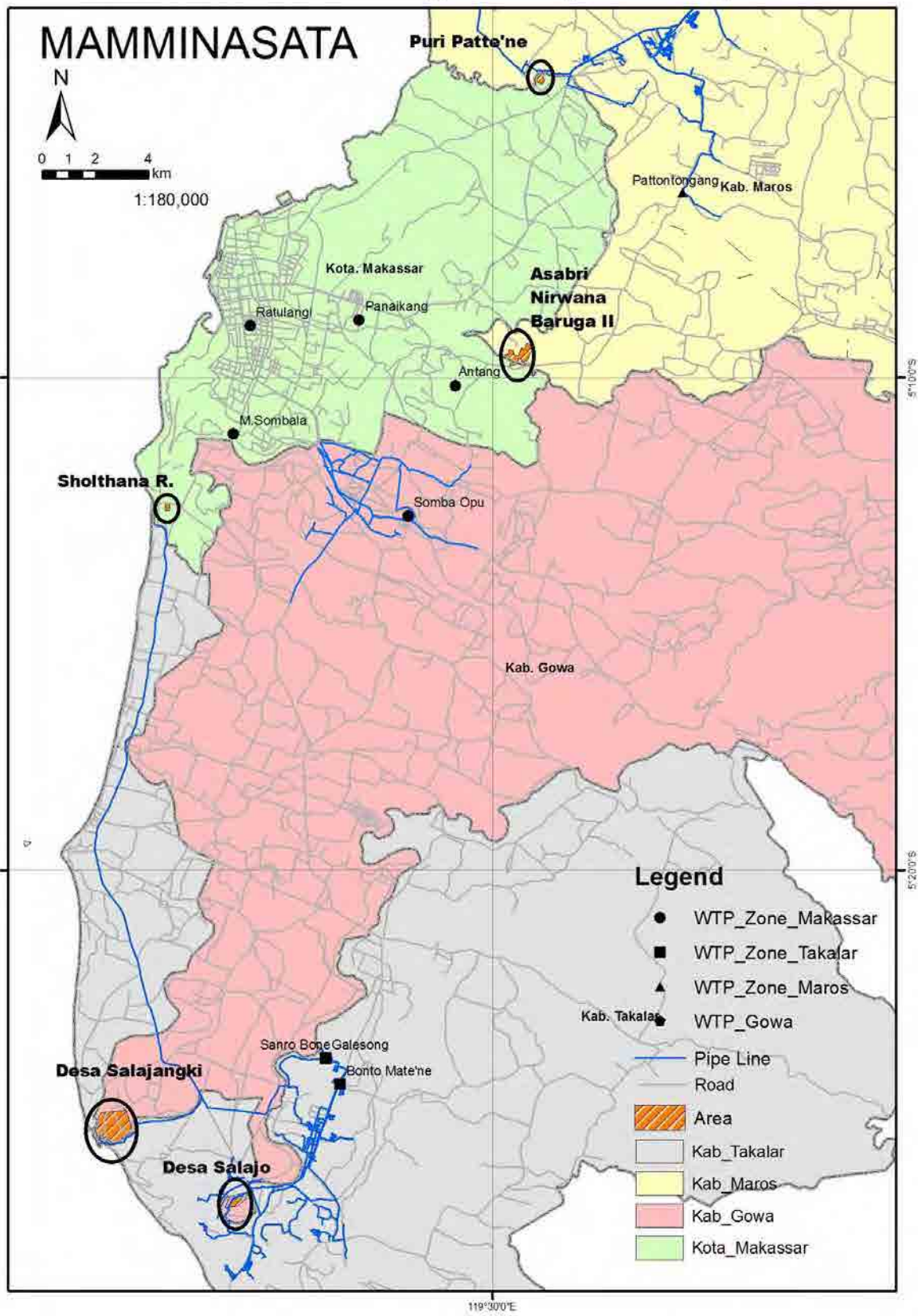


Figure 2.1-3 Location of cross-border water supply projects identified

The cross-border water supply projects are implemented in the following steps.

Step 1: Identify needs of regional cooperation.

Step 2: Supplier PDAMs do survey and prepare draft business plan.

Step 3: Supplier and recipient PDAMs prepare MOU.

Step 4: Wali Kota/Bupatis sign MOU.

Step 5: Implement actions agreed in the MOU.

Here, MOU stands for Memorandum of Understanding). The MOU formalizes the relationship s between PDAMs concerned aiming at committing work together for promoting IRC on cross-border water supply for mutual benefits.

The present state (as of February 2012) of each project is as follows.

Puri Pattene

Maros, the supplier PDAM, is not able to supply water now due to lack of water sources. They are now planning to secure additional water source by constructing a new IPA (200 l/s) at Bantimulung river. Availability of raw water sources is explored. MoU signing will be postponed until reliable water sources are secured.

Asabri/Nirwana/Baruga II

Makassar, the supplier PDAM, shows reservation if they are able to supply water from the existing Antang IPA. Availability of raw water sources is explored. MoU signing will be postponed until reliable water sources are secured.

Kale Salajo

Kale Salajo case is progressing successfully. Kale Salejo is a special case in that it is located in Gowa's enclave lying within Takalar territory. Takalar is able to supply water from the existing IPA (Bonto Matene). The MOU combined with Desa Salangki case was signed by the president directors on June 1, 2011 at PDAM Gowa. Signing by bupati followed.

Desa Salajangki

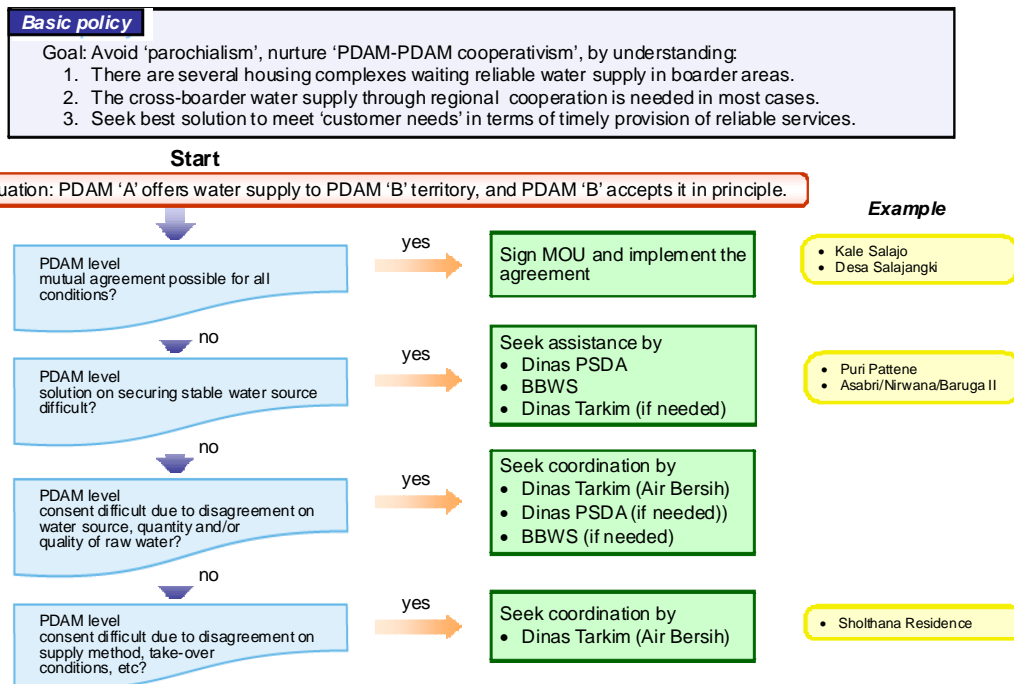
This case is progressing smoothly as in Kale Salajo. An official letter from Kepala Desa for requesting water supply was issued to PDAM Takalar dated May 31, 2011. The MOU combined with Kale Salajo case was signed by the president directors on June 1, 2011 at PDAM Gowa. Signing by bupati followed.

Sholthana residence

Joint site surveys were conducted in February 2011. Discussions on supply methods (direct or bulk or other option) are under way. It might be difficult to reach agreement on the supply method. A MoU was signed by PDAM president director on July 8, 2011.

3) Coordination mechanism for cross-border water supply

The coordination mechanism for the cross-border water supply is prepared based on discussion of the five cases above. This is shown below.



11

Figure 2.1-4 Coordination mechanism for cross-border water supply

The mechanism shows a coordination framework depending on types of causes needing Inter Regional Cooperation (IRC). First a basic policy for regional cooperation is noted. The mechanism uses a multi-level decision matrix. The matrix sets out coordination processes across the top and list down the left side the causes requiring higher level coordination, including no need of coordination, difficulty in securing stable water sources, disagreement on water source and quantity/quality, and disagreement on supply method and take-over conditions. Listed down in the center are the institutions coordinating for each causal case. At the right side the five cases identified are positioned in the corresponding causal cases.

Kale Salajo and Desa Salajangki correspond to the first case where PDAM level agreement was possible without necessity of upper institutional support. Puri Pattene and Asabri/Nirwana/Baruga 2 corresponds to the second case where difficulty in securing reliable water source at PDAM level makes it necessary to bring up the provincial government intervention: in this case Dinas PSDA and BBWS will be involved in providing assistance and coordination. Sholthana Residence corresponds to the last case where difficulty in agreeing supply method and take-over conditions at PDAM level makes it necessary to bring up the provincial government intervention: in this case Dinas Tarkim (Air Bersih) will be involved in providing assistance and coordination.

This mechanism was explained to the Director of Dinas Tarkim in February 2011. The Director mentioned the mechanism is OK in itself technically. He advised us to add institutional aspects on regional cooperation. He mentioned we should look at the government regulations and rules governing regional cooperation among province and kota/kabupaten. These include PP 50/2007 on procedure for implementing of regional cooperation, PM 22/2009 on technical guidance of regional cooperation procedures, and PM 23/2009 regarding the arrangement of monitoring and evaluation of IRC. This matter is discussed below.

4) Coordination Team of Regional Cooperation

The PM 22&23/2009 call for establishing the Coordination Team of Regional Cooperation (CTRC) separately at provincial government level and the kabupaten government level to prepare and implement IRC. Taking this requirement into consideration produces a broad institutional framework for regional cooperation in water supply sector is like something shown in the figure below.

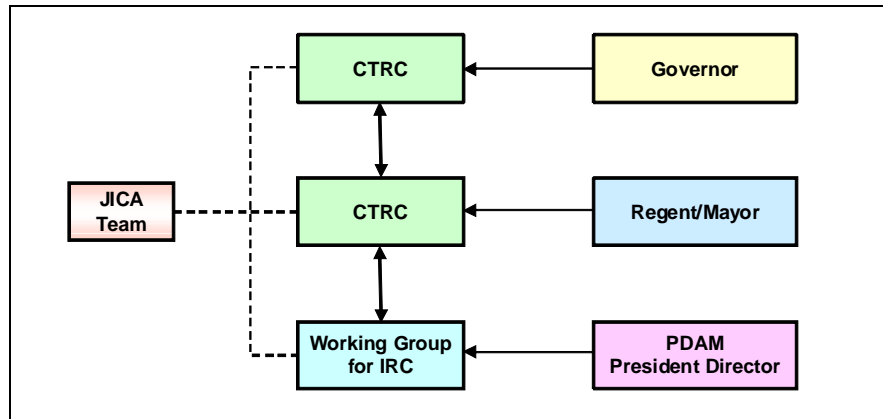


Figure 2.1-5 Institutional framework for regional cooperation per PM 22&23/2009

The framework put in the working group from PDAMs as functional players and JICA Team as advisory/facilitating player.

The PM 22&23/2009 further recommends the IRC mechanism for each government level should clarify the objective, task of CTRC, and members of CTRC. The chief of the CTRC shall be the Secretary of each government.

The activities for output 1 eventually identified two main objectives for IRC: first, area-wide water supply for Mamminasata area and second, cross-border water supply between PDAMs. We consider the first objective should be handled by the provincial level CTRC and the second objective, by the kota/kabupaten level CTRC.

For each case, a procedure consisting of objective, form, task of CTRC and its membership is drawn pursuant to PM 22&23/2009. This is shown in **Figure 2.1-6** for province-l level coordination and in **Figure 2.1-7** for regency-level coordination.

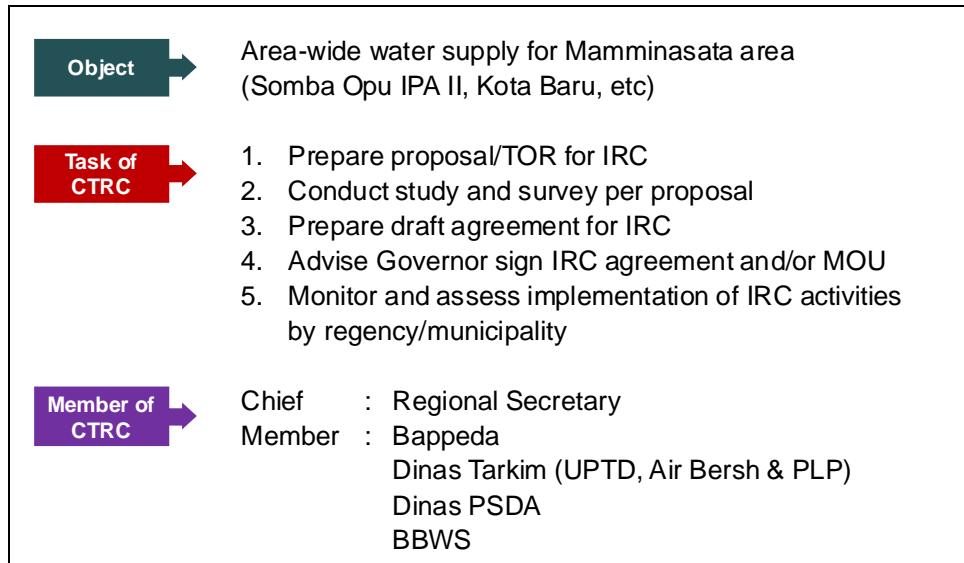


Figure 2.1-6 Procedure of province-level coordination

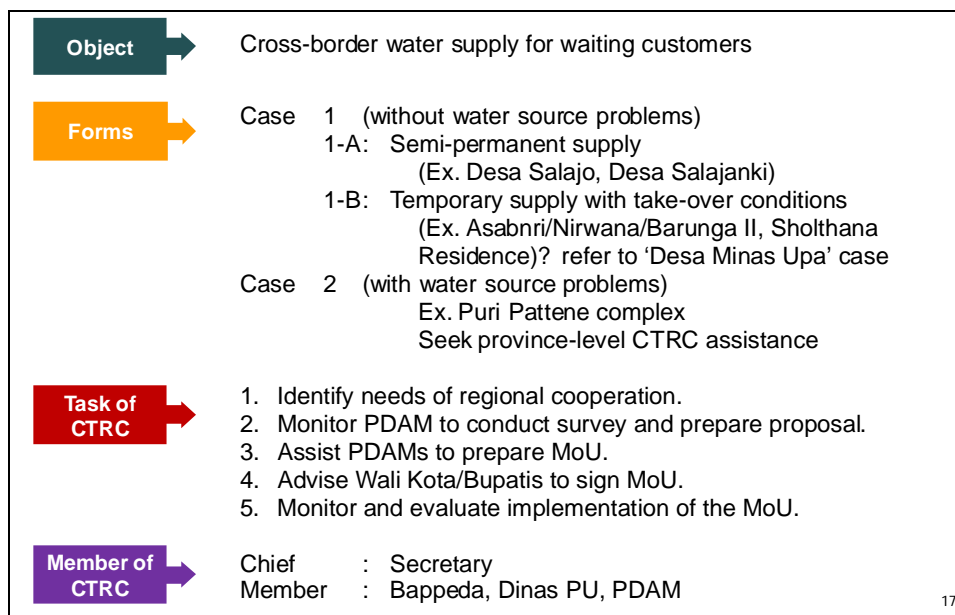


Figure 2.1-7 Procedure of regency-level coordination

5) Draft agreement for IRC among 4 PDAMs

The draft agreement for IRC likely to be agreeable among the four PDAMs is shown in *Annex 2*.

The agreement starts with the title, followed by the date and the names of parties. Then follow recitals giving details (1 through 6) of historical background and legal basis for necessity of the agreement. The operative part describes the terms of the agreement, namely the actions (a through e) agreed to take among the 4 PDAMs. Five attachments (1 through 5) supplement the operative part. The attachments include:

- 1: Shared view of main points for IRC
2. Directions of IRC options and things to be addressed
3. Overall institutional framework for IRC (**Figure 2.1-5**)
4. Procedure of province-level coordination (**Figure 2.1-6**)
5. Procedure of regency-level coordination (**Figure 2.1-7**)

The draft agreement is a culmination of a series of discussions and consultations with managements of 4 PDAMs and UPTD Mamminasata. We first prepared a first draft and obtained their comments and opinions before finalizing it.

The revised draft Agreement was explained and discussed at the final PIU meeting held on Feb. 14, 2012.

We hope the four PDAMs pay due consideration to the attached agreement at their earliest convenience.

2.1.3 Lessons Learned

Water service sector in Indonesia is instituted as municipality-management base as in the case of Japan. Thus prevailing 'regionalism' makes it not easy to share the mind of 'inter-regional cooperation (IRC)' from outset. So it took two years to nurture 'PDAM-PDAM cooperatism' by holding number of discussions and meetings among the parties concerned.

These activities identified needs of IRC in the area of cross-border water supply between PDAMs. We found there are several housing complexes waiting reliable water supply in border areas. The cross-border water supply through IRC is needed in these cases. Discussions between concerned PDAMs were made to seek best solution to meet customer needs in terms of timely provision of reliable service. This effort was eventually realized in signing of MoUs to join hand in promotion of the cross-border water supply between PDAMs concerned as discussed above.

The signing of MoUs, however, took times as long as two years. This is because it required a lot of time and energy to coordinate between concerned PDAMs since it is difficult to break organizational barriers embedded strong regionalism. In such cases it is usually expected to the provincial government to take initiative in coordination and facilitation. But there is difficulty in this expectation in terms of keeping fairness and neutrality for conflicting interests.

If it is difficult to proceed IRC on municipality basis, the provincial government is expected to lead the IRC. For example, an area-wide institution can be set up by bundling and integrating operations of neighboring PDAMs as such needs arise. In Indonesia, a common facility of water supply in the form of BLU works effectively as a form of such institution.

In this respect, it is recommended the provincial government to enhance coordinating functions further by actively involving in the IRC matters among PDAMs in Mamminasata area. The enhancement is needed in activities such as facilitating consultations, providing models of good practice of IRC in other areas, stimulating cooperation on technical assistance in common interest areas like water sources, etc.

2.2 Output 2: Financial Management (PDAMs' financial administration capacity is strengthened.)

2.2.1 Major Activities

(1) Plan of Operation for Output 2

Table 2.2-1 shows the actual plan of operation on Output 2.

Table 2.2-1 Actual Plan of Operation on Output 2

| | 2009 | | | 2010 | | | | | 2011 | | | | | 2012 | | | | |
|--|------|----|----|------|---|---|---|---|------|---|---|---|----|------|----|---|---|---|
| | 9 | 10 | 11 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| 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. | | | | | | | | | | | | | | | | | | |

(2) Activities

The activities conducted for each of the OJT themes are listed in Table 2.2-2.

Table 2.2-2 Actually conducted activities for the whole project period

| No. | OJT Themes | Activities |
|-----|---|--|
| 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. |

1) 2.1: Monitoring and Development of Business Plan

Minister of Finance Regulation (Number 120/PMK.05/2008) requested PDAMs to submit business plans instead of FRAP in order to exempt and reschedule PDAMs' debts. 4 PDAMs already submitted their business plan to Ministry of Finance.

PDAM Makassar submitted their business plan to Ministry of Finance on October 2009 and was approved on October 2011. PDAM Gowa submitted their business plan on June 2009 and approved on October, 2010. PDAM Maros submitted their business plan on June 2010 and is waiting for approval from Ministry of Finance. JET had been supporting PDAM Maros to complete their business plan since November 2009 continuously. PDAM Takalar resubmitted their business plan at the end of 2009. The debt payments of PDAM Takalar were rescheduled

after the resubmission of the business plan.

JET instructed how to monitor their business plan by introducing monitoring flame work.

JET provided to PDAM the lectures regarding the business administration, organization, managerial analysis indicators for water supply enterprise, and success story of water supply enterprise management improvement. Lectures were conducted for 3 weeks utilizing 3 power points. **Table 2.2-3** shows the training materials for Activity 2-1

Table 2.2-3 Major Training material delivered for Activity 2-1

| No. | Name of Material |
|-----|---|
| 1 | Organization of Water Supply Enterprise – 2 (Power Point) |
| 2 | Management Analysis of Water Supply Enterprise (Power Point) |
| 3 | Case Study of Phnom Penh Water Supply Authority (PPWSA) (Power Point) |
| 4 | Format of Business Plan Monitoring |

2) 2.2: Prepare a practical water tariff setting manual

All PDAMs had finalized their water tariff calculation manual (excel format) and calculated the water tariff rate based on “Technical Guidance” by March 2010. As a part of training, counterpart staffs of 4 PDAMs calculated the water tariff for 2011 and 2012 by using the water tariff calculation manual. **Table 2.2-4** shows the example of water tariff calculation manual which counterpart staffs of 4 PDAMs inputted.

Table 2.2-4 Example of Water Tariff Calculation Sheet

| No | URAIAN | EXPLANATION | SATUAN | PERIODE | NOTASI | FORMULA | FORMULA | | KETERANGAN |
|----------|----------------------------------|------------------------------------|--------|---------|--------|--|---|------------------|---------------|
| 1 | BIAYA DASAR | BASIC COST | | | | | | | |
| a. | Biaya Sumber Air | Water Source Cost | Rp/Thn | X | BSA | Jumlah Komponen-komponen Biaya Sumber Air | Total of Water Source Cost | 1,590,466,427.47 | |
| b. | Biaya Pengolahan Air | Water Treatment Cost | Rp/Thn | X | BPA | Jumlah Komponen-komponen Biaya Pengolahan Air | Total of Water Treatment Cost | 755,310,113.54 | |
| c. | Biaya Transmisi dan Distribusi | Transmission and Distribution Cost | Rp/Thn | X | BTD | Jumlah Komponen-komponen Biaya Transmisi dan Distribusi | Total of Transmission and Distribution Cost | 1,239,181,711.32 | |
| d. | Biaya Kemitraan | Joint Venture Cost | Rp/Thn | X | BK | Jumlah Komponen-Komponen Biaya Kemitraan | Total of Joint Venture Cost | | |
| e. | Biaya Umum dan Administrasi | General and Administrative Cost | Rp/Thn | X | BUA | Jumlah Komponen-Komponen Biaya Umum dan Administrasi | Total of General and Administrative Cost | 3,777,281,093.64 | |
| f. | Biaya Keuangan | Financial Cost | Rp/Thn | X | BKEU | Jumlah Komponen-komponen Biaya Keuangan | Total of Financial Cost | 1,884,927,215.52 | |
| g. | Total Biaya Usaha | Total Operational Cost | Rp/Thn | X | TBU | TBU = BSA + BPA + BTD + BK + BUA + BKEU | TOC = WSC + WTC + TDC + JVC + GAC + FC | 9,247,166,561.48 | Revisasi 2008 |
| h. | Dikalikan dengan faktor inflasi | Multiplied by Inflation Factor | %/Thn | X | I | (1 + I) | (1 + I) | 1.07 | inflasi 7% |
| i. | Perkiraan TBU pada periode tarif | Estimation of TOC at tariff period | Rp/Thn | Y | YTBU | YTBU = TBU x (1 + I) ^{Yx} | ETOC = TOC x (1 + I) ^{Yx} | 9,894,468,220.78 | |
| j. | Volume Air Terproduksi | Volume of Water Production | m3/Thn | X | VAP | Data Historis | Historical Data | 2,999,459.00 | |
| k. | Tingkat Kehilangan Air Standar | Non Revenue Water (NRW) | %/Thn | X | TKAS | TKAS = Presentase yang ditetapkan oleh Menteri yang menyelenggarakan urusan pemerintahan di bidang sumber daya air | NRW = specified percentage by Minister carrying out governance business in water resource | 20% | |
| l. | Volume Kehilangan Air Standar | Volume of NRW | m3/Thn | X | VKAS | VKAS = TKAS x VAP | VNRW = NRW x VWP | 599,891.80 | |
| m. | Biaya Dasar | Basic Cost | Rp/m3 | Y | BD | BD = $\frac{YTBU}{VAP - VKAS}$ | BC = $\frac{ETOC}{VWP - VNRW}$ | 4,123.44 | 2399567.2 |

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 conditions of PDAMs.

Figure 2.2-1 shows the example of financial projection. The table shows how net income would be affected by increases of tariff rate from 0% to 10%. This analysis had been done by counterpart staffs of 4 PDAMs through above-mentioned financial modeling.

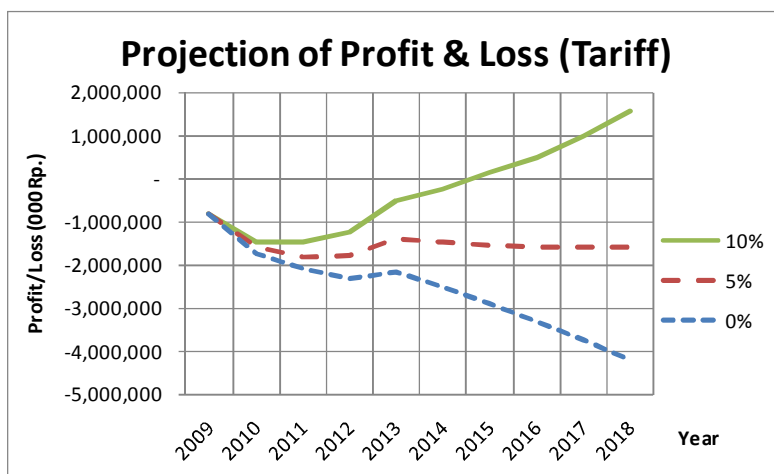


Figure 2.2-1 Example of Projection of Net Income by Increasing Tariff Rate

3) 2.3: OJT on improvement of billing and collection efficiency

The JET provided to each PDAM lectures on methods to improve billing and collection efficiency. The 8 lectures, delivered using power point, covered various topics shown in **Table 2.2-5**.

Table 2.2-5 Training materials delivered for Activity 2-3

| No. | Name of Material |
|-----|--|
| 1 | Meter Reading, Billing & Collection |
| 2 | Points to remember in Meter reading & Billing |
| 3 | Points to remember in Bill Collection |
| 4 | Major Management Indicator Collection efficiency |
| 5 | Water Supply Handbook of Tokyo Waterworks Bureau, Part 1 |
| 6 | Water Supply Handbook of Tokyo Waterworks Bureau, Part 2 |
| 7 | Arrears Management Handbook of PDAM in Japan |
| 8 | Arrears Management Handbook of PDAM in Japan - 2 |

No. 5 and No. 6 in **Table 2.2-5** are presentations on how to better interact with customers at the office, on the phone and at the customers homes, along with frequently asked questions and answers. No. 7 and No. 8 cover the important points to be notice for arrear chasing based on the manual prepared by Japanese water supply enterprise.

After each lecture, there was a questions and answers session. At this time, the JET also tried to understand the present situation with meter reading, billing & collection at the PDAMs. At the end of July, the trainees were tested on how well they understood the training materials. **Table 2.2-6** shows the results of the short tests.



Bill Collection in PDAM Gowa

Table 2.2-6 Short Test Results for Activity 2-3

| PDAM | No. of Trainees | Date of Test | No. of Testees | Average points | Highest points |
|----------|-----------------|---------------|----------------|----------------|----------------|
| Makassar | 9 | July 28, 2010 | 8 | 77.5 | 90 |
| Gowa | 7 | July 26, 2010 | 6 | 73.3 | 80 |
| Maros | 10 | July 29, 2010 | 9 | 83.3 | 95 |
| Takalar | 7 | July 28, 2010 | 8 | 82.5 | 90 |

The trainees in Maros and Takalar showed a satisfactory level of understanding of the training materials. The trainees from Makassar and Gowa did not do as well. Supplementary lectures were provided for them again.

JET proposed the “Arrears Actions Experiments” as a means to improve the water tariff collection ratio. The experiment aims to demonstrate the effects of more positive arrears actions on tariff collection in the selected pilot areas. Since PDAM Makassar was already conducting similar kind of arrears actions, only 3 PDAMs (Gowa, Maros and Takalar) participated in the experiments.

First, JET considered that the arrear actions should be conducted against 2 to 4 months arrears after the deadline. By listing the long-term arrears, it was found that there were many long-term arrears equal to or longer than 6 or 12 months. Therefore, through the discussion with PDAM staff, the experiments targeted the long-term (equal to or longer than 6 or 12 months) arrears. The progressive actions would start with reminder letters, followed by home visits, and eventually service disconnection.

The JET prepared the workshop materials for the experiments which included the following: implementation schedule, sample letter, sample conversation on the phone & home visit, checklist of accounts in arrears, baseline data, and monitoring sheet.

Table 2.2-7 Sample of Arrears Actions Schedule in Workshop Material

| | Actions | Timing | Responsible team |
|---|---|---|---------------------------|
| 1 | Prepare list of accounts in arrears (using checklist) for equal to & longer than 6 months arrears | 26th - 30 th day every month | Data Input Team |
| 2 | Prepare 'Notice of Arrears' to arrears in list of accounts | 30th - 5th day every month | Letter Preparation Team |
| 3 | Visit arrears' home with delivering the notice letter | 5 th - 15th day every month | Visiting the Arrears Team |
| 4 | Monitor customers response after home visits (using 'Monitoring sheet'.) | 26th - 5th day every month | Monitoring team |

The working materials were discussed with PDAM staff, revised, and finalized in March 2011. PDAM staff conducted the experiments in each pilot area, with the advice and support of Mr. Masaaki Handa, Water Supply Utilities Management Advisor, Nagoya PDAM, JET. **Tables 2.2-8 and 2.2-9** show the general information and results of the 1st and 2nd arrears actions experiments.



Visiting customers in arrear's (Takalar)

Table 2.2-8 Results of 1st Arrears Actions Experiment

| PDAM | Gowa | Maros | Takalar |
|---|---|--------------------|--------------------|
| Pilot area | Zone 8 | Perumnas Tumalia | GTN Graha Anugrah |
| No. of Customers | 1,137 customers | 641 customers | 112 customers |
| Arrears actions | Sending letter, visiting, and stopping water supply | | |
| Period of experiment | Middle of March to the end of Sept 2011 (6 months) | | |
| No. of targeted arrear accounts (Feb 2011) | 12 (over 12 months) | 23 (over 6 months) | 25 (over 6 months) |
| No. of targeted arrear accounts (Sept 2011) | 5 (over 12 months) | 7 (over 6 months) | 21 (over 6 months) |
| No. of closed (stop water) arrear accounts | 9 cases | 4 cases | 2 case |
| No. of targeted arrear accounts who paid after arrears actions were taken | 23 accounts | 23 accounts | 25 accounts |
| Collected amount (Rp.) | 10.14 million | 14.70 million | 9.76 million |

Table 2.2-9 Results of 2nd Arrears Actions

| PDAM | Gowa | Maros | Takalar |
|---|---|--------------------|-----------------------|
| Pilot area | BTN Pelita Asri & BTN Jenetallasa | BTN Haji Banca | IKK Polut (half area) |
| No. of Customers | 375 customers | 411 customers | 296 customers |
| Arrears actions | Same as 1st Arrears Actions Experiment | | |
| Period of experiment | Middle of October 2011 to Jan 2012 (2 months) | | |
| No. of targeted arrear accounts (Oct 2011) | 22 (over 6 months) | 24 (over 3 months) | 54 (over 6 months) |
| No. of targeted arrear accounts (Jan 2012) | 6 (over 6 months) | 4 (over 3 months) | 49 (over 6 months) |
| No. of closed (stop water) arrear accounts | 5 cases | 0 cases | 17 case |
| No. of targeted arrear accounts who paid after arrears actions were taken | 20 accounts | 21 accounts | 34 accounts |
| Collected amount (Rp.) | 8.41 million | 5.51 million | 10.65 million |

At present, lessons learnt from the Arrears Actions Experiments are as follows:

- Strict disconnection is effective in clearing arrears. Any hesitation in taking this action may signal to the customers that they would not suffer any consequence if they do not pay.
- Arrears chasing becomes difficult if there are leakage problems with the water supply to the customer's residence.
- The more experience the staff have in discussing arrears the better the results.
- Early action is important. Chasing mid-term and short-term arrears would result in fewer long-term arrears.
- There is an optimal case load - at about 20 to 25 arrears for 1 to 2 visiting staff. Higher case loads would lower the success rate.
- Most of the arrears are paid in the first and second month after the initiation of the progressive arrears actions. Further actions do not necessarily bring about more success.

PDAM staff from Gowa, Maros, and Takalar, with the assistance of the JET, prepared the PR papers on the Arrears Actions Experiments, to inform fellow PDAM staff of the initiative and to raise the motivation of the staff.

Before starting the 2nd arrears actions, a meeting was held at Regional Office 4 in PDAM Makassar. Visiting staff who worked on the 1st arrears actions experiment of 3 PDAMs and staff from 4 regional offices of PDAM Makassar discussed how to foster collection of long term arrears. The staff from the 4 regional offices of PDAM Makassar explained their activities and the staff from the 3 PDAMs asked a lot of practical questions. The discussion meeting was very helpful for the visiting staff of arrears actions before they moved on to the 2nd arrears actions.



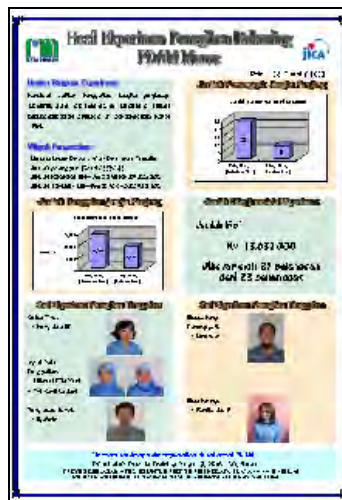
Scene of discussion meeting



PR paper of PDAM Gowa



PR paper of PDAM Takalar



PR paper of PDAM Maros



2nd PR paper of PDAM Gowa



2nd PR paper of PDAM Maros



2nd PR paper of PDAM Takalar

4) 2.4: Conduct OJT on simulating new investment cost recovery

JET had been training how to develop financial modeling to the counterpart staffs of PDAMs. The counterpart staffs had been developed financial modeling by themselves with the instruction of JET.

Table 2.2-10 shows the part of financial modeling which the counterpart staffs of each PDAM developed.

Table 2.2-10 Financial Modeling

| Laporan Rugi Laba | | Profit and Loss Statement | | | | | | | | | |
|--|--|---------------------------|-------------------|-------------------|-------------------|------------------|------------------|------------------|------------------|-------------------|-------------------|
| | | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| Pendapatan Operasional | | | | | | | | | | | |
| Penjualan Air (Rp. 000) | Water Sale (IDR 000) | | | | | | | | | | |
| Jumlah Penjualan Air (000 m3) | Amount of Water Sold (000 m3) | 1,000 | 1,100 | 1,200 | 1,300 | 1,400 | 1,500 | 1,600 | 1,700 | 1,800 | 1,900 |
| Harga Air Rata-rata (Rp/m3) | Average Price of Water (IDR/m3) | 2,500 | 2,750 | 3,025 | 3,328 | 3,660 | 4,026 | 4,429 | 4,872 | 5,359 | 5,895 |
| | | 2,500,000 | 3,025,000 | 3,630,000 | 4,325,750 | 5,124,350 | 6,039,413 | 7,086,244 | 8,282,048 | 9,646,150 | 11,200,252 |
| Pendapatan Non Air (Rp. 000) | | | | | | | | | | | |
| Pendapatan Sambungan Baru (Rp. 000) | New Connection Revenue (000 IDR) | 659,801 | 659,801 | 659,801 | 659,801 | 659,801 | 659,801 | 659,801 | 659,801 | 659,801 | 659,801 |
| Pendapatan Non Air Lainnya (Rp.000) | Other Non Water Revenue (000 IDR) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 659,801 | 659,801 | 659,801 | 659,801 | 659,801 | 659,801 | 659,801 | 659,801 | 659,801 | 659,801 |
| Total Pendapatan Operasional | Total Operating Income | 3,159,801 | 3,684,801 | 4,289,801 | 4,985,551 | 5,784,151 | 6,699,214 | 7,746,045 | 8,941,849 | 10,305,951 | 11,860,053 |
| Biaya Operasional | | | | | | | | | | | |
| Operating Cost | | | | | | | | | | | |
| Biaya Langsung Usaha | | | | | | | | | | | |
| Direct Operating Cost | | | | | | | | | | | |
| Biaya Sumber Air (tidak termasuk pensusutan) | Water Source Cost (excluding dep. cost) | 234,270 | 257,697 | 283,467 | 311,814 | 342,995 | 377,294 | 415,024 | 456,526 | 502,179 | 552,397 |
| Biaya Pengolahan Air (tidak termasuk pensusutan) | Water Treatment Cost (excluding dep. cost) | 198,060 | 217,868 | 239,653 | 263,618 | 289,980 | 318,978 | 350,876 | 385,964 | 424,560 | 467,016 |
| Biaya Transmisi & Distribusi (tidak termasuk pensusutan) | Transmission and Distribution Cost (excluding dep. cost) | 431,275 | 474,403 | 521,843 | 574,028 | 631,430 | 694,573 | 764,031 | 840,434 | 924,477 | 1,016,925 |
| Biaya Penyusutan | Depreciation Cost | 18,901,192 | 2,940,137 | 3,250,024 | 3,469,710 | 3,303,606 | 3,632,679 | 3,933,780 | 4,209,384 | 4,461,742 | 4,692,898 |
| | | 2,713,797 | 3,900,103 | 4,294,987 | 4,619,169 | 4,568,011 | 5,023,525 | 5,463,711 | 5,892,308 | 6,329,958 | 6,729,235 |
| Biaya Tidak Langsung | | | | | | | | | | | |
| Non Direct Operating Cost | | | | | | | | | | | |
| Biaya Umum dan Administrasi | Administrative and General Cost | 1,228,066 | 1,289,469 | 1,353,942 | 1,421,639 | 1,492,721 | 1,567,357 | 1,645,725 | 1,728,012 | 1,814,412 | 1,905,133 |
| Total Biaya Operasional | Total Operating Cost | 3,941,863 | 5,079,572 | 5,648,930 | 6,040,809 | 6,060,733 | 6,500,893 | 7,109,436 | 7,820,320 | 8,127,370 | 8,634,369 |
| | Total Operating Cost (with inflation) | 3,941,863 | 5,435,142 | 6,044,355 | 6,463,665 | 6,484,884 | 7,052,245 | 7,607,096 | 8,153,742 | 8,696,286 | 9,238,774 |
| Rugi/Laba Kotor | Gross Operating Profit/Loss | -782,062 | -1,394,771 | -1,359,129 | -1,055,258 | -276,582 | 108,331 | 636,609 | 1,321,529 | 2,178,580 | 3,225,684 |
| Pendapatan Non Operasional | | | | | | | | | | | |
| Non Operating Income | | | | | | | | | | | |
| Pendapatan Bunga | Interest Income | 37,284 | 37,284 | 37,284 | 37,284 | 37,284 | 37,284 | 37,284 | 37,284 | 37,284 | 37,284 |
| Biaya Non Operasional | Non Operating Cost | | | | | | | | | | |
| Pengeluaran Bunga | Interest Expense | 45,070 | 41,732 | 38,393 | 35,055 | 31,716 | 28,377 | 25,039 | 21,700 | 18,362 | 15,023 |
| Labanya Sebelum Pajak | Net Income before Tax | -789,848 | -1,399,219 | -1,390,238 | -1,053,028 | -271,014 | 117,237 | 648,854 | 1,337,113 | 2,197,502 | 3,247,945 |
| Pajak | Corporate Income Tax | 0 | 0 | 0 | 0 | 0 | 35,171 | 194,656 | 401,134 | 659,251 | 974,383 |
| Labanya Setelah Pajak | Net Income after Tax | -789,848 | -1,399,219 | -1,390,238 | -1,053,028 | -271,014 | 82,066 | 454,198 | 935,979 | 1,538,252 | 2,273,561 |

New investment costs based on the business plan of PDAMs are inputted into financial modeling and the counterpart members of Activity 2 analyzed how the cost would be recovered by water tariff.

Also, the counterpart staffs have done cost comparative analysis with instruction of JET. The contents of water production cost were compared among PDAMs in Maminasata and were discussed about the reason of differences among each PDAMs.

JET instructed how to project BPP SPAM Performance Indicator, which is one of the most important financial and technical indicators for PDAM, by using the financial model.

Table 2.2-11 shows the example of BPP SPAM Performance Indicator Projection that the counterpart staffs have done using the financial model.

Table 2.2-11 Example of BPP SPAM Performance Indicator Projection

| BPP SPAM Performance Indicator | | | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|--------------------------------|------------------------------|---|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | Tingkat Pengembalian Ekuitas | Return on Equity | Laba Bersih (setelah pajak) / Total Ekuitas * 100% Net Profit after tax/Total equity*100 >10%=5, >7-10%=4, >3-7%=3, >0-3%=2, <0%=1 0.05 | 1.49 | 10.22 | 15.44 | 21.51 | 28.38 | 36.15 | 44.94 | 54.91 | 66.02 | 78.44 |
| 2 | Rasio Operasional | Operational Ratio | Pendapatan Operasional / Pengeluaran Operasional Operating Revenue/Operating Expenses >1.0=5, >0.85-1.0=4, >0.65-0.85=3, >0.50-0.65=2, <=0.5=1 0.05 | 127.8 | 153.9 | 166.5 | 179.4 | 192.8 | 206.7 | 221.1 | 236.1 | 251.6 | 267.7 |
| 3 | Rasio Kas | Cash Ratio | (Kas + Setara Kas) / Kewajiban Lancar * 100% (Cash + Cash Equivalents) / Current Liabilities*100 >100=5, >80-100=4, >60-80=3, >40-60=2, <=40=1 0.05 | 9.6 | 13.5 | 19.8 | 25.5 | 25.8 | 32.0 | 40.2 | 60.6 | 83.9 | 111.0 |
| 4 | Efektifitas Penagih | Effectiveness of the Billing Collection | (Rekening Tertagih / Penjualan Air) * 100% (Collected amount/Billed amount)*100 >90=5, >85-90=4, >80-85=3, >75-80=2, <=75=1 0.05 | 88.0 | 88.0 | 88.0 | 88.0 | 88.0 | 88.0 | 88.0 | 88.0 | 88.0 | 88.0 |
| 5 | Solvabilitas | Solvency | (Total Asset/Total Hutang) * 100% Total Assets/Total Debt*100 >200=5, >170-200=4, >135-170=3, >100-135=2, <=100=1 0.05 | 70.5 | 65.0 | 64.9 | 68.1 | 62.8 | 66.3 | 72.1 | 89.8 | 109.5 | 133.3 |
| Total Point | | | Total Nilai | 0.25 | 0.13 | 0.16 | 0.16 | 0.16 | 0.16 | 0.17 | 0.18 | 0.20 | 0.21 |
| Average Score | | | Nilai Rata-rata | 2.6 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.4 | 3.8 | 4.0 | 4.2 |

JET also conducted basic accounting principle lectures for the counterpart staffs in order to increase their accounting knowledge so they can understand financial modeling more easily.

Counterpart staffs of 4 PDAMs took a quiz on financial modeling on January and March 2011. The average score of 4 PDAMs was 80 points for the first quiz and 78 points for the second quiz.

5) 2.5: Workshop / seminars for disseminating the necessity of cost recovery and financial sustainability

JET had done the workshops to Bupati of Takalar on 29th of June 2010, to Bupati of Maros on 22nd of November 2010, and to Vice Bupati of Gowa on 30th of Jun 2011. The purpose of these workshops was to inform the current financial situation of PDAM and to introduce how this water service improvement project works to improve the water service of PDAM. JET also explained the importance of tariff increase for sustainable development of PDAM.



Bupati of Takalar



Bupati and Secretary of Maros



Vice-Bupati of Gowa

On 23rd of March 2010, the seminar was held for project related staffs of South Sulawesi Province, Makassar City, and 3 Prefectures. Presentations, made by JET, were as follows;

- Water supply management
- Methodology of financial analysis based on financial statement
- Current financial conditions of 4 PDAMs



6) 2.6: Conduct OJT regarding enhancing customer satisfaction to PDAM staffs

The JET provided lectures to each PDAM on how to improve customer satisfaction (public relations, how to measure customer satisfaction, interacting with customers at the office, on the phone and at the customers homes, frequently asked questions and answers, best practices in customer service). The 8 Power Points used for 8 lectures were shown in **Table 2.2-12**.

Table 2.2-12 Training materials delivered for Activity 2-6

| No. | Name of Material |
|-----|--|
| 1 | Customer Relations |
| 2 | Data Acquisition Methods on Customer's Impression |
| 3 | Indicators on customer satisfaction |
| 4 | Indicators on customer satisfaction – 2 |
| 5 | Water Supply Handbook of Tokyo Waterworks Bureau, Part 1 |
| 6 | Water Supply Handbook of Tokyo Waterworks Bureau, Part 2 |
| 7 | Customer service (Ritz-Carlton Hotel) |
| 8 | Customer service 2 (Credo of Ritz-Carlton Hotel) |

The trainees were tested in April, 2010 and the test results (see **Table 2.2-13**) show that they acquired a good understanding of the training materials.

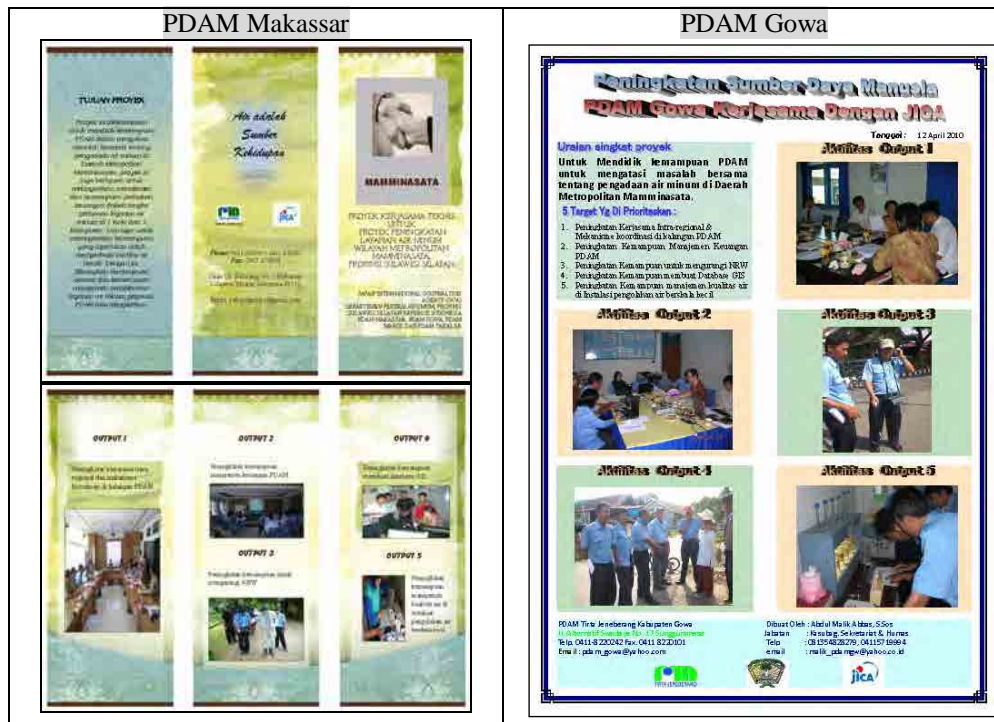


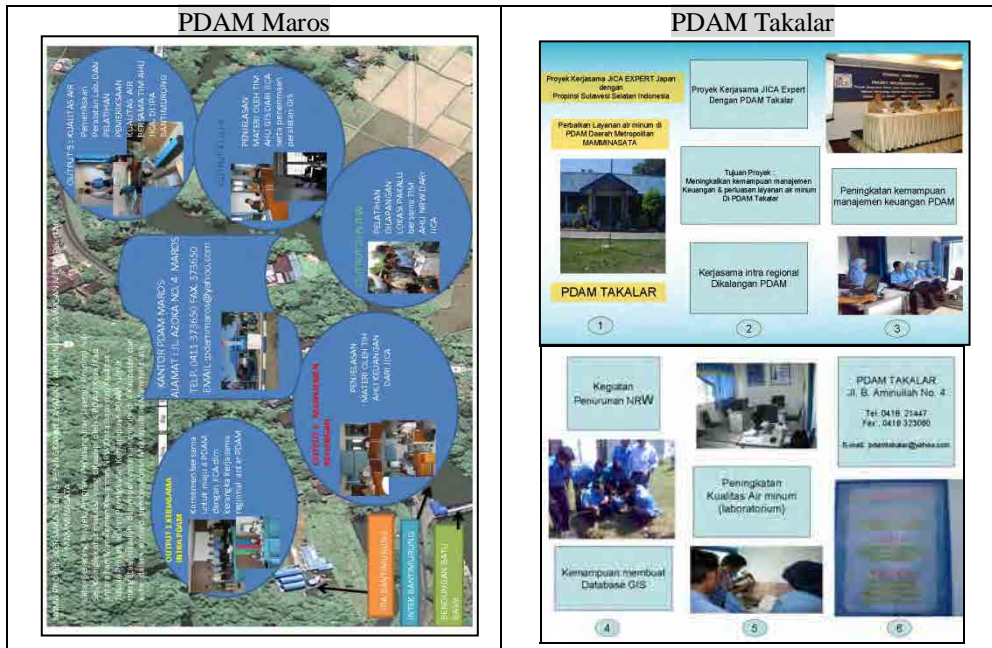
Table 2.2-13 Short Test Results for Activity 2-6

Scene of short test

| PDAM | No. of Trainees | Date of Test | No. of Testees | Average points | Highest points |
|----------|-----------------|----------------|----------------|----------------|----------------|
| Makassar | 9 | April 13, 2010 | 8 | 86.3 | 100 |
| Gowa | 7 | April 13, 2010 | 6 | 81.7 | 90 |
| Maros | 10 | April 9, 2010 | 9 | 82.2 | 100 |
| Takalar | 7 | April 8, 2010 | 4 | 85.0 | 90 |

In April 2010, workshops were held in 4 PDAMs to prepare public relations (PR) papers. JET provided the materials and formats. Trainees worked in groups to prepare the papers to introduce this JICA project to their customers. At last, almost all groups of each PDAM successfully made the PR paper. Followings are the prepared PR paper of each PDAM by the staff.





PDAM Maros displayed their paper is at the window of the room where water bills are paid (loket). The paper attracted interest from some customers.

The JET followed up on the utilization of these PR papers between July 2010 and November 2010. 3 other PDAMs also showed these papers as follows:



PDAM Maros, at Loket



PDAM Makassar, at Reception, HQ



PDAM Gowa, at Loket



PDAM Takalar, at Customer Relations

7) List of Meetings / Training Sessions

The meetings and training session held from October 2009 to February 2012 are shown in **Table 2.2-14**.

Table 2.2-14 List of meetings / trainings for the whole project period

| No. | Date | PDAM | General Activities | MM No. |
|-----|-------------|----------|--|--------------|
| 1 | 22/Oct/2009 | Gowa | Kick off meeting for Financial Management | MM2(F)-09001 |
| 2 | 22/Oct/2009 | Takalar | Kick off meeting for Financial Management | MM2(F)-09002 |
| 3 | 23/Oct/2009 | Maros | Kick off meeting for Financial Management | MM2(F)-09003 |
| 4 | 26/Oct/2009 | Makassar | Explanation of TOR, discussion on project team and kick off meeting | MM2(F)-09004 |
| 5 | 28/Oct/2009 | Gowa | Discussion on the result of financial analysis based on the current financial statement and possible solutions to improve it | MM2(F)-09005 |
| 6 | 28/Oct/2009 | Makassar | Coordination on kick off meeting | MM2(F)-09006 |

| No. | Date | PDAM | General Activities | MM No. |
|-----|-------------|----------|---|--------------|
| 7 | 29/Oct/2009 | Takalar | Discussion on the result of financial analysis based on the current financial statement and possible solutions to improve it | MM2(F)-09007 |
| 8 | 30/Oct/2009 | Maros | Discussion on the result of financial analysis based on the current financial statement and possible solutions to improve it | MM2(F)-09008 |
| 9 | 4/Nov/2009 | Gowa | Comparative study on water tariff calculation method between Indonesia and Japan; discussion on the ideal water tariff calculation method | MM2(F)-09009 |
| 10 | 5/Nov/2009 | Makassar | Explanation of TOR and schedule to newly assigned financial director | MM2(F)-09010 |
| 11 | 5/Nov/2009 | Takalar | Comparative study on the water tariff calculation method between Indonesia and Japan; discussion on the ideal water tariff calculation method | MM2(F)-09011 |
| 12 | 6/Nov/2009 | Maros | Discussion on the contents of business plan | MM2(F)-09012 |
| 13 | 11/Nov/2009 | Gowa | Discussion on the "Technical Guideline" and procedure of water tariff determination in PDAM | MM2(F)-09013 |
| 14 | 11/Nov/2009 | Makassar | Kick off meeting, Discussion on the result of financial analysis based on the current financial statement and possible solutions to improve it | MM2(F)-09014 |
| 15 | 12/Nov/2009 | Takalar | Discussion on the business plan and "Technical Guideline" | MM2(F)-09015 |
| 16 | 13/Nov/2009 | Maros | Discussion on the business plan | MM2(F)-09016 |
| 17 | 18/Nov/2009 | Gowa | Explanation of inputting on excel sheet based on "Technical Guideline"; conducting quiz | MM2(F)-09017 |
| 18 | | Makassar | Explanation of inputting on excel sheet based on "Technical Guideline" | MM2(F)-09018 |
| 19 | 20/Nov/2009 | Maros | Instruction on water tariff calculation method based on "Technical Guideline"; instruction on how to input the business plan excel sheet; conducting the quiz | M2(F)-09019 |
| 20 | 23/Nov/2009 | Takalar | Instruction on water tariff calculation method based on "Technical Guideline"; instruction on how to input the business plan excel sheet; conducting the quiz | MM2(F)-09020 |
| 21 | 18/Feb/2010 | Maros | Inspection on PC for financial management training, explanation on schedule of output 2 | MM2(F)-1001 |
| 22 | 19/Feb/2010 | Takalar | Inspection on PC for financial management training, explanation on schedule of output 2 | MM2(F)-1002 |
| 23 | 22/Feb/2010 | Gowa | Explanation on schedule of output 2, discussion on water tariff calculation manual | MM2(F)-1003 |
| 24 | 24/Feb/2010 | Makassar | Explanation on schedule of output 2, discussion on water tariff calculation manual | MM2(F)-1004 |
| 25 | 25/Feb/2010 | Maros | Discussion on water tariff manual and business plan | MM2(F)-1005 |
| 26 | 27/Feb/2010 | Takalar | Discussion on water tariff manual and compact business plan | MM2(F)-1006 |
| 27 | 3/Mar/2010 | Gowa | Discussion on water tariff manual and lecture on calculation method of depreciation cost | MM2(F)-10007 |
| 28 | 3/Mar/2010 | Makassar | Discussion on water sales account receivable etc. | MM2(F)-10008 |
| 29 | 4/Mar/2010 | Takalar | Lecture on Water Supply Management, discussion on water calculation manual and summary of business plan | MM2(F)-10009 |
| 30 | 5/Mar/2010 | Maros | Lecture on Water Supply Management, discussion on water tariff | MM2(F)-10010 |
| 31 | 9/Mar/2010 | Gowa | Lecture on Water Supply Management, OJT on financial modeling (P/L) | MM2(F)-10011 |
| 32 | 10/Mar/2010 | Makassar | Lecture on Water Supply Management, Lecture and discussion on PPP | MM2(F)-10012 |
| 33 | 11/Mar/2010 | Takalar | Lecture on Customer Relations, Q&A, discussion, OJT on financial modeling (Depreciation Cost) | MM2(F)-10013 |
| 34 | 12/Mar/2010 | Maros | Lecture on Customer Relations, Q&A, discussion, OJT on financial modeling (Depreciation Cost) | MM2(F)-10014 |
| 35 | 13/Mar/2010 | Maros | Supporting to complete business plan | MM2(F)-10015 |
| 36 | 15/Mar/2010 | Makassar | Site survey of O&M condition of Somba Opu WTP | MM2(F)-10016 |
| 37 | 15/Mar/2010 | Gowa | Lecture on Customer Relations, Q&A, discussion, OJT on financial modeling (Debt Repayment Plan) | MM2(F)-10017 |
| 38 | 17/Mar/2010 | Maros | Lecture on Data Acquisition Methods for Customer's Impression, OJT on financial modeling (P/L), Quiz on financial management | MM2(F)-10018 |
| 39 | 17/Mar/2010 | Makassar | Lecture on Customer Relations, Q&A, discussion, OJT on financial modeling (Depreciation Cost) | MM2(F)-10019 |
| 40 | 18/Mar/2010 | Takalar | OJT on financial modeling (Depreciation Cost), Quiz on financial management | MM2(F)-10020 |
| 41 | 20/Mar/2010 | Maros | Supporting to complete business plan. | MM2(F)-10021 |
| 42 | 22/Mar/2010 | Gowa | Lecture on Data Acquisition Methods for Customer's Impression, Quiz on financial management | MM2(F)-10022 |
| 43 | 24/Mar/2010 | Makassar | Lecture on Data Acquisition Methods for Customer's Impression, OJT on financial modeling (Depreciation Cost), Quiz on financial management | MM2(F)-10023 |
| 44 | 26/Mar/2010 | Maros | Lecture on indicators of customer satisfaction, Q&A, discussion, Workshop 1 to prepare PR paper | MM2(F)-10024 |
| 45 | 26/Mar/2010 | Takalar | Lecture on Data Acquisition Methods for Customer's Impression, Q&A, discussion, Workshop 1 to prepare PR paper | MM2(F)-10025 |
| 46 | 30/Mar/2010 | Gowa | Lecture on indicators of customer satisfaction, Workshop 1 to prepare PR paper | MM2(F)-10026 |
| 47 | 1/Apr/2010 | Maros | Lecture on indicators of customer satisfaction – 2, Workshop 2 to prepare PR paper | MM2(F)-10027 |
| 48 | 1/Apr/2010 | Takalar | Lecture on indicators of customer satisfaction, Q&A, discussion, Workshop | MM2(F)-10028 |

| No. | Date | PDAM | General Activities | MM No. |
|-----|-------------|----------|---|--------------|
| | | | 2 to prepare PR paper | |
| 49 | 6/Apr/2010 | Gowa | Lecture on indicators of customer satisfaction – 2, Workshop 2 to prepare PR paper | MM2(F)-10029 |
| 50 | 7/Apr/2010 | Makassar | JET delivered the following to the leader of counterparts: 2 presentation materials, material of the workshop. | MM2(F)-10030 |
| 51 | 8/Apr/2010 | Takalar | Lecture on Indicators of customer satisfaction – 2, Workshop 3 to prepare PR paper, short test | MM2(F)-10031 |
| 52 | 9/Apr/2010 | Maros | Workshop 3 to prepare PR paper, evaluation of PR papers, short test | MM2(F)-10032 |
| 53 | 13/Apr/2010 | Gowa | Workshop 3 to prepare PR paper, evaluation of PR papers, short test | MM2(F)-10033 |
| 54 | 13/Apr/2010 | Makassar | Lecture on indicators of customer satisfaction – 1&2. Evaluation of PR papers, short test | MM2(F)-10034 |
| 55 | 21/Jun/2010 | Gowa | Return short tests, lecture on meter reading, billing & collection. Return the Quiz on financial management. | MM2(F)-10035 |
| 56 | 22/Jun/2010 | Maros | Return short tests, lecture on meter reading, billing & collection. Return the Quiz on financial management. | MM2(F)-10036 |
| 57 | 23/Jun/2010 | Takalar | Return short tests, lecture on meter reading, billing & collection, Q&A, discussion. Return the Quiz on financial management and explain about schedule. | MM2(F)-10037 |
| 58 | 25/Jun/2010 | Makassar | Return short tests, lecture on meter reading, billing & collection. Return the Quiz on financial management. | MM2(F)-10038 |
| 59 | 29/Jun/2010 | Takalar | Seminar for Bupati of Takalar on financial situation of PDAM Takalar. | MM2(F)-10039 |
| 60 | 30/Jun/2010 | Gowa | Lecture on key points of meter reading & billing, Review on financial modeling and interview to the head of financial section about their daily work. | MM2(F)-10040 |
| 61 | 30/Jun/2010 | Takalar | Lecture on key points of meter reading & billing. Review on financial modeling and interview to the head of financial section about their daily work. | MM2(F)-10041 |
| 62 | 2/Jul/2010 | Maros | Lecture on key points of meter reading & billing. Review on financial modeling and interview to the head of financial section about their daily work. | MM2(F)-10042 |
| 63 | 5/Jul/2010 | Gowa | Lecture on key points of bill collection, OJT on financial modeling, explain about business plan monitoring framework, and interview to the head of customer section about their daily work | MM2(F)-10043 |
| 64 | 7/Jul/2010 | Takalar | Lecture on key points of bill collection, OJT on financial modeling, explain business plan monitoring framework, and interview to head of general section about their daily work. | MM2(F)-10044 |
| 65 | 9/Jul/2010 | Maros | Lecture on key points of bill collection, OJT on financial modeling, explain business plan monitoring framework, and interview to head of general section about their daily work. | MM2(F)-10045 |
| 66 | 12/Jul/2010 | Gowa | Lecture on Major Management Indicator, discussion, OJT on financial modeling, explain business plan monitoring framework, and interview to head of section about their daily work. | MM2(F)-10046 |
| 67 | 14/Jul/2010 | Makassar | Lecture on key points of meter reading & billing, OJT on financial modeling, explain about business plan monitoring. | MM2(F)-10047 |
| 68 | 15/Jul/2010 | Takalar | Lecture on Major Management Indicator, discussion, OJT on financial modeling (Assumption and sensitivity analysis). | MM2(F)-10048 |
| 69 | 16/Jul/2010 | Maros | Lecture on Major Management Indicator, discussion, OJT on financial modeling, discussion on business plan monitoring, and cost analysis | MM2(F)-10049 |
| 70 | 19/Jul/2010 | Gowa | Lecture on Principles of Management (Organization), OJT on financial modeling and cost analysis | MM2(F)-10050 |
| 71 | 21/Jul/2010 | Makassar | Lecture on key points of bill collection, discussion, OJT on financial modeling, discussion on business plan monitoring, and cost analysis | MM2(F)-10051 |
| 72 | 21/Jul/2010 | Takalar | Lecture on Principles of Management (Organization), OJT on financial modeling and cost analysis | MM2(F)-10052 |
| 73 | 23/Jul/2010 | Maros | Lecture on Principles of Management (Organization), OJT on financial modeling, discussion on business plan monitoring, and cost analysis | MM2(F)-10053 |
| 74 | 23/Jul/2010 | Makassar | Lecture on Principles of Management (Organization), OJT on financial modeling, discussion on business plan monitoring, and cost analysis. | MM2(F)-10054 |
| 75 | 26/Jul/2010 | Gowa | Lecture on Organization of Water Supply Enterprise - 1, Short test., Discussion on financial improvement strategy and quiz for financial management | MM2(F)-10055 |
| 76 | 28/Jul/2010 | Takalar | Lecture on Organization of Water Supply Enterprise - 1, Short test, Discussion on financial improvement strategy and quiz for financial management | MM2(F)-10056 |
| 77 | 28/Jul/2010 | Makassar | Lecture on Organization of Water Supply Enterprise - 1, Short test, Discussion on financial improvement strategy and quiz for financial management | MM2(F)-10057 |
| 78 | 29/Jul/2010 | Maros | Lecture on Organization of Water Supply Enterprise - 1, Short test, Discussion on financial improvement strategy and quiz for financial management | MM2(F)-10058 |
| 79 | 21/Oct/2010 | Gowa | Lecture (explanation: arrears actions experiment), Q&A | MM2(F)-10001 |

| No. | Date | PDAM | General Activities | MM No. |
|-----|-------------|----------|--|--------------|
| 80 | 22/Oct/2010 | Maros | Lecture (explanation: arrears actions experiment), Q&A | MM2(F)-10002 |
| 81 | 27/Oct/2010 | Makassar | Lecture (organization of water supply enterprise), Q&A | MM2(F)-10003 |
| 82 | 27/Oct/2010 | Takalar | Lecture (explanation: arrears actions experiment), Q&A | MM2(F)-10004 |
| 83 | 28/Oct/2010 | Gowa | Lecture (organization of water supply enterprise), Workshop 1 (discussion: arrears actions experiment) | MM2(F)-10005 |
| 84 | 29/Oct/2010 | Maros | Lecture (Organization of water supply enterprise), Workshop 1 (discussion: arrears actions experiment) | MM2(F)-10006 |
| 85 | 3/Nov/2010 | Makassar | Lecture (explanation: arrears actions experiment), Q&A | MM2(F)-10007 |
| 86 | 3/Nov/2010 | Takalar | Lecture (Organization of water supply enterprise), Workshop 1 (discussion: arrears actions experiment) | MM2(F)-10008 |
| 87 | 4/Nov/2010 | Gowa | Lecture (management analysis for water supply), Q&A, Workshop 2 (preparation: arrears actions experiment) | MM2(F)-10009 |
| 88 | 5/Nov/2010 | Maros | Lecture (management analysis for water supply), Q&A, Workshop 2 (preparation: arrears action experiment) | MM2(F)-10010 |
| 89 | 8/Nov/2010 | Maros | Data collection & discussion (arrears actions experiment) | |
| 90 | 9/Nov/2010 | Gowa | Data collection & discussion (arrears actions experiment) | |
| 91 | 10/Nov/2010 | Makassar | Explanation of training schedule for financial management, lecture (meter reading, billing & collection), Q&A | MM2(F)-10011 |
| 92 | 10/Nov/2010 | Takalar | Explanation of training schedule for financial management, Review on financial modeling, lecture (management analysis for water supply), Workshop 2 (arrears actions experiment) | MM2(F)-10012 |
| 93 | 11/Nov/2010 | Gowa | Explanation of training schedule for financial management, Review on financial modeling, lecture (case study in Cambodia: PPWSA), Workshop 3 (preparation: arrears actions experiment) | MM2(F)-10013 |
| 94 | 12/Nov/2010 | Maros | Explanation of training schedule for financial management, review on financial modeling, lecture (case study in Cambodia: PPWSA), Workshop 3 (preparation: arrears actions experiment) | MM2(F)-10014 |
| 95 | 13/Nov/2010 | Takalar | Workshop 3 (preparation: arrears actions experiment) | |
| 96 | 18/Nov/2010 | Gowa | OJT on financial modeling (profit and loss statement) | MM2(F)-10015 |
| 97 | 19/Nov/2010 | Maros | OJT on financial modeling (projection of future cash flow) | MM2(F)-10016 |
| 98 | 22/Nov/2010 | Maros | Presentation to Governor of Maros Prefecture | |
| 99 | 24/Nov/2010 | Makassar | OJT on financial modeling | MM2(F)-10017 |
| 100 | 24/Nov/2010 | Takalar | OJT on financial modeling (projection of future cash flow) | MM2(F)-10018 |
| 101 | 25/Nov/2010 | Gowa | OJT on financial modeling (projection of future cash flow) | MM2(F)-10019 |
| 102 | 26/Nov/2010 | Maros | OJT on financial modeling (balance sheet) | MM2(F)-10020 |
| 103 | 30/Nov/2010 | Maros | OJT on financial modeling (projection of BPP SPAM indicator) | MM2(F)-10021 |
| 104 | 01/Dec/2010 | Takalar | OJT on financial modeling (projection of BPP SPAM indicator) | MM2(F)-10022 |
| 105 | 02/Dec/2010 | Gowa | OJT on financial modeling (projection of BPP SPAM indicator) | MM2(F)-10023 |
| 106 | 9/Feb/2011 | Gowa | Explanation of training schedule for financial management, and business plan monitoring system. Review on financial modeling and lecture on basic accounting | MM2(F)-10001 |
| 107 | 9/Feb/2011 | Takalar | Explanation of training schedule for Financial Management, and business plan monitoring system, review on financial modeling and lecture on basic accounting | MM2(F)-10002 |
| 108 | 10/Feb/2011 | Makassar | Explanation of training schedule for financial management, and business plan monitoring system, lecture on basic accounting | MM2(F)-10003 |
| 109 | 11/Feb/2011 | Maros | Explanation of training schedule for financial management, and business plan monitoring system, review on financial modeling and lecture on basic accounting | MM2(F)-10004 |
| 110 | 14/Feb/2011 | Gowa | OJT on financial modeling (Updating assumption, balance sheet), Explanation of business plan monitoring system. Lecture on basic accounting | MM2(F)-10005 |
| 111 | 14/Feb/2011 | Takalar | OJT on financial modeling (updating assumption, balance sheet), explanation of business plan monitoring system, lecture on basic accounting | MM2(F)-10006 |
| 112 | 18/Feb/2011 | Maros | OJT on financial modeling (updating assumption, balance sheet), explanation of business plan monitoring system, lecture on basic accounting | MM2(F)-10007 |
| 113 | 18/Feb/2011 | Makassar | OJT on financial modeling (updating assumption, cash flow statement, balance sheet), explanation of business plan monitoring system, lecture on basic accounting | MM2(F)-10008 |
| 114 | 23/Feb/2011 | Gowa | OJT on financial modeling (balance sheet), explanation of business plan monitoring system, Workshop 4 (arrears actions experiment) | MM2(F)-10009 |
| 115 | 23/Feb/2011 | Takalar | OJT on financial modeling (balance sheet), explanation of business plan monitoring system, Workshop 4 (arrears actions experiment) | MM2(F)-10010 |
| 116 | 24/Feb/2011 | Gowa | Data collection of pilot area for arrears actions experiment | MM2(F)-10011 |
| 117 | 25/Feb/2011 | Maros | Lecture on basic accounting, Workshop 4 (arrears actions experiment) | MM2(F)-10012 |
| 118 | 1/Mar/2011 | Maros | Support for updating business plan | MM2(F)-10013 |
| 119 | 1/Mar/2011 | Takalar | Data collection for arrears actions experiment, baseline data | |
| 120 | 2/Mar/2011 | Gowa | Quiz on basic accounting and financial modeling, lecture (customer response: Handbook of Tokyo Waterworks), discussion (arrears actions | MM2(F)-10014 |

| No. | Date | PDAM | General Activities | MM No. |
|-----|--------------|----------|--|--------------|
| | | | experiment) | |
| 121 | 2/Mar/2011 | Takalar | Quiz on basic accounting and financial modeling, lecture (customer response: Handbook of Tokyo Waterworks), discussion (arrears actions experiment) | MM2(F)-10015 |
| 122 | 3/Mar/2011 | Makassar | OJT on financial modeling (balance sheet, BPP SPAM indicator), Quiz on basic accounting and financial modeling, data request for water tariff collection ratio | MM2(F)-10016 |
| 123 | 4/Mar/2011 | Maros | Quiz on basic accounting and financial modeling, lecture (customer response: Handbook of Tokyo Waterworks), discussion (arrears actions experiment) | MM2(F)-10017 |
| 124 | 8/Mar/2011 | Maros | Data collection for arrear action experiment (checklist of arrears) | |
| 125 | 9/Mar/2011 | Gowa | Lecture (Q&A on customer response: Handbook of Tokyo Waterworks), discussion (arrears actions experiment) | MM2(F)-10018 |
| 126 | 9/Mar/2011 | Takalar | Lecture (Q&A on customer response: Handbook of Tokyo Waterworks), discussion (arrears actions experiment) | MM2(F)-10019 |
| 127 | 10/Mar/2011 | Makassar | Lecture (meter reading, billing & collection manual), Q&A | MM2(F)-10020 |
| 128 | 10/Mar/2011 | Takalar | Trial visit on long-term arrears in pilot area | |
| 129 | 11/Mar/2011 | Maros | Lecture (Q&A on customer response: Handbook of Tokyo Waterworks), discussion (arrears actions experiment) | MM2(F)-10021 |
| 130 | 16/Mar/2011 | Gowa | Discussion (arrears actions experiment: results of trial, etc.) | MM2(F)-10022 |
| 131 | 16/Mar/2011 | Takalar | Discussion (arrears actions experiment: results of trial, etc.) | MM2(F)-10023 |
| 132 | 17/Mar/2011 | Makassar | Hearing (branch office 4, current arrears condition, etc.) | MM2(F)-10024 |
| 133 | 17/Mar/2011 | Gowa | Discussion (arrears actions experiment: results of trial, etc.) | MM2(F)-10025 |
| 134 | 18/Mar/2011 | Maros | Discussion (arrears actions experiment: results of trial, etc.) | MM2(F)-10024 |
| 135 | 24/May/2011 | Gowa | Discussion (arrears actions experiment: monitoring & evaluation) | MM2(F)-10001 |
| 136 | 25/May/2011 | Makassar | Lecture (key points of bill collection) | MM2(F)-10002 |
| 137 | 26/May/2011 | Takalar | Discussion (arrears actions experiment: monitoring & evaluation) | MM2(F)-10004 |
| 138 | 27/May/2011 | Maros | Discussion (arrears actions experiment: monitoring & evaluation) | MM2(F)-10005 |
| 139 | 31/May/2011 | Gowa | Lecture (Arrears Management Handbook of PDAM in Japan) | MM2(F)-10006 |
| 140 | 31/May/2011 | Makassar | Lecture (Arrears Management Handbook of PDAM in Japan) | MM2(F)-10007 |
| 141 | 1/June/2011 | Takalar | Lecture (Arrears Management Handbook of PDAM in Japan), Q&A, explain assignment to prepare PR paper for internal use | MM2(F)-10008 |
| 142 | 3/June/2011 | Maros | Lecture (Arrear Management Handbook of PDAM in Japan), Q&A, explainn assignment to prepare PR paper for internal use | MM2(F)-10009 |
| 143 | 7/June/2011 | Gowa | Lecture (Arrear Management Handbook of PDAM in Japan - 2), Q&A, discussion: how to conduct future arrears actions experiments | MM2(F)-10010 |
| 144 | 8/June/2011 | Makassar | Lecture (Arrear Management Handbook of PDAM in Japan - 2), Q&A, Discussion: new payment system at private banks | MM2(F)-10011 |
| 145 | 8/June/2011 | Takalar | Lecture (Arrear Management Handbook of PDAM in Japan - 2), Q&A, discussion: how to conduct arrears actions experiments | MM2(F)-10012 |
| 146 | 10/June/2011 | Maros | Lecture (Arrear Management Handbook of PDAM in Japan - 2), Q&A, discussion: how to conduct arrears actions experiments | MM2(F)-10013 |
| 147 | 14/June/2011 | Gowa | Workshop: 1. Let's consider the convenience of tariff payment, 2. Practice to fill out the arrears actions forms, etc. | MM2(F)-10014 |
| 148 | 15/June/2011 | Makassar | Lecture (Case Study of Phnom Penh Water Supply Authority (PPWSA)) | MM2(F)-10015 |
| 149 | 15/June/2011 | Takalar | Workshop: 1. Practice to fill out arrears actions forms, etc. | MM2(F)-10016 |
| 150 | 17/June/2011 | Maros | Workshop: 1. Practice to fill out arrears actions forms, etc. | MM2(F)-10017 |
| 151 | 22/June/2011 | Makassar | Discussion(the seminar to Mayer of Makassar) | MM2(F)-10019 |
| 152 | 22/June/2011 | Takalar | OJT (Business plan monitoring, financial modeling) | MM2(F)-10020 |
| 153 | 23/June/2011 | Gowa | OJT (Business plan monitoring, financial modeling) | MM2(F)-10021 |
| 154 | 24/June/2011 | Maros | OJT (Business plan monitoring, financial modeling) | MM2(F)-10022 |
| 155 | 28/June/2011 | Gowa | OJT (Review on water tariff calculation, financial modeling) | MM2(F)-10023 |
| 156 | 28/June/2011 | Makassar | OJT (Business plan monitoring, financial modeling) | MM2(F)-10024 |
| 157 | 30/June/2011 | Takalar | OJT (Review on water tariff calculation, financial modeling) | MM2(F)-10025 |
| 158 | 1/July/2011 | Maros | OJT (Review on water tariff calculation, financial modeling) | MM2(F)-10026 |
| 159 | 5/July/2011 | Gowa | OJT (Review on water tariff calculation, financial modeling) | MM2(F)-10027 |
| 160 | 6/July/2011 | Makassar | OJT (Review on water tariff calculation, financial modeling) | MM2(F)-10028 |
| 161 | 6/July/2011 | Takalar | OJT (Review on water tariff calculation, financial modeling) | MM2(F)-10029 |
| 162 | 8/July/2011 | Maros | OJT (Review on water tariff calculation, financial modeling) | MM2(F)-10030 |
| 163 | 12/July/2011 | Gowa | OJT (Business plan monitoring, financial modeling) | MM2(F)-10031 |
| 164 | 13/July/2011 | Makassar | OJT (Review on water tariff calculation, financial modeling) | MM2(F)-10032 |
| 165 | 14/July/2011 | Takalar | OJT (Business plan monitoring, financial modeling) | MM2(F)-10033 |
| 166 | 15/July/2011 | Makassar | OJT (Business plan monitoring, financial modeling) | MM2(F)-10034 |
| 167 | 15/July/2011 | Maros | OJT (Business plan monitoring, financial modeling) | MM2(F)-10035 |
| 168 | 12/Oct/2011 | Takalar | Workshop (Let's consider the convenience of tariff payment), discussion of the results of arrears actions experiments | MM2(F)-10001 |
| 169 | 14/Oct/2011 | Maros | Workshop (Let's consider the convenience of tariff payment), discussion of the results of arrears actions experiment | MM2(F)-10002 |
| 170 | 17/Oct/2011 | Gowa | Workshop (analyze results and consider how to improve and extend arrears actions experiment), discussion of the results of arrears actions experiment | MM2(F)-10003 |

| No. | Date | PDAM | General Activities | MM No. |
|-----|-------------|----------|---|--------------|
| 171 | 19/Oct/2011 | Takalar | Workshop (analyze results and consider how to improve and extend arrears actions experiment), discussion of the results of arrears actions experiment | MM2(F)-10004 |
| 172 | 20/Oct/2011 | Makassar | Lecture (Customer response: Handbook of Tokyo Waterworks) | MM2(F)-10005 |
| 173 | 21/Oct/2011 | Maros | Workshop (analyze results and consider how to improve and extend arrears actions experiment), discussion of the results of arrears actions experiment | MM2(F)-10006 |
| 174 | 25/Oct/2011 | Gowa | Lecture (Customer service: Ritz Carlton), Workshop (2 nd arrears actions preparation) | MM2(F)-10007 |
| 175 | 26/Oct/2011 | Takalar | Lecture (Customer service: Ritz Carlton), Workshop (2 nd arrears actions preparation) | MM2(F)-10008 |
| 176 | 28/Oct/2011 | Maros | Lecture (Customer service: Ritz Carlton), Workshop (2 nd arrears actions preparation) | MM2(F)-10009 |
| 177 | 2/Nov/2011 | Gowa | Lecture (Customer service: Credo card), Workshop (2 nd arrears actions preparation) | MM2(F)-10010 |
| 178 | 3/Nov/2011 | Takalar | Lecture (Customer service: Credo card), Workshop (2 nd arrears actions preparation) | MM2(F)-10011 |
| 179 | 4/Nov/2011 | Maros | Lecture (Customer service: Credo card), Workshop (2 nd arrears actions preparation) | MM2(F)-10012 |
| 180 | 8/Nov/2011 | Gowa | Lecture (points to note for arrears actions activities) | MM2(F)-10013 |
| 181 | 9/Nov/2011 | 4 PDAM | Discussion by arrears visiting staffs of 4 PDAMs. | MM2(F)-10014 |
| 182 | 9/Nov/2011 | Takalar | Lecture (points to note for arrears action activities) | MM2(F)-10015 |
| 183 | 11/Nov/2011 | Maros | Lecture (points to note for arrears action activities) | MM2(F)-10016 |
| 184 | 15/Nov/2011 | Gowa | Quiz, lap up discussion | MM2(F)-10017 |
| 185 | 17/Nov/2011 | Makassar | OJT (Explanation on manual for financial modeling), Quiz, lap up discussion | MM2(F)-10018 |
| 186 | 17/Nov/2011 | Takalar | Quiz, lap up discussion | MM2(F)-10019 |
| 187 | 18/Nov/2011 | Maros | Quiz, lap up discussion | MM2(F)-10020 |
| 188 | 17/Jan/2012 | Gowa | Workshop (discuss progress of 2 nd arrears actions experiment, collection efficiency in 2011) | MM2(F)-10001 |
| 189 | 18/Jan/2012 | Takalar | Workshop (discuss progress of 2 nd arrears actions experiment, collection efficiency in 2011) | MM2(F)-10002 |
| 190 | 20/Jan/2012 | Maros | Workshop (discuss progress of 2 nd arrears actions experiment, collection efficiency in 2011) | MM2(F)-10003 |
| 191 | 20/Jan/2012 | Makassar | Data collection and discuss collection efficiency in 2011 | MM2(F)-10004 |
| 192 | 25/Jan/2012 | Makassar | Lecture (Customer service: Handbook of Tokyo Waterworks Bureau, Ritz Carlton, Credo card) | MM2(F)-10005 |
| 193 | 26/Jan/2012 | Gowa | Lecture (Continual management improvement), Workshop (PR paper preparation) | MM2(F)-10006 |
| 194 | 26/Jan/2012 | Takalar | Lecture (Continual management improvement), Workshop (PR paper preparation) | MM2(F)-10007 |
| 195 | 27/Jan/2012 | Maros | Lecture (Continual management improvement), Workshop (PR paper preparation) | MM2(F)-10008 |
| 196 | 14/Feb/2012 | Gowa | OJT (Financial analysis for project, Financial modeling) | MM2(F)-10029 |
| 197 | 15/Feb/2012 | Takalar | OJT (Financial analysis for project, Financial modeling) | MM2(F)-10030 |
| 198 | 15/Feb/2012 | Makassar | OJT (Financial analysis for project, Financial modeling) | MM2(F)-10031 |
| 199 | 17/Feb/2012 | Maros | OJT (Financial analysis for project, Financial modeling) | MM2(F)-10032 |
| 200 | 20/Feb/2012 | Maros | OJT (Financial analysis for project) | MM2(F)-10033 |
| 201 | 21/Feb/2012 | Gowa | OJT (Financial analysis for project) | MM2(F)-10034 |
| 202 | 22/Feb/2012 | Takalar | OJT (Financial analysis for project) | MM2(F)-10035 |
| 203 | 22/Feb/2012 | Makassar | OJT (Financial analysis for project) | MM2(F)-10036 |

2.2.2 Outputs of the Project

Table 2.2-15 shows the outputs for the whole project period.

Table 2.2-15 Outputs from all of the Activities

| No. | Activity | Outputs |
|-----|---|---|
| 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"> -PDAMs with uncompleted their business plan completed and submitted their business plan to Ministry of Finance with support of JICA Expert Team (JET). - Business plan monitoring system is developed and operated by PDAMs with support of JET. - Organizational aspects, such as optimizing organizational structure, clarifying the job description and division of duties were generally understood by counterpart staffs of 4 PDAMs. |

| | | |
|-----|--|---|
| 2-2 | Prepare practical water tariff setting manual and conduct OJT on optimum water tariff setting. | <ul style="list-style-type: none"> - The reference documents, which make it possible for staffs of PDAMs to calculate water tariff based on Regulation of Minister of Home Affairs Number 23 Year 2006 Technical Guidance and Procedures of Water Tariff Determination in PDAM (herein after “Technical Guidance”), was developed by PDAMs with support of JET. - Staffs of PDAMs calculate water tariff of 2011 and 2012 based on Technical Guidance by utilizing the manuals which are developed in the First Year. |
| 2-3 | Conduct OJT on improvement of billing and collection efficiency | <ul style="list-style-type: none"> - Trainees from 4 PDAMs obtained basic knowledge on billing & collection through lectures provided by JET - Trainees from 4 PDAMs understood current problems and possible solutions through discussion and advice provided by JET - Trainees from 4 PDAMs conducted pilot projects to improve collection efficiency |
| 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"> - Counterpart staffs of 4 PDAMs can make a projection on cost-recovery and debt payment for new investments by using the financial models which were developed in the training. - Counterpart staffs of 4 PDAMs can do the basic financial analysis and explain it to other members. - Counterpart staffs of 4 PDAMs can analyze the current financial situation of PDAM and understand the causes of the problems. |
| 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"> - The Seminar was held for project related staff of PDAM on November 6th 2009 and February 23rd 2010, and South Sulawesi Province on 23rd of March 2010 - The Workshop was held for Bupati of Takalar on 29th of Jun 2010, for Bupati of Maros on 22nd of November 2010, and for Vice-Bupati of Gowa on 30th of Jun 2011. |
| 2-6 | Conduct OJT regarding enhancing customer satisfaction to PDAM staffs | <ul style="list-style-type: none"> - Trainees from 4 PDAMs obtained basic knowledge on public relations and customer service through lectures provided by JET - Trainees from 4 PDAMs understood problems of customer services / public relations through discussions and advice provided by JET - Staff of 4 PDAMs interact a little better with customers in their daily routine, and undertook new initiative on customer service (e.g., PR) |

(1) Target Group of Each PDAM

Table 2.2-16 is the list of participants for Output 2. The participants include non-formal counterparts of Output 2.

Table 2.2-16 List of Participants for Output 2

| No. | PDAM | Position | Name | Section |
|-----|----------|----------|--------------------|--|
| 1 | Makassar | Leader | Nazaruddin Hajar * | Head of Budget & Treasury Department |
| 2 | | | Tiro Paranoan * | Head of Accounting & Verification Department |
| 3 | | | Izmira * | Head of Budget Section |
| 4 | | | Julianti * | Staff of Budget Section |
| 5 | | | Rahmawati * | Staff of Accounting Section |
| 6 | | | A.Sumarni * | Staff of Treasury Section |
| 7 | | | Sumasdi Rizal * | Head of Accounting & Reporting Section |
| 8 | | | Muh.Kasim * | Staff of Verification Section |
| 9 | | | Dewi Sartika | Staff of Verification Section |
| 10 | | | Titin Agustini * | Staff of Treasury Section |
| 11 | | | Trisia | Staff of Verification Section |
| 12 | | | Rosdiana | Staff of Budget Section |
| 13 | | | Nahwiyani | Secretary of Director |
| 14 | | | Jumriani | Staff of Accounting Section |
| 15 | | | Arni Hasyim | Staff of Budget Section |
| 16 | | | Hj. Halijah | Head of Treasury Section |
| 17 | | | Armi Dwiana | Head of Verification Section |

| No. | PDAM | Position | Name | Section |
|-----|------|-------------------------|--------------------|---|
| 18 | | | Sahriah B. | Staff of Treasury Section |
| 19 | | | Bima T. | Staff of Treasury Section |
| 20 | | (Leader until May 2011) | Taufik Amri (*) | Head of Branch office II |
| 21 | | | Muh Rum ST | Branch office IV |
| 22 | | | Murni Rivai | Head of Office Maintenance |
| 23 | | | Ayyub Absro | Branch office I |
| 24 | | | Hasmulyadi S.SOS | Branch office I |
| 25 | | | Frans Pakka | Branch office I |
| 26 | | | Muh Arfah HY | Branch office II |
| 27 | | | Daniel S. Potollo | Branch office II |
| 28 | | | Devi P. | Head of Assets |
| 29 | | | Hj. Amalia Malik | Head of Branch office III |
| 30 | | | Sulaiman Wahab | Branch office III |
| 31 | | | Darwis Rapi | Branch office III |
| 32 | | | Paulus Manda | Branch office II |
| 33 | | | H Baso Makking | Branch office IV |
| 34 | | | Muh. Ilham | Accounting Staff |
| 35 | | | Lahasang | Branch office I |
| 36 | | | Abdul Aziz M. | Branch office I |
| 37 | | | A. Kambau | Branch office I |
| 38 | | | A. Askandar | Branch office II |
| 39 | | | Mozes Dayan | Branch office II |
| 40 | | | Fauziah Latif | Branch office III |
| 41 | | | Rosnidah | Branch office III |
| 42 | | | Husli | Staff of Verification Section |
| 43 | | | Nasruddin S AT | Staff of Budget Section |
| 44 | | | A. Harmoni | Branch office IV |
| 45 | | | Kasmawati S. SOS | Branch office IV |
| 46 | | | Wulan dai Insani | Branch office IV |
| 47 | | | Zainudin | Budget Section Staff |
| 48 | | | Silva Pabisse | Branch office II |
| 49 | | | Tenny P | Branch office III |
| 50 | | | A Hasnah | Branch office II |
| 51 | | | Basril | Branch office II |
| 52 | | | Ermin Lamuda | Branch office I |
| 53 | | | H Imran R. Adnan | Branch office III |
| 54 | | | Hartawan | Branch office IV |
| 55 | | | Bakir | Branch office I |
| 56 | | | Jamaluddin | Branch office III |
| 1 | Gowa | Leader | Nurachmi Abbas * | Financial Division |
| 2 | | | Hj.Hamsinah * | Accounting Sub Section |
| 3 | | | Abd. Malik Abbas * | Public Relation Sub Section |
| 4 | | | Jumriah * | Accounting Staff |
| 5 | | | Rahmiah Sabir * | Customer Relation Staff |
| 6 | | | Israwati * | Accounting Staff |
| 7 | | | Syahril B. * | Electronic Data & Documentation Sub Section |
| 8 | | | Irianto Razak * | Customer Relation Division |
| 9 | | | Untung Firdaus | Transmission/Distribution |
| 10 | | | Marwan Hamdan | Customer Relation Staff |
| 11 | | | Mulyadi M. | |
| 12 | | | A. N. Natsir Nakka | Technical Director |
| 13 | | | Syamsuddin * | Customer Service /Head of Locket |
| 14 | | | Armiyanti, SE | |
| 15 | | | Dg. Mahayan | |
| 16 | | | M. Iqbal | Meter Reader |
| 17 | | | H. Saipul | Staff |
| 18 | | | Herawati | Billing Section |
| 19 | | | Abdul Hamid | Customer Relation Staff |
| 20 | | | Kamaluddin | |

| No. | PDAM | Position | Name | Section |
|-----|---------|----------|----------------------------|-------------------------------|
| 21 | | | Lestari | |
| 22 | | | Indah Noviganti Yantiya | |
| 1 | Maros | Leader | Mery Salu * | Head of Financial and General |
| 2 | | | Hasmawaty * | Staff Customer Relation |
| 3 | | | Renita Sau P * | Staff of Financial Section |
| 4 | | | Merty Simon * | Staff of Financial Section |
| 5 | | | Hartati * | Staff of Financial Section |
| 6 | | | Hikayat Eka Yanti * | Cashier of Office |
| 7 | | | Tri Kartika Sari * | Cashier of Bantimurung |
| 8 | | | Abd. Rajab * | Head of Technical |
| 9 | | | Muh. Jabir * | Staff of Accounting Section |
| 10 | | | Syahrir * | Staff of Financial Section |
| 11 | | | Fadjeria Pelitawati * | Cashier of Office |
| 12 | | | Yuliana | Technical Planning Section |
| 13 | | | H.M. Arifin | Head of General Section |
| 14 | | | Isnandar | Staff of Financial Section |
| 1 | Takalar | Leader | Dewi Warsyidah * | Financial Section |
| 2 | | | Achmad Gazali * | Accounting Sub Section |
| 3 | | | Ramlah * | Customer Relation Sub Section |
| 4 | | | Asriana * | Cashier Sub Section |
| 5 | | | Budiastuty * | Billing Sub Section |
| 6 | | | Muh. Rustam Nur * | Human Resources Sub Section |
| 7 | | | Habibi Yahya * | Customer Relation Sub Section |
| 8 | | | Muh Saleh | Internal Auditor |
| 9 | | | Abd. Rahman | Security |
| 10 | | | M. Rustam Mansyur | |
| 11 | | | Novia Mirayanti | Laboratory |
| 12 | | | Salmah | |
| 13 | | | Fardiansyah | Staff of General Section |
| 14 | | | Marwah Saing | |

Note: Name with the asterisk is the counterpart staffs (main target) of the Output 2.

(2) Project Indicators

Project indicators concerning Output 2 are shown in the **Table 2.2-17**.

Table 2.2-17 Indicators for Output 2

| Output | Indicators |
|--|---|
| 2. PDAMs' financial administration capacity is strengthened. | 2-1 Training material and number of trained staff 2-2 Water tariff collection ratio is improved. 2-3 Number of workshops/seminars and number of participants |

Results as measured by the indicators for Output 2 are shown in **Table 2.2-18**.

Table 2.2-18 Results of Project Indicators for Output 2 at the end of the project

| Indicators | Year | Makassar | | Gowa | | Maros | | Takalar | |
|---|------|----------|--------|--------|--------|--------|--------|---------|--------|
| Number of Staffs who Participate Program *1 | 2007 | | | | | | | | |
| | 2008 | | | | | | | | |
| | 2009 | 9 | | 7 | | 11 | | 7 | |
| | 2010 | 9 | | 7 | | 11 | | 7 | |
| | 2011 | 9 | | 9 | | 11 | | 7 | |
| Water Tariff Collection Rate (%) *2 | Year | Target | Actual | Target | Actual | Target | Actual | Target | Actual |
| | 2007 | 90 | 86 | 81 | 94 | 64 | 76 | 78 | 83 |
| | 2008 | 90 | 89 | 89 | 88 | 66 | 82 | 82 | 83 |
| | 2009 | 90 | 94 | 89 | 97 | 82 | 88 | 85 | 93 |
| | 2010 | 90 | 96 | 94 | 95 | 88 | 84 | 85 | 92 |
| | 2011 | 93 | 96 | 96 | 110 | 90 | 82 | 92 | 99 |
| Number of Workshops/Seminars and Number of Participants*3 | 2007 | | | | | | | | |
| | 2008 | | | | | | | | |
| | 2009 | | | 1 | | | | | |
| | 2010 | | | 4 | | | | | |
| | 2011 | | | 1 | | | | | |

Notes: *1; Number of participants here show only formal members of counterparts.

*2; In PDAM Gowa and PDAM Takalar, actual 'Water Tariff Collection Rate (%)' was calculated by total water tariff collected amount (Rp.) from January to December of each year, divided by total water tariff billed amount (Rp.) from January to December of the same year, because of limited data. In PDAM Makassar and PDAM Maros, total collected amount is the paid amount for each bill issued in the year. Total collected amount and total billed amount data were provided by counterpart staff of 4 PDAMs.

*3; Seminar for the Bupati of Maros, Gowa, and Takalar were held individually.

(3) Water Tariff Collection Rate

In PDAM Gowa and PDAM Takalar, water tariff collection rate as shown in **Figure 2.2-2** was calculated by dividing total collected amount (Rp.) from January to December of each year by the total billed amount (Rp.) for the same year. This collected amount also includes the amount paid in that year for the bills issued in the previous year, thus putting the collection rate of PDAM Gowa to 110%. In PDAM Makassar and PDAM Maros, the collection rate was calculated utilizing only the collected amount against the bills issued from January to December.

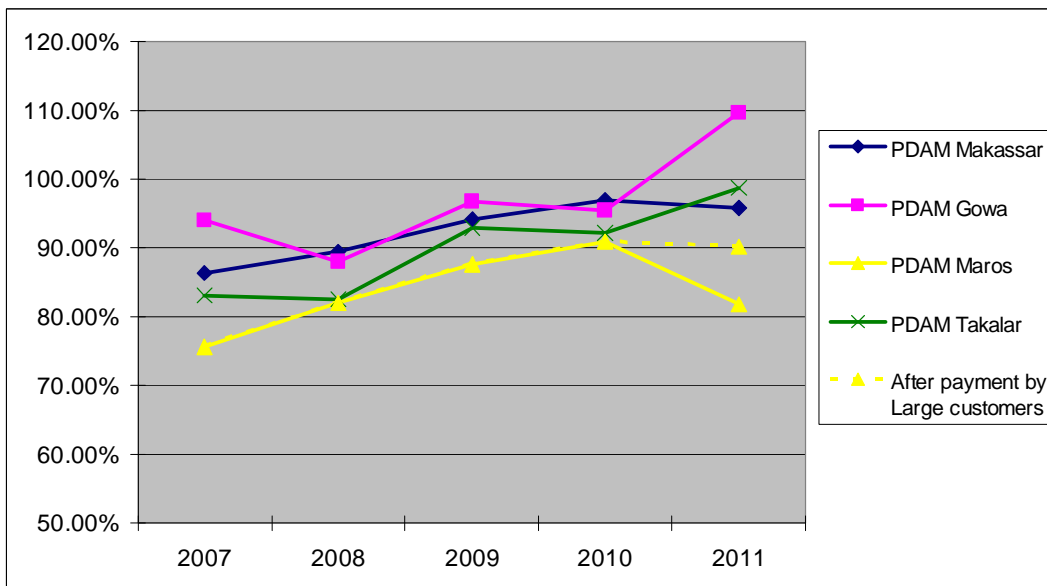


Figure 2.2-2 Water Tariff Collection Rate (from year 2007 to year 2011)

The water tariff collection rate of PDAM Maros in 2011 at 82% decreased from the value in 2010 (**Table 2.2-18**). This is caused by the unpaid bills (827.9 million Rp.) of the large customers (Air force, Military, Police) in 2011. These customers accounted for 15% to 18% of the total amount billed. These large customers paid all their 2010 water bills in 2011 and are expected to pay the 2011 bills in 2012. The collection rate in 2010 in **Figure 2.2-2** is revised from the number in **Table 2.2-18** and includes the payment by large consumers in 2011. The yellow dotted line in **Figure 2.2-2** shows the estimated collection rate after these large consumers pay in full in the near future. PDAM Maros achieved a collection target in 2010 of 88% and it will achieve a target of 90% in 2011 if the arrears of these large consumers are paid in the same year as done before.

The collection rate of PDAM Makassar in 2011 was 96%, a little lower than 2010 but higher than its target of 93%. This is because PDAM continued with visiting households in following-up long-term arrears in the pilot districts from 2010 and they were having some success. PDAM Makassar begins arrears actions two months after payment due dates, which is earlier than those of the other 3 PDAMs.

Trends of tariff collection rates are improving for PDAM Gowa and PDAM Takalar. The collection rates are over the set targets but they included the payments of arrears from the previous year. Therefore, there is still room for improvement.

(4) Financial Indicators in General

Financial conditions of 4 PDAMs have been improved tremendously during project period. JET uses Return on Assets (ROA), Current Ratio, and Capital Ratio as financial indicators to see the financial improvement of PDAMs because these indicators are most commonly used in the world. Also the counterpart staffs of PDAMs learned how to calculate above-mentioned financial indicators; therefore, these indicators are able to be utilized even after JET leave the project site.

Profitability (ROA)

ROA shows the profitability of the entities comparing to the amount of assets the entity owns. If the ratio is below zero (0), it means that there is no profit loss in Profit Loss Statement. If the ROA is more than 5 %, it is usually considered that the targeted entity has a good profitability. ROA shall be calculated by the following formula.

$$\text{ROA} = \text{Profit after tax} / \text{Total assets} \times 100$$

In case of PDAM Makassar, as **Figure 2.2-3** shows, the profitability improved tremendously in year 2011 because they raised water tariff on Jun 2011. ROA in 2010 was below minus 5 points; however, the ROA raised up to 5.5 points in 2011. PDAM Gowa keeps good profitability since the initiation of the project. Maros improved ROA tremendously in 2010 and 2011. ROA was minus 16.5 points in 2009 but raised up to minus 1.5 points in 2010 and positive 10 points in 2011. Takalar's ROA keeps minus since the beginning of the project; however, it should not be worried at this moment because the major reason of this low ROA of PDAM Takalar is large amount of depreciation costs. In case of Takalar, the majority of investments are financed by the central and local government subsidies but those investment costs are counted as depreciation costs.

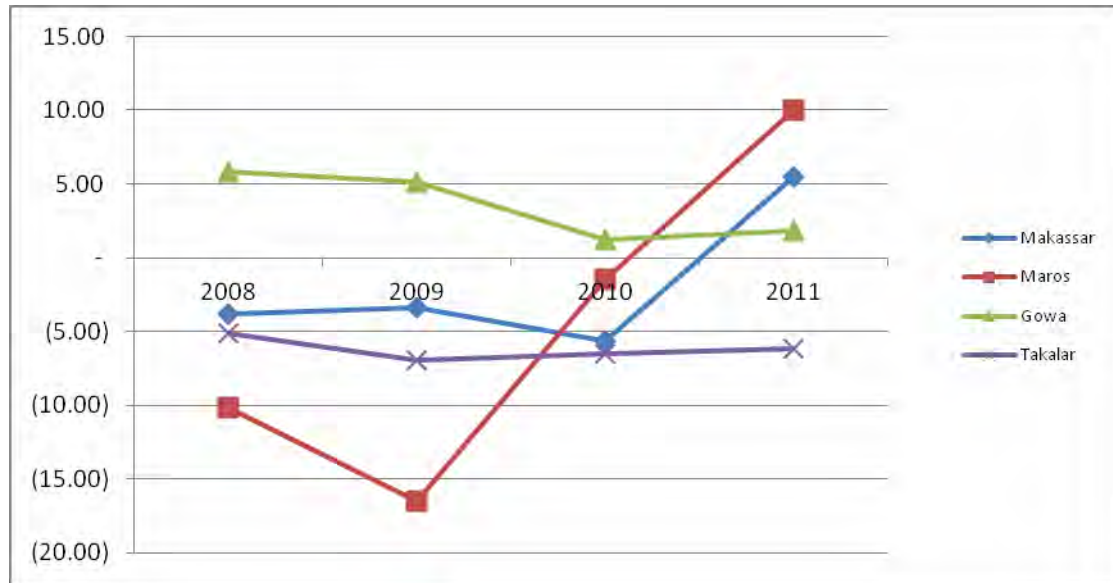


Figure 2.2-3 Return on Assets (from year 2008 to year 2011)

Source: Financial Statement of PDAM

Liquidity (Current Ratio)

Current Ratio shows the liquidity of the entities. If the Current Ratio is lower than 100 points, it means that the entity is in difficult condition of payment. Current Ratio is calculated by the following formula.

$$\text{Current Ratio} = \text{Current Assets} / \text{Current Liability} \times 100$$

In case of PDAM Makassar, as **Figure 2.2-4** shows, Current Ratio keeps below 100 points because it has a large amount of “long term loan become due” as a current liability. Since the business plan of PDAM Makassar was approved on October 2011, these long term loan become due are expected to be replaced to long term liability which should improve Current Ratio. Gowa improved Current Ratio tremendously because their business plan was approved by the ministry of finance and the burden of short term liability was released in a large amount. Maros also improved the Current Ratio little by little. If the business plan is approved, the Current Ratio of Maros should be improved in a large amount. Takalar keeps good financial conditions by keeping high Current Ratio.

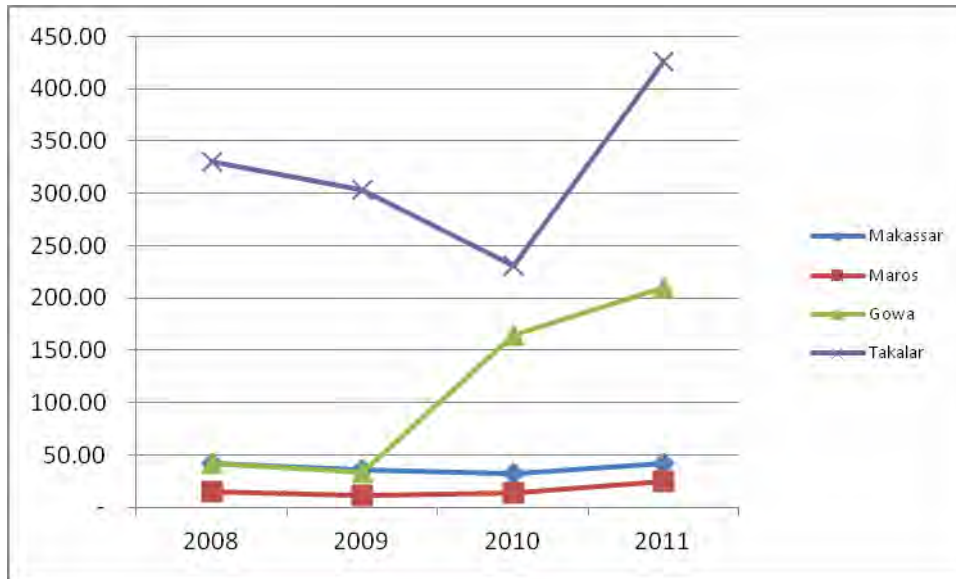


Figure 2.2-4 Current Ratio (from year 2008 to year 2011)

Source: Financial Statement of PDAM

Stability (Capital Ratio)

Capital Ratio shows the stability of the entity. If this ratio is below 30 points, it is usually considered as unstable. Capital Ratio is calculated by the following formula.

$$\text{Capital Ratio} = \text{Equity} / \text{Total Assets} \times 100$$

In case of PDAM Makassar, as **Figure 2.2-5** shows, Capital Ratio is negative. It means that liabilities exceeding assets. Gowa keeps improving their Capital Ratio from 35 points in 2009 to 73 points in 2011. Capital Ratio of Maros is negative; however, the ratio improved from -42 points in 2009 to -26 points in 2010.

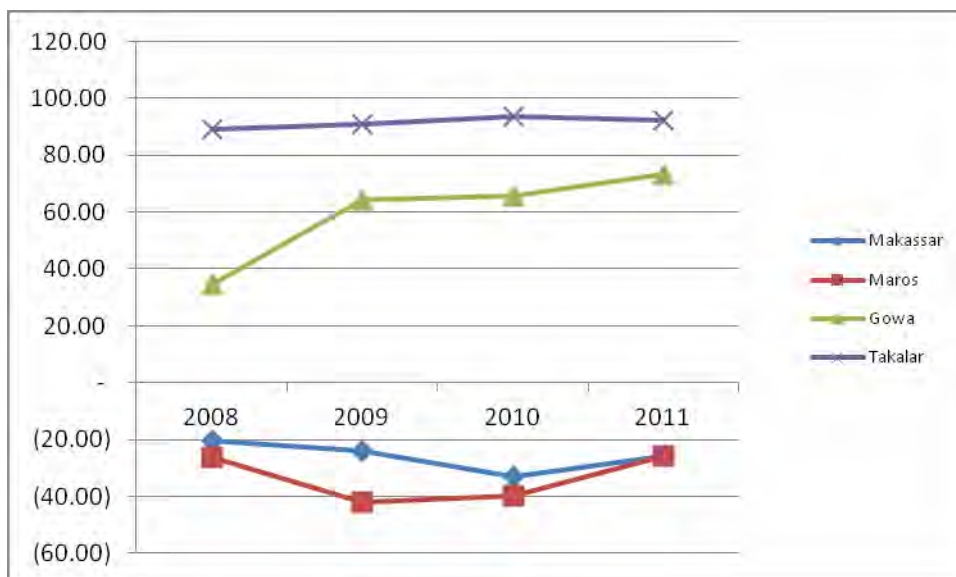


Figure 2.2-5 Capital Ratio(from year 2008 to year 2011)

Source: Financial Statement of PDAM

(5) Financial Indicators based on BPP SPAM

The performance indicators which is used in the BPP SPAM are the most commonly used indicators in water sector of Indonesia. The indicators consist of finance, service, operation, and human resources. Financial part consist of ROE (Return on Equity), Operational Ratio, Cash Ratio, Collection Efficiency, and Solvency. By evaluating those 4 parts, BPP SPAM evaluate if the PDAM is “Healthy”, Less Health”, or “Sick”.

Table 2.2-19 shows the results of evaluation for financial part. Base on the BPP SPAM, if the score is more than 2.8, the PDAM is considered as “Healthy”. All 4 PDAMs became healthy in terms of finance. (Please notice the actual decision need to be done based on financial, general and technical evaluations.)

Table 2.2-19 Financial Indicators Based on BPP SPAM

| Indicators | Year | Makassar | Maros | Gowa | Takalar | Score |
|-----------------------|------|----------|--------|------|---------|--|
| ROE | 2009 | (5.3) | (15.3) | 4.2 | (4.0) | >10%=5, >7-10%=4, >3-7%=3, >0-3%=2, <0%=1 |
| | 2010 | (8.2) | (1.3) | 1.3 | (4.0) | |
| | 2011 | 7.9 | 9.2 | 1.9 | (4.6) | |
| Operational Ratio | 2009 | 0.9 | 0.8 | 1.1 | 0.8 | >1.0=5, >0.85-1.0=4, >0.65-0.85=3, >0.50-0.65=2, <=0.5=1 |
| | 2010 | 0.9 | 1.0 | 1.0 | 0.8 | |
| | 2011 | 1.1 | 1.1 | 0.9 | 0.8 | |
| Cash Ratio | 2009 | 22 | 1 | 3 | 190 | >100=5, >80-100=4, >60-80=3, >40-60=2, <=40=1 |
| | 2010 | 17 | 1 | 76 | 103 | |
| | 2011 | 21 | 7 | 44 | 153 | |
| Collection Efficiency | 2009 | 94 | 88 | 97 | 93 | >90=5, >85-90=4, >80-85=3, >75-80=2, <=75=1 |
| | 2010 | 97 | 84 | 95 | 92 | |
| | 2011 | 87 | 82 | 110 | 97 | |
| Solvency | 2009 | 81 | 70 | 280 | 1,121 | >200=5, >170-200=4, >135-170=3, >100-135=2, <=100=1 |
| | 2010 | 75 | 72 | 293 | 1,522 | |
| | 2011 | 79 | 79 | 374 | 1,325 | |
| Total Score | 2009 | 2.4 | 2.0 | 3.8 | 3.8 | > or = 2.8 is "healthy" > 2.2 & <2.8 is "Less Sick" |
| | 2010 | 2.4 | 2.0 | 4.0 | 3.8 | |
| | 2011 | 3.0 | 2.8 | 3.6 | 3.8 | |

Source: Financial Statement of PDAM

(6) Training Material

Training materials listed in **Table 2.2-20** include power point used for lectures, workshop materials, recommendations, short tests, etc.

Table 2.2-20 List of training materials for Output 2

| No. | File name | Form of material | Topic |
|--|---|------------------|---------|
| <i>FIRST YEAR (October 2009 – August 2010)</i> | | | |
| 1 | Proposed Schedule of Financial Management Improvement Work | Paper | Finance |
| 2 | Financial Statement (Example of Gowa) | Excel file | Finance |
| 3 | Basic Financial Analysis of PDAM Gowa | Excel file | Finance |
| 4 | Problem Tree of Gowa | Excel file | Finance |
| 5 | Comparison of Tariff Calculation Method between Indonesia and Japan | Paper | Finance |
| 6 | Water Tariff Calculation Manual Development Flow of Gowa PDAM | Paper | Finance |
| 7 | Meeting Agenda | Paper | Finance |
| 8 | Quiz for 1 st Session | Paper | Finance |

| | | | |
|---|---|--------------------|---|
| 9 | Proposed Schedule of Financial Management Improvement Work: Second Session | Paper | Finance |
| 10 | Water Tariff Calculation Sheet | Excel file | Finance |
| 11 | Format of Simple Business Plan | Excel file | Finance |
| 12 | Financial Modeling for 2 nd session | Excel file | Finance |
| 13 | Skill Map | Paper | Finance |
| 14 | Meeting Agenda | Paper | Finance |
| 15 | Quiz for 2 nd Session | Paper | Finance |
| 16 | Proposed Schedule of Financial Management Improvement Work: Third Session | Paper | Finance |
| 17 | Review on Financial Statement | Excel file | Finance |
| 18 | Business Plan Monitoring Format | Excel file | Finance |
| 19 | Financial Modeling for 3 rd Session | Excel file | Finance |
| 20 | Quiz for 3 rd Session | Paper | Finance |
| 21 | Knowledge of Financial Management -Financial Statement- | Power Point | Finance |
| 22 | Knowledge of Financial Management -Useful Business Plan & Its Monitoring- | Power Point | Finance |
| 23 | Financial Statement and Financial Situation of PDAMs | Paper | Finance |
| 24 | Financial Situation and Development of PDAM Takalar (Presentation Material for Bupati of Takalar) | Paper | Finance |
| 25 | Introduction to my scope | Power Point | Management / Customer relations |
| 26 | Water Supply Management | Power Point | Water Supply Enterprise Management |
| 27 | Customer Relations | Power Point | Customer relations |
| 28 | Data Acquisition Methods for Customer's Impression | Power Point | Customer relations |
| 29 | Indicators to check customer satisfaction | Power Point | Customer relations |
| 30 | Indicators to check customer satisfaction - 2 | Power Point | Customer relations |
| 31 | Let's make a PR paper! | Power Point | Public Relations |
| 32 | Workshop in Output 2 (April) (for monthly progress meeting) | Power Point | Customer relations |
| 33 | Meter Reading, Billing, & Collection | Power Point | Meter reading / billing / collection |
| 34 | Points to remember in Meter reading & Billing | Power Point | Meter reading / billing |
| 35 | Points to remember in Bill Collection | Power Point | Bill collection |
| 36 | Major Management Indicator | Power Point | Management |
| 37 | Principles of Management (Organization) | Power Point | Management |
| 38 | Organization of Water Supply Enterprise – 1 | Power Point | Management |
| 39 | Tentative Recommendations for meter reading billing & collection | Power Point | Meter reading / billing / collection |
| 40 | Claim Delivery Memo (for PDAM Maros) | Paper / Word file | Customer relations |
| 41 | Problem Analysis of Meter Reading, Billing & Collection | Paper / Excel file | Meter reading / billing / collection |
| 42 | Short Exam 01: Management & Customer Relations | Paper | Management / Customer relations |
| 43 | Short Exam 01: Management & Customer Relations CORRECT ANSWERS | Paper | Management / Customer relations |
| 44 | Short Exam 02: Meter reading, billing, and collection / Organization | Paper | Management / Meter reading / collection |
| 45 | Short Exam 02: Meter reading, billing, and collection / Organization CORRECT ANSWERS | Paper | Management / Meter reading / collection |
| SECOND YEAR (September 2010-February 2012) | | | |
| 46 | Proposed Schedule of Financial Management Improvement Work: Forth Session | Paper | Finance |
| 47 | Financial Modeling for 4 th Session | Excel file | Finance |
| 48 | Quiz for 4 th Session | Paper/Excel file | Finance |
| 49 | Proposed Schedule of Financial Management Improvement Work: Fifth Session | Paper | Finance |
| 50 | Financial Modeling for 5 th Session | Excel file | Finance |
| 51 | Business Plan Performance Monitoring Format | Excel file | Finance |
| 52 | Quiz for 5 th Session | Paper/Excel file | Finance |
| 53 | Proposed Schedule of Financial Management Improvement Work: Sixth Session | Paper | Finance |

| | | | |
|----|--|------------------|--------------------------------------|
| 54 | Financial Modeling for 5 th Session | Excel file | Finance |
| 55 | Water Tariff Calculation Sheet for 2011 | Excel file | Finance |
| 56 | Proposed Schedule of Financial Management Improvement Work: Seventh Session | Paper | Finance |
| 57 | Basic Financial Analysis (Review and update) | Power Point | Finance |
| 58 | Simple PDAM Financial Model Manual | Paper/Excel file | Finance |
| 59 | Quiz for 7 th Session | Paper/Excel file | Finance |
| 60 | Financial Analysis for Project | Power Point | Finance |
| 61 | Financial Analysis Model for Project | Excel file | Finance |
| 62 | Financial Situation and Development of PDAM Maros (Presentation Material for Bupati of Maros) | Power Point | Finance |
| 63 | Financial Situation and Development of PDAM Gowa (Presentation Material for Vice Bupati of Gowa) | Power Point | Finance |
| 64 | Financial Situation and Development of PDAM Makassar (Presentation Material for Mayer of Makassar) | Power Point | Finance |
| 65 | Organization of Water Supply Enterprise – 2 | Power Point | Management |
| 66 | Management Analysis of Water Supply Enterprise | Power Point | Management |
| 67 | Case Study of Phnom Penh Water Supply Authority (PPWSA) | Power Point | Management |
| 68 | Water Supply Handbook of Tokyo Waterworks Bureau, Part 1 | Power Point | Customer relations |
| 69 | Water Supply Handbook of Tokyo Waterworks Bureau, Part 2 | Power Point | Customer relations |
| 70 | Workshop 2 Arrear Action Experiments | Power Point | Bill collection |
| 71 | Arrear Management Handbook of PDAM in Japan | Power Point | Bill collection |
| 72 | Arrear Management Handbook of PDAM in Japan – 2 | Power Point | Bill collection |
| 73 | Regarding the Approved Cancellation | Power Point | Bill collection |
| 74 | Workshops material (Arrears action) Gowa PDAM | Excel file | Bill collection |
| 75 | Workshops material (Arrears action) Maros PDAM | Excel file | Bill collection |
| 76 | Workshops material (Arrears action) Takalar PDAM | Excel file | Bill collection |
| 77 | Paper format 2 (to raise the staff incentive for arrear action) | Word file | Bill collection |
| 78 | Paper format 5 (to raise the staff incentive for arrear action) | Word file | Bill collection |
| 79 | Workshop 4 Let's consider the convenience of tariff payment | Power Point | Customer relations / Bill collection |
| 80 | Workshop 5 Analyze the results and consider how to improve and extend the Arrear Action Experiment | Power Point | Bill collection |
| 81 | Evaluation Arrear Gowa | Excel file | Bill collection |
| 82 | Evaluation Arrear Maros | Excel file | Bill collection |
| 83 | Evaluation Arrear Takalar | Excel file | Bill collection |
| 84 | Customer service (Ritz-Carlton Hotel) | Power Point | Customer service |
| 85 | Customer service 2 (Credo of Ritz-Carlton Hotel) | Power Point | Customer service |
| 86 | Paper format 6 (for staff incentive for 2 nd arrear action) | Word file | Bill collection |
| 87 | Paper format 7 (for staff incentive for 2 nd arrear action) | Word file | Bill collection |
| 88 | Continual Management Improvement | Power Point | Management |

2.2.3 Ideas, Lessons Learned, and Recommendations

Activity 2-1: Monitoring and Development of Business Plan

JET found that the business plan financial models which were provide by the central government to each PDAM were too complicate for the staff of PDAM and no one in the PDAMs fully understand the contents of the financial model. If it is not simple enough for the staffs of PDAM, those business plans financial models cannot be utilized in the daily activity.

JET recommends that the central government provides more simple business plan financial models than current one. JET, together with the staffs of output 2 of 4 PDAMs, developed a simple financial model to project future financial conditions of PDAMs. This financial model might be one of the examples of simple financial modeling which can be utilized in their daily activities.

Monitoring of business plan is also very important to achieve the goals targeted in the business plan. Also, the format of business plan monitoring should be simple enough for the staffs of

PDAM to be utilized in the daily activities. However, there is no common guideline or format of business plan monitoring in nationwide.

JET recommends that the central government provide a guideline or format of business plan monitoring so that each PDAM can easily monitor their business plan and also the central government can easily understand if each PDAM follow the business plans. JET provided a simple business plan monitoring format and it can be one of the example for monitoring format, especially for the small or medium scale PDAMs.

Activity 2-2: Prepare a practical water tariff setting manual

“Technical Guidance” of water tariff calculation stipulated that the NRW is set to be 20% when the costs of water are calculated. However, the actual NRW in the area is much higher than 20%. If 20% is used as NRW when water tariff is calculated, the level of water tariff becomes lower than it supposes to be. This number should be reconsidered.

The calculation methods stipulated in “Technical Guidance” seems to be complicated; however, once the formulas based on the guidance are inputted in excel sheet, it is very easy to calculate water tariffs. JET provided excel format based on the “Technical Guidance” and the tariffs can be automatically calculated by imputing the existing date of PDAM into the format.

This excel format can be utilized in other PDAMs where they are having difficulty to calculate water tariff based on “Technical Guidance”.

Activity 2-3: Conduct OJT on improvement of billing and collection efficiency

Regarding the improvement of billing and collection efficiency, JET conducted lectures and discussions to find the problems and relevant solutions at first. Then, JET recommended for counterparts to do the pilot project. In this pilot project, JET planned that PDAM's counterparts select the pilot area, make the arrears' list, and implement the intensive activities to chase the arrears to do the payments.

JET considered that it is important to decide the implementation based on the discussion and consensus by all counterparts to bear initiative by them. Through the discussions, it was found that PDAM Makassar had already conducted this kind of activities. The other 3 PDAMs (Gowa, Maros, and Takalar) basically agreed to do the pilot project. Therefore, the pilot project, named Arrears Actions Experiment, was decided to be implemented by the counterparts of these 3 PDAMs.

The JET prepared the necessary materials for the arrears actions experiments, including the checklist of arrears, monitoring sheet, and the roles & responsibilities of the members of the arrears actions team. These materials were revised many times based on the discussions among the participants and advice from the JET.

Counterparts filled out the checklists of arrears with the help from the JET. One of the lessons from the arrear action experiment is that through making the checklist of arrears, JET found the actual arrears' conditions in detail. For example, there are not a few long term arrears of 12 months or longer and even some longer than 24 months.

It took a lot of time to decide and to prepare for the arrears actions experiments. But once decisions were made, the staff acted quickly with listing the arrears, sending out notices and conducting the visits, even before the JET officially announced the start of experiment. The other lesson is that the quick actions were directly related to the fact that the PDAM staff

understood the objectives of the experiments and were therefore very committed to the initiative. This positive attitude was sustained after completion of the 1st arrears actions experiment and carried over to the start of the 2nd arrears actions. It took a short time to select the areas for 2nd arrears actions or the areas might have already selected when they were asked by the JET.

By listing the arrears every month and monitoring the arrears collection actions and outcomes, staff can clearly see the effects of their actions for the first time. This information includes the number of long term arrears, number of disconnections, number of arrears paid after the actions were taken, and the amount of payments from targeted arrears. The staff can be really motivated in continuing these efforts when they are able to relate their actions to the progress made.

One of the other lessons is that PDAM staffs' mind to do the disconnection (or stopping water) against long term arrear has changed positively through the arrears actions experiment. Before the experiments, PDAM staff expected that disconnections would not be easy to implement. Several disconnections made during the 2 experiments (see **Table 2.2-21**) did not turn out to be as problematic as envisioned. As a result staff attitude towards taking this action for long term arrears became more positive.

Table 2.2-21 Number of disconnections in 1st & 2nd arrears actions experiments

| | PDAM Gowa | PDAM Maros | PDAM Takalar |
|---|-----------|------------|--------------|
| No. of disconnection in 1 st & 2 nd arrears actions experiments | 14 | 4 | 19 |

Source: member of arrears actions team of 3 PDAMs

The PR papers prepared for employee information created positive impact on morale and provided motivation. Arrears actions teams from each PDAM prepared PR papers to inform their colleagues of the experiments. The papers were prepared very promptly, showing the photographs of the arrears actions teams and their accomplishments. Posters of the papers were displayed on office walls and presentations of the papers were made at the Monthly Progress Meetings by each PDAM. Chasing arrears is troublesome and is seldom viewed as a rewarding task. The PR paper exercise raises the awareness of the necessity for this activity and motivates staff to commit to taking the actions.



PR paper in PDAM Gowa



PR paper in PDAM Maros



PR paper in PDAM Takalar

One of the recommendations is to keep the number of arrears the teams would work on at the same time to a manageable number. If they set targeted arrears so many as 100 arrears at once, sending letters, visiting arrears, and making the checklist of arrears every month shall be too heavy workloads to continue without difficulties. Targeted arrears at around 20 – 25 may be the optimum number.

The management of PDAM may wish to consider incentive schemes to reward performance and ensure continued staff commitment to the initiative. In this project, JET supported to make PR papers but it will not be the persistent incentives. For example, monetary incentive in case the

staff achieves the improvement of collection rate should be considered.

Activity 2-4: Conduct OJT on simulating new investment cost recovery

In order to understand the financial model to simulate new investment cost recovery, the staffs of PDAM should have a basic accounting knowledge and skills. Since some of the staffs did not have a background of accounting, JET provided basic accounting training as well. JET recommends that the training of basic accounting for the staffs in PDAM should be provided before introducing complicated business plan financial model into PDAMs.

Also, it is very important to have basic computer knowledge to conduct financial simulation. The computers which JICA provided were very effective to improve the financial analysis skills as well as computer skills.

Activity 2-5: Conduct workshop / seminars on the necessity of cost recovery and financial sustainability for the concerned authorities and stakeholders

Bupati of kabupaten and Mayor of kota are the decision maker of water tariff setting; therefore, it is indispensable to have a workshop/seminar for them to understand the importance of tariff raise.

Activity 2-6: Conduct OJT regarding enhancing customer satisfaction to PDAM staffs

The training mainly consisted of lectures by the JET and discussions to identify the problems and work through possible solutions. Presentations were made on the topics shown in **Table 2.2-12**. The number of trainees was small and the time was also limited, therefore, no pilot project was conducted in this activity.

Trainees from all 4 PDAMs were asked to prepare PR papers to inform the public of the Project, using the formats provided by the JET. As a result, all 4 PDAMs completed the PR papers and addressed them publicly. At Makassar folded color copies of the PR paper were available to the public at the entrance of the PDAM.

One of the lessons is that counterparts of PDAM staff are capable of preparing the PR papers, if they are organized and given sufficient time and budget. Therefore, the JET effort focused on lectures to improve interaction with the customers at the office, on the telephone, and in the field. The trainees understood the materials and are using what they learned to a certain extent.

One of the other lessons is that adopting alternative methods of tariff payment may not be acceptable to all PDAMs. JET recommended payment at post office, or private bank, to improve customer access. PDAM Makassar already implemented payment at private banks in 2011. The other 3 PDAMs felt that the total number of customers is still not large enough to merit adopting alternative payment methods. The customer's monthly water bill changes depending on the water consumption volume. The establishment of an on-line computer network system is necessary in order to increase the number of locations where customers can pay tariffs. This is one of the constraints hindering the implementation of alternatives for tariff payment.

In the near future, as the number of customers increases, it is recommended that PDAMs plan and implement alternative methods of tariff payment to improve customer access.

It is also recommended that PDAMs conduct customer service training for their own staff on a regular basis with internal monitoring, utilizing the JET presentations.

2.3 Output 3: NRW Reduction

2.3.1 Major Activities

(1) Outputs from the Entire Period's Activities

Table 2.3-1 shows the outputs for the entire period (through the end of February 2012).

Table 2.3-1 Outputs for the Period

| No. | Activity | Activities Conducted (from October 2009 to March 2012) |
|-----|---|--|
| 3-1 | Organize NRW reduction committee including representatives from the financial section in each PDAM. | <p>At the beginning of the project implementation, NRW Reduction committee was organized, which composed of many candidates including Technical Director, O&M Engineer, Pipeline Engineer, Plumber, GIS operator, Financial Manager, Customer Division and Leader of Meter Reader.</p> <p>A total of 61 members, organizing 19 staff in PDAM Makassar, 11 staff in PDAM Maros, 9 staff in PDAM Gowa, 22 staff in PDAM Takalar were nominated.</p> |
| 3-2 | Install master meters and measure accurate NRW ratio. | <p>Before the project implementation, the NRW ratio was calculated based on the production capacity such as W. T. P capacity, which was only on estimated value.</p> <p>All PDAMs finished installing master meters provided by JICA at the outlet in all WTP in cooperation with JET by the end of May 2010, and PDAM Gowa installed their master meters in September of 2010. Since then, each PDAM has continued to monitor flow volume and to record results into the master metering sheet on a weekly basis. JET has supported master metering to measure accurately system input into each PDAM. JICA provided 9 Master Meters and distributed it as follows;</p> <ol style="list-style-type: none"> 1) PDAM Makassar <ul style="list-style-type: none"> -Maccini Sombala WTP (φ300) x1, -Ratulangi WTP (φ75) x1 2) PDAM Maros <ul style="list-style-type: none"> -Patontongan WTP (φ300) x1, -Bantimulung WTP (φ250) x1 3) PDAM Gowa <ul style="list-style-type: none"> -Malino Panbola Spring Tank (φ150) x1, (φ100) x1, -Malino Pate'ne Spring Tank (φ150) x2, -Tompo Balang WTP (φ200) x1 <p>(Note: PDAM Takalar prepared master meter by itself.)</p> <p>JET evaluated that this activity enabled each PDAM to understand the latest NRW levels from the comparison of the flow volume between system input and customer consumption.</p> <p>Currently, master meter monitoring with recordings on formatted sheets has been appropriately measured by each PDAM.</p> |
| 3-3 | Conduct OJT regarding leak detection skills and techniques. | <p>Through NRW reduction activities, JET transferred essential technology to NRW Reduction Committee. This essential technology was classified into two prominent techniques: <u>1) Equipment Training in the field</u> to understand how to operate it, <u>2) NRW Achievement Test</u> to check and confirm the skills or achievements relating to NRW countermeasures for members of the NRW Reduction Committee.</p> <ol style="list-style-type: none"> 1) Equipment Training for Leak Detection <ul style="list-style-type: none"> In the course of NRW reduction activities in the pilot district, JET taught essential technology to NRW reduction committee through OJT which were composed of the following items; <ul style="list-style-type: none"> - District Metering - Flow Monitoring (Setting of Ultra-Sonic Flow Meter) |

| | | <ul style="list-style-type: none"> - 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) <p>2) NRW Achievement Test</p> <p>NRW Achievement Test was conducted to check the achievement level of the NRW Reduction Committee in Somba-Opu Water Treatment Plant. After that, all the members of their counterparts were classified into three ranks, Advance, Intermediate, and Basic Level based on the result of the test.</p> <p>Main purposes of the test were as follows;</p> <ul style="list-style-type: none"> - Measuring the level of understanding the NRW countermeasures - Confirming a numerical capacity of the NRW ratio - Understanding the importance on NRW countermeasure in PDAM - Identifying Meter reading - Understanding how to formulate NRW countermeasures <p>The tests were composed of (1) Paper Test and (2) Field Test. The contents were as follows;</p> <p>(1) Paper Test</p> <ul style="list-style-type: none"> - Identification of equipment for leakage survey and its objective - Calculation of NRW ratio - Importance of NRW countermeasure and understanding of the definition of NRW - Customer metering and reading of pressure gauges - Identifying of the MNF (Minimum Night Flow) - Sequence of the NRW countermeasures <p>(2) Field Test</p> <ul style="list-style-type: none"> - Leak Localizing - Leak Detection - Valve Locating - Pipe locating - Setting of UFM(Ultra Sonic Flow Meter) - Setting of Pressure meter | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|---|--|------|----------------|----------------|----------|---|------|------------------------------------|------|-------|---------------------------|------|-----------------------------------|------|------|---|------|---|------|-----------------|---|------|--|------|
| 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 by a contracted company and was completed by the beginning of June in 2010. As a result, detailed leakage conditions were identified, and information related to water meters and personal property of all customers. | | | | | | | | | | | | | | | | | | | | | | | |
| 3-5 | Set a target for NRW ratio for the next year and prepare annual implementation plan. | <p>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.</p> <p>Table 2.3-2 shows the pilot district selected by Project.</p> <p>Table 2.3-2 Pilot District selected by the project</p> <table border="1"> <thead> <tr> <th>PDAM</th> <th>Pilot District</th> <th>Conducted Year</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Makassar</td> <td>1st: Taman Khayangan (GMTDC)</td> <td>2010</td> </tr> <tr> <td>2nd: DMA HARTCO INDAH</td> <td>2011</td> </tr> <tr> <td rowspan="2">Maros</td> <td>1st: Tumalia</td> <td>2010</td> </tr> <tr> <td>2nd: Perum. H. Banca</td> <td>2011</td> </tr> <tr> <td rowspan="2">Gowa</td> <td>1st: BTN Andi Tonro Permai</td> <td>2010</td> </tr> <tr> <td>2nd: PERUMAHAN PELITA ASRI</td> <td>2011</td> </tr> <tr> <td rowspan="2">Takalar Takalar</td> <td>1st: Jl. Ranggong (BombongIndah)</td> <td>2010</td> </tr> <tr> <td>2nd: Btn Sompu Raya & Btn Balindah Jl. St. Hasanuddin</td> <td>2011</td> </tr> </tbody> </table> | PDAM | Pilot District | Conducted Year | Makassar | 1 st : Taman Khayangan (GMTDC) | 2010 | 2 nd : DMA HARTCO INDAH | 2011 | Maros | 1 st : Tumalia | 2010 | 2 nd : Perum. H. Banca | 2011 | Gowa | 1 st : BTN Andi Tonro Permai | 2010 | 2 nd : PERUMAHAN PELITA ASRI | 2011 | Takalar Takalar | 1 st : Jl. Ranggong (BombongIndah) | 2010 | 2 nd : Btn Sompu Raya & Btn Balindah Jl. St. Hasanuddin | 2011 |
| PDAM | Pilot District | Conducted Year | | | | | | | | | | | | | | | | | | | | | | | |
| Makassar | 1 st : Taman Khayangan (GMTDC) | 2010 | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 nd : DMA HARTCO INDAH | 2011 | | | | | | | | | | | | | | | | | | | | | | | |
| Maros | 1 st : Tumalia | 2010 | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 nd : Perum. H. Banca | 2011 | | | | | | | | | | | | | | | | | | | | | | | |
| Gowa | 1 st : BTN Andi Tonro Permai | 2010 | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 nd : PERUMAHAN PELITA ASRI | 2011 | | | | | | | | | | | | | | | | | | | | | | | |
| Takalar Takalar | 1 st : Jl. Ranggong (BombongIndah) | 2010 | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 nd : Btn Sompu Raya & Btn Balindah Jl. St. Hasanuddin | 2011 | | | | | | | | | | | | | | | | | | | | | | | |

| | | |
|-----|---|---|
| 3-6 | Implement NRW reduction works as planned. | <p>All PDAMs implemented NRW reduction activities in accordance with its plan such as DMA set-up, leakage survey, leak repairs, customer meter replacement and public awareness campaign for the duration of the project. The activities of the pilot district, JET transferred essential technology to NRW reduction committee about important countermeasures which were composed of the following two items:</p> <ol style="list-style-type: none"> 1) Leakage Survey to understand the supply condition and leak detection <ul style="list-style-type: none"> - 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 <p>In the series of NRW reduction activities, Night leakage surveys were conducted twice a year. These survey contained the following activities:</p> <ul style="list-style-type: none"> - 1st Night survey was conducted to find new surface leakage or underground leakage under the guidance of JET in the pilot districts. - 2nd Night survey in leak detection was conducted to reconfirm leak repairs under supervision of JET in the pilot districts. (See Table 2.3-3) <ol style="list-style-type: none"> 2) Public Awareness Campaign <p>Besides, some causes of NRW problems are considered to be from illegal use or vandalized meters. These water usages are defined by the IWA as “Apparent Loss”. Public awareness campaign on NRW countermeasures play an important role to have an indirect effect as a effective tool for apparent loss. Therefore JET conducted student’s workshop and poster contest for 4th grade through the 6th grade in elementary schools near the Pilot District neighborhood.</p> |
| 3-7 | Monitor the results and feedback on setting NRW ratio target and preparation of annual implementation plan for the next year. | <p>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.</p> <p>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</p> <p>Also, in order to give feedback smoothly to NRW implementation plan, the following agendas were take into consideration :</p> <ol style="list-style-type: none"> 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 formulation of NRW implementation plan was fed back into the NRW reduction plan for 2011 <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> |

Details from **Table 2.3-1** are as follows.

Activity 3-1: Organize NRW reduction committee including representatives from the financial section in each PDAM

Upon commencement of this project, JET finished organizing the “NRW Reduction Committee” in November 2009. The NRW committee was organized based on the following needs or reasons.

- The existing departments relating to NRW countermeasures needed to be strengthened.
- The conceptual formation of the key groups and their roles for NRW countermeasures wasn’t clearly defined.

The job description for NRW reduction committee in each PDAM is shown in **Table 2.3-4**. In this structure, a number of counterparts in O&M Dept., Distribution Dept., Customer Dept., and Financial Dept., in each PDAM has been designated as the key group for NRW reduction. Furthermore, the job descriptions for each member were defined in order to make clear the responsibility. Consequently, through the actual NRW reduction activities in the pilot areas, the relationship of the communication has been strengthened in the four departments within the PDAMs.

Table 2.3-3 shows the Job Description for NRW reduction Committee.








Table 2.3-3 Job Description for NRW reduction Committee


| No | Position | Role/Responsibilities |
|----|---------------------------------------|---|
| 1 | Team Leader/NRW Management | <ul style="list-style-type: none"> ➤ Formulation of NRW reduction plan ➤ Data analysis & evaluation ➤ Master Metering ➤ Public Awareness campaign |
| 2 | Leak Detection1 | <ul style="list-style-type: none"> ➤ Detection of leakage, Meter replacement ➤ Rectification of illegal connection |
| 3 | Leak Detection2 | <ul style="list-style-type: none"> ➤ Detection of leakage ➤ Supporting of Leak detection1 |
| 4 | Data Collection/Map | <ul style="list-style-type: none"> ➤ Recording of NRW information, |
| 5 | Water Balance/ Water Supply | <ul style="list-style-type: none"> ➤ Control of Water supply, pressure management, Hydraulic network Analysis |
| 6 | Design/Construction/Cost Estimation | <ul style="list-style-type: none"> ➤ Chamber construction, Pipeline replacement, ➤ Calculation of Budget allocation |
| 7 | Customer Information/Meter Reading | <ul style="list-style-type: none"> ➤ Customer Survey, Illegal connection survey, ➤ Updating of Billing system information ➤ Public Awareness campaign |
| 8 | Relation between NRW & GIS & Customer | <ul style="list-style-type: none"> ➤ Communication to Department relating to NRW |

Activity 3-2: Installation of Master Meter

Installation for Master Meters to measure system input was completed at the end of September of 2010. After that, each PDAM started monitoring the master metering. The installation conditions of master meters are shown in the site photos below in **Table 2.3-4**;

Table 2.3-4 Location of Master Meter in respective PDAM

| PDAM | Location / size / number | Site Photo(After Installation) |
|----------|---|---|
| Makassar | 1) Maccini Sombala W. T. P (φ300) x1 2) Ratulangi W. T. P (φ75) x1 |   |
| Maros | (3) Patontongan W. T. P (φ300) x1 (4) Bantimurung W. T. P (φ250) x1 |   |
| Gowa | (5) Malino Panbola Spring Tank (φ150) x1, (φ100) x1 (6) Malino Pate'ne Spring Tank (φ150) x2 |   (φ150) x1, (φ100) x1  (φ150) x1, (φ150) x1 |

| | | |
|---------|---|--|
| | (7) Tompo Balang W. T. P (φ200) x 1 |  |
| Takalar | Prepared by PDAM itself | - |
| Total | 9 Master Meters : (φ300) x 2 (φ250) x 1 (φ200) x 1 (φ150) x 3 (φ100) x 1 (φ 75) x 1 | |

Activity 3-3: Conduct OJT regarding leak detection skills and techniques.

Prior to the NRW countermeasures in the pilot district, OJT (On the job training) relating to leak equipment was carried out in the form of lectures and, discussions. The lectures were given in English and translated into Indonesian voluntarily by our staff. The contents of the lectures were as follows:

- Definition of NRW
- NRW countermeasures
- Design of Districts Meter Area (DMAs)
- Flow and pressure monitoring including MNF (Minimum Night Flow)
- Leak Detection Activities
- Leak Repair and Customer Meter Replacement
- Utilization to GIS information (Geographic Information System)
- Public Awareness campaign

In the mean time, the selection of a pilot district for planning and implementing NRW countermeasure was also conducted for each PDAM by JET and NRW reduction committee. The selected Pilot district was established to implement NRW countermeasures in 2010 and 2011 respectively as mentioned above (**Table 2.3-4**).

Activity 3-4: Survey a number of households and house connections as well as existing NRW conditions including illegal connections, and analyze water balance

“Customer survey and illegal connection investigation (Hereinafter referred to as “survey”) was started on 20 March 2010 in Kota Makassar and Kabupaten Takalar, and on 1 April 2010 in Kabupaten Gowa and Kabupaten Maros. During the survey implementation, the PDAM customer database was completed from the result of the survey for all the customers of kota/kabupaten.

The survey was targeted for 193,917 customers in Mamminasata Metropolitan Area (See the **Table 2.3-5**).

Table 2.3-5 PDAMs' Total Customers during March to April 2010

| Assignment Area | Active | Non Active or Disconnected customers | Total Customers during March to April 2010 | Remark Surveyed Month |
|-----------------|---------|--------------------------------------|--|-----------------------|
| Makassar | 147,235 | 14,895 | 162,130 | March |
| Maros | 8,991 | 507 | 9,498 | April |
| Gowa | 14,269 | 2,932 | 17,201 | April |
| Takalar | 4,349 | 739 | 5,088 | March |
| Total | 174,844 | 19,073 | 193,917 | |

* PDAM's existing data on date survey

Total surveyed customers were 167,250 of which 19,073 customers were not surveyed because they have disconnected their connections with PDAM, and 7,594 could not be surveyed or PDAMs' meter readers did not visit the customers (See the **Table 2.3-6**).

Table 2.3-6 Total Already Surveyed Customers

| Assignment Area | Total record of field Surveyed Customers | Not Active or Disconnected customers | Could not be Surveyed | Total Customers in March to April 2010 | Percentage of Survey Results |
|-----------------|--|--------------------------------------|-----------------------|--|------------------------------|
| Formula | (A) | (B) | (C) | (D) | (A+B+C) / (D) |
| Makassar | 142,115 | 14,895 | 5,120 | 162,130 | 100 % |
| Maros | 8,991 | 507 | 0 | 9,498 | 100 % |
| Gowa | 11,795 | 2,932 | 2,474 | 17,201 | 100 % |
| Takalar | 4,349 | 739 | 0 | 5,088 | 100 % |
| Total | 167,250 | 19,073 | 7,594 | 193,917 | 100 % |

Details of all customers from surveyed areas can be seen in "Survey's Report" in all District / City.

Activity 3-5: Set a target for NRW ratio for the next year and prepare annual implementation plan

Before the launch of the NRW reduction activities in the Pilot District, NRW reduction committee themselves tackled to formulate the NRW implementation plan with support from JET. The NRW implementation plan has an important role for NRW reduction strategies of PDAM.

In order to carry out NRW countermeasures effectively in the Pilot Districts, it is necessary to develop strategies to build up the systematic NRW activities, which consist of budget preparation, procurement of customer meters, development of GIS database, and DMA set-up. The effort of these processes for this strategy was to promote the strengthening of comprehensive capacities of the NRW reduction committee toward NRW reduction

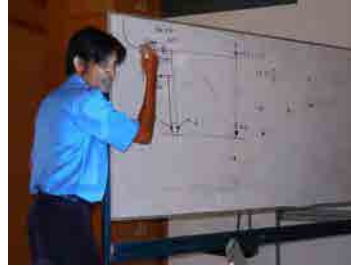
Conclusively, members of the NRW Reduction Committee were able to lay out the framework of NRW implementation plan with set target in each Pilot District of PDAM.

The framework of the plan in PDAM was contained in the following plan. (See **Table 2.3-8 Framework of NRW Implementation Plan for all PDAMs**)

The following pictures show the meeting scenes of NRW reduction committee.



Activity1. Meeting1



Activity2. Meeting 2

The detailed of the plan are shown in Training Material of **Table 2.3-7**.

Table 2.3-7 Framework of NRW Implementation Plan in 2010 and 2011 for All PDAMs

| Main Items in NRW Implementation Plan in existing Pilot District (DMA) | |
|--|---|
| | *District Meter Area |
| 1. | Member of NRW Reduction Committee: Member List |
| 2. | Name of Pilot District: |
| 3. | Objective in NRW countermeasure and its Target |
| 4. | Profile of Pilot District <ol style="list-style-type: none"> 1) Outline: Overall Condition (Configuration, Contour, Road, Public Safety, and so on...) 2) Present NRW ratio in Water Balance Survey 3) The reason for selection of pilot district |
| 5. | Supply Condition <ol style="list-style-type: none"> 1) Number of served population in GIS 2) Number of house connection in GIS 3) Inlet & Outlet Information 4) Total length of pipeline in DMA 5) Supply Source: Name of W. T. P 6) Supply Method: Gravity or Pumping 7) Result from the conducted Leakage Survey |
| 6. | GIS Arrangement <ol style="list-style-type: none"> 1) Overall view 2) Setting Layer in Check List |
| 7. | NRW Information <ol style="list-style-type: none"> 1) Refer to Monthly Progress Sheet 2) Customer Meter Replacement (Before 2005, Meter malfunction) 3) Number of Leak Repair |
| 8. | Cost Estimation |
| 9. | Public Awareness campaign <ol style="list-style-type: none"> 1) Objective: How important water cycle is 2) Name of school: SD Negri Percontohan PDAM 3) Name of School Director: Bahtiar 4) Target Grade t:4th – 6th Grade Students 5) Number of Student:4th – 6th Grade Students are 60 students 6) Presentation Method |
| 10. | Schedule on NRW Implementation Plan <ol style="list-style-type: none"> 1) Refer to Schedule for NRW Implementation Plan 2) Construction Management Plan |

Activity 3-6: Implement NRW reduction works as planned plan

1) NRW Reduction Activities in PDAM

After the preparation of the NRW implementation plan, NRW reduction activities by NRW Reduction Committee launched for the first pilot district in 2010 and the second pilot district in 2011 as scheduled in the plan with support of JET.

The most important aspect of any NRW reduction strategy is to set the NRW reduction target. Therefore, NRW reduction committee with JET had to investigate to establish the baseline for NRW conditions and to scrutinize the following sequence of NRW reduction activities (See **Table 2.3-8**).

Table 2.3-8 Sequence of NRW Reduction Activities in Pilot District

| | |
|-----|---|
| 1. | Selection of the Pilot District |
| 2. | Formulation of NRW Implementation Plan |
| 3. | Budget Allocation |
| 4. | Construction of Chamber & Set up Pilot District |
| 5. | Customer Survey for water balance survey |
| 6. | Preparation of GIS Arrangement to do leakage survey appropriately |
| 7. | Pressure Monitoring to understand supply condition |
| 8. | 1 st Water Balance Survey (To Measure NRW) to understand the present NRW level |
| 9. | Leakage Survey |
| 10. | Customer Meter Replacement |
| 11. | Leak Repair |
| 12. | 2 nd Water Balance Survey (To Measure NRW) to measure and evaluate NRW reduction |
| 13. | Leakage Survey for reconfirmation of leak repair |
| 14. | Public Awareness Campaign to notify PDAM activities in the pilot district neighborhood |
| 15. | District Metering, Analysis & Evaluation (Cost Benefit Analysis) |
| 16. | Completion of NRW Implementation Plan |
| 17. | Submit to President Director |

NRW Reduction committees of each PDAM challenged stepwise sequence for the first pilot district in 2010 and the second pilot district in 2011. For the first pilot district in 2010, JET gave constant support to all sequence steps to NRW reduction committee as mentioned above. However, for the second pilot in 2011, JET monitored their NRW reduction activities with encouragement of PDAM's initiative.

2) Public Awareness Campaign in PDAM

In the campaign, matching with project purposes, a workshop anchored by JET was held in an elementary school near the pilot district in each PDAM. The contents of the campaign were composed of 1) Workshop and 2) Poster contest. For the workshop, JET made a presentation about (1) Water Cycle, and (2) How to produce Water, from water resources to water treatment plants by focusing improvement of "Water Use". In particular, public relation material was provided by the Nagoya Water Works Bureau to help prepare for the workshop and poster contest for the elementary school students for this campaign.

After explanation of the workshop, 2) Poster Contest was conducted the 4th grade to 6th grade while focusing to appeal to PDAM customers. The nominated students for the poster contests were as follows (See the **Table 2.3-9**).

Table 2.3-9 Workshop & Poster Contest in Elementary School of each PDAM

| PDAM | No | Name of school | Target Grade | Number of participants | Date of Workshop |
|---------------|-----------------|--|--------------------------|------------------------|---------------------|
| PDAM Makassar | 1 st | SD Negri Percontohan PDAM | 4th – 6th Grade Students | 49 students | Feb-7, 2011 |
| | 2 nd | SDN. Mangkura 5 | 5th Grade Students | 25 Students | 26th October, 2011 |
| PDAM Maros | 1 st | SD No. 60 Inpres Perumnas Tumalia | 4th – 6th Grade Students | 60 students | Feb-2, 2011 |
| | 2 nd | SDN. No. 103 Inpres Hasanuddin SD. 178 Inpres Bontoa | 5th Grade Students | 59 Students | 8th November, 2011 |
| PDAM Gowa | 1 st | SD Inpres Bertingkat Sungguminasa | 4th – 6th Grade Students | 60 Students | Feb-10, 2011 |
| | 2 nd | SDN. Center Mangali | 5th Grade Students | 50 Students | 9th November, 2011 |
| PDAM Takalar | 1 st | SD No. 133 Inpres Pari'si ,Takalar | 4th – 6th Grade Students | 60 Students | Feb-17, 2011 |
| | 2 nd | SDN. No. 5 Ballo | 5th Grade Students | 47 Students | 10th November, 2011 |

Activity 3-7: Monitor the results and feedback on setting the target for NRW ratio and preparation of annual implementation plan for the next year: Activity3-7

Through a series of essential technology transfer including OJT planning and implementation of NRW countermeasures, the members of NRW reduction committee would have a lot of experience related to various NRW technologies with guidance from JET. From the result of these efforts, the target for each pilot district was successfully achieved as shown in **Table 2.3-10**.

Table 2.3-10 Results of the First and Second Leakage Surveys in Pilot District: NRW Ratio (%) in 2010 and 2011

| PDAM | No | Pilot District | Baseline: Present Level NRW ratio (%) | Reduction Target or Goal (%) | NRW Level Achieved (%) | Budget for Pilot District (Rp) |
|----------|-------------------|--|---------------------------------------|------------------------------|-------------------------|--------------------------------|
| Makassar | 1 st : | Taman Khayangan (GMTDC) | 11. 16 | - 5% | 3. 53 (- 7. 63) | Rp. 4,976,116 |
| | 2 nd : | HARTCO INDAH Residence | 28. 40 | - 5% | 12. 72 (-15. 68) | Rp. 188,733,000 |
| Maros | 1 st | Tumalia | 50. 28 | -20% | 31. 95 (-18. 53) | Rp. 157,785,600 |
| | 2 nd : | Perum. H. Banca | 61. 10 | -20% | 26. 6 (-34. 5) | Rp. 106,222,000 |
| Gowa | 1 st : | BTN Andi Tonro Permai | 13. 75 | - 5% | 1. 74 (-12. 01) | Rp. 2,3,992,000 |
| | 2 nd | PERUMAHAN PELITA ASRI | 35. 91 | - 5% | 14. 03 (-21. 88) | Rp. 24,400,000 |
| Takalar | 1 st | Jl. Ranggong (BombongIndah) | 9. 80 | - 3% | 3. 75 (-6. 05) | Rp. 6,633,000 |
| | 2 nd | Btn Sompu Raya & Btn Balindah Jl. St. Hasanuddin | 23. 22 | - 5% | 2. 48 (-20. 74) | Rp. 8,142,000 |

“These results were owing to not only skill-up for individual capabilities of the members but also formation of solidarity or partnership among the members” In the future, JET expects that these comprehensive capacities of PDAM would lead to the horizontal development for other pilot districts.

In witness of future motivation PDAM, NRW reduction committee itself proposed the following

Table 2.3-13 Target Group (PDAM Makassar)

| No. | Member | | |
|-----|---------------------------|-------------------------------------|--------------|
| | (Name) | Position | Level |
| 1 | Ir. Ahsan, MT. | Team Leader/NRW Management | Advance |
| 2 | Bahi, SE. | Leak Detection | Basic |
| 3 | Bintang Musfar | Leak Detection | Advance |
| 4 | H. Morra, ST. | Leak Detection | Intermediate |
| 5 | A. Ichsan Mappanyuki | Leak Detection | Advance |
| 6 | Drs. Asis Machmud | Leak Detection | Basic |
| 7 | Ihdar S. ST | Data Collection/ Map | Advance |
| 8 | Amrin A. Yunus | Data Collection/ Map | Intermediate |
| 9 | Arifuddin T. | Water Balance/Water supply | Basic |
| 10 | Muh. Ansar | Design/Construction/Cost Estimation | Basic |
| 11 | Wahidin S, ST | Design/Construction/Cost Estimation | Advance |
| 12 | Idris Kaya | Leak Detection & Leak Repair | Intermediate |
| 13 | Adam Ahmad, SE. | Customer Information/Meter Reading | Advance |
| 14 | Berthina Nari Toding, ST. | Relation between NRW & GIS | Intermediate |
| 15 | Rimbawan T. | Relation between NRW & GIS | Basic |
| 16 | Indrayadi | Relation between NRW & GIS | Basic |
| 17 | M. Yusuf Mone | Leak Detection & Leak Repair | Basic |
| 18 | Rahim | Leak Detection & Leak Repair | Basic |
| 19 | Ramli Nurung | Leak Detection & Leak Repair | Basic |
| 20 | Muh. Fajry | Leak Detection & Leak Repair | Basic |
| 21 | Maggila | Leak Detection & Leak Repair | Basic |
| 22 | Abd. Samad, S.ST | Leak Detection & Leak Repair | Intermediate |
| 23 | Abd. Haris Sikir | Leak Detection & Leak Repair | Basic |
| 24 | Andy Setiadi Y. | Leak Detection & Leak Repair | Basic |
| 25 | Syahrullah H | Leak Detection & Leak Repair | Basic |
| 26 | H.Syarifuddin Mangka | Leak Detection & Leak Repair | Attendance |
| 27 | Idris Jarre | Leak Detection & Leak Repair | Attendance |
| 28 | Arifuddin Chalid | Leak Detection & Leak Repair | Basic |

Table 2.3-14 Target Group (PDAM Maros)

| No. | Member | | |
|-----|--------------------|-------------------------------------|------------|
| | (Name) | Position | Level |
| 1 | Abd. Rakhman S.Sos | Team Leader/NRW Management | Advance |
| 2 | Muh. Asri | Leak Detection 1 | Attendance |
| 3 | Ruslan Usman, SE. | Leak Detection 2 | Basic |
| 4 | Hendra Rustam | Data Collection/ Map | Advance |
| 5 | Syarifuddin | Water Balance/Water supply | Basic |
| 6 | Muhajir | Design/Construction/Cost Estimation | Advance |
| 7 | Abdul Rajab | Leak Detection & Leak Repair | Advance |
| 8 | Rachmad | Leak Detection & Leak Repair | Basic |
| 9 | A.Muh. Said | Leak Detection & Leak Repair | Basic |
| 10 | Muh. Jumhar Nur | Leak Detection & Leak Repair | Basic |
| 11 | Faharuddin | Leak Detection & Leak Repair | Attendance |
| 12 | Sarifuddin | Leak Detection & Leak Repair | Attendance |
| 13 | A. Agus Salim | Leak Detection & Leak Repair | Basic |

Table 2.3-15 Target Group (PDAM Gowa)

| No. | Member | | |
|-----|------------------------|-------------------------------------|--------------|
| | (Name) | Position | Level |
| 1 | Duli L. Patta, S.Sos | Team Leader/NRW Management | Basic |
| 2 | Mustajab | Leak Detection 1 | Basic |
| 3 | Abd. Wahid | Leak Detection 2 | Intermediate |
| 4 | Anwar | Leak Detection 3 | Basic |
| 5 | Hasbullah | Leak Detection 4 | Basic |
| 6 | Untung Firdaus | Data Collection/ Map | Advance |
| 8 | Abd.Malik Abbas, S.Sos | Design/Construction/Cost Estimation | Advance |
| 9 | Nur Alam M., A.Md | Design/Construction/Cost Estimation | Advance |

| | | | |
|----|---------|-------------------------------------|---------|
| 10 | Junaedi | Customer Information/Meter Rreading | Advance |
|----|---------|-------------------------------------|---------|

Table 2.3-16 Target Group (PDAM Takalar)

| No. | Member | | |
|-----|--------------------|-------------------------------------|--------------|
| | (Name) | Position | |
| 1 | H. Zainuddin Naba | Team Leader/NRW Management | |
| 2 | Muh. Syafril | Leak Detection 1 | Basic |
| 3 | Mustapa | Leak Detection 1a | Basic |
| 4 | M. Arsyad | Leak Detection 1b | Basic |
| 5 | Sahabuddin | Leak Detection 2 | Intermediate |
| 6 | Muh. Basrah | Data Collection/Map | Basic |
| 7 | Ramlah | Data Collection/Map | Advance |
| 8 | Mu'minin | Water Balance/Water Supply | Basic |
| 9 | Syamsuar | Water Balance/Water Supply | Basic |
| 10 | Muh. Saleh | Water Balance/Water Supply | Basic |
| 11 | Achmad Gazali, SE. | Water Balance/Water Supply | Intermediate |
| 12 | Salmah | Water Balance/Water Supply | Intermediate |
| 13 | Muh. Syaiful | Design/Construction/Cost Estimation | Basic |
| 14 | Habibi | Customer Data Arrangement | Basic |
| 15 | Rahman | Leakage Survey | Basic |

(2) Project Indicators

Project Indicator was fixed in the project as shown in **Table 2.3-17** below.

Table 2.3-17 Project Indicator in Output 3

| Narrative Summary | Objectively Verifiable Indicators |
|--|--|
| 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 |

<3-1. Training material and number of trained staff>

1) Training Material

At the beginning of the stage in 2011, JET prepared the following items in **Table 2.3-14** about NRW countermeasures. Each training manual in Output 3, which was distributed from JET to our counterparts was explained in Indonesian to the members.

The list of manuals and training materials prepared and developed by this Project is shown in **Table 2.3-18**.

Table 2.3-18 Training Material in Output 3: NRW Reduction

| No | Items | Type of File | Prepared by |
|----|--|--------------------|---------------------------------------|
| 1 | NRW Implementation Plan 2010: plan A (Plan A: First Pilot District) | Word & power point | NRW Reduction Committee & JICA Expert |
| 2 | NRW Implementation Plan: plan B (Plan B: Customer Meter Replacement Plan) | Word & power point | NRW Reduction Committee & JICA Expert |
| 3 | NRW Implementation Plan 2011: plan C (Plan C: Second Pilot District) | Word & power point | NRW Reduction Committee & JICA Expert |
| 4 | NRW Implementation Plan 2012: plan D, E (Plan D: Third Pilot District-Future Plan) | Word & power point | NRW Reduction Committee & JICA Expert |
| 5 | EPANET2 (Hydraulic Network Analysis) | Software | JICA Expert |
| 6 | Record of Leakage Survey | Microsoft Access | JICA Expert |
| 7 | Database for Customer Meter Replacement | Microsoft | JICA Expert |

| | | | |
|---|--|-----------------|-------------|
| | | Access | |
| 8 | Data Management for Basic Engineer | Microsoft Excel | JICA Expert |
| 9 | Video for Operation of Equipment in Leak Detection | mpeg | JICA Expert |

2) Number of trained Staff

The PDAM Director nominated sixty one (61) members for the NRW reduction committee. During the project implementation, JET training was actively attended by NRW reduction committee members intermittently. Through this training, communication was strengthened between the members and JET.

The value of this training proved itself with improved communication ability when they had the hard work of doing night survey of the pilot districts to achieve results to reduce NRW. JET evaluated this task as important to solve the NRW problems. (See the **Table 2.3-19**).

Table 2.3-19 Number of trained staff

| | Makassar | Maros | Gowa | Takalar | Total |
|------|----------|-------|------|---------|-------|
| 2009 | 19 | 11 | 9 | 22 | 61 |
| 2010 | 19 | 11 | 9 | 22 | 61 |
| 2011 | 28 | 13 | 10 | 15 | 66 |

<3-2 Annual budget for NRW reduction is secured as planned in the implementation plan >

One year after project implementation, all PDAMs were able to secure the budgets for NRW reduction activities in the pilot district as planned before starting NRW countermeasures.

JET expects that each PDAM including PDAM Director would continue to secure the necessary budget for NRW reduction after termination of the project.

Conclusively these budgets prepared by each PDAM are shown in **Table 2.3-20**.

Table 2.3-20 Securing budget for Selected Pilot District

| PDAM | First Pilot in 2010 | Cost (RP) | Second Pilot in 2011 | Cost (RP) | Third Pilot in 2012 | Budget (RP) |
|----------|---------------------|---------------|---------------------------|-------------|-----------------------|-------------|
| Makassar | Taman Khayangan | 4,976,118. 18 | Hartaco Indah | 188,733,000 | 1. Minasa Upa | 20,000,000 |
| | | | | | 2. Pesona Prima Griya | 20,000,000 |
| Maros | Perumnas Tumalia | 157,785,600 | H. Bancha & Papan Lestari | 58,887,000 | Maros Regency | 17,111,000 |
| Gowa | Andi Tonro Permai | 21,992,000 | Pelita Asri | 12,200,000 | Graha Kalegowa | 17,500,000 |
| Takalar | Bombong Indah | 6,633,000 | Sompu Raya & Balindah | 8,142,200 | Bontomanai | 11,620,000 |

<3-3 Annual NRW ratio is reduced from the previous year > :Transition of NRW reduction (%)

To date, all PDAMs have monitored continuously the Master Meter in order to understand the present NRW levels from the comparison of “System Input” and “Revenue water”. This figure indicates that NRW ratio of all PDAMs have been gradually decreasing with some fluctuations

from the previous year as shown in Table 2.3-16 and Figure 2.3-1-2.

While NRW ratio in each PDAM have not yet achieved to address the NRW problems to an appropriate level. It is expected that necessary NRW countermeasures need to be taken and should be continued for NRW reduction into the future.

The level of NRW in each PDAM before 2009 to 2012, are shown in the **Table 2.3-21**. At present, NRW level as of 2011 is assessed at 22. 9%.

Table 2.3-21 Transition of NRW ratio (%) in each PDAM

| PDAM | 2009(Ave) | | | | | | | | | | | | |
|----------|------------|-------------|----------|----------|--------|---------|---------|-----------|--------------|------------|--------------------|--------------------|-----------|
| Makassar | 45.7 | | | | | | | | | | | | |
| Maros | 38.7 | | | | | | | | | | | | |
| Gowa | 24.5 | | | | | | | | | | | | |
| Takalar | 27.1 | | | | | | | | | | | | |
| PDAM | 2010 | | | | | | | | | | | | 2010(Ave) |
| | January'10 | February'10 | March'10 | April'10 | May'10 | June'10 | July'10 | August'10 | September'10 | October'10 | November'10 | Desember'10 | |
| Makassar | 47.9 | 47.3 | 48.8 | 49.3 | 48.5 | 46.3 | 48.6 | 48.5 | 45.1 | 47.0 | 47.6 | 51.0 | 48.0 |
| Maros | 38.0 | 37.5 | 46.7 | 45.2 | 43.6 | 43.3 | 42.6 | 41.4 | 34.4 | 40.5 | 39.6 | 45.1 | 41.6 |
| Gowa | | | | | | | | 46.2 | 46.8 | 41.4 | 37.6 | 40.3 | 42.8 |
| Takalar | | | | | 31.2 | 32.1 | 35.8 | 33.8 | 26.6 | 29.4 | 29.4 | 33.1 | 31.2 |
| PDAM | 2011 | | | | | | | | | | | | 2011(Ave) |
| | January'11 | February'11 | March'11 | April'11 | May'11 | June'11 | July'11 | August'11 | September'11 | October'11 | November'11 | December'11 | |
| Makassar | 50.6 | 49.8 | 54.0 | 52.6 | 49.1 | 47.0 | 45.5 | 48.8 | 40.4 | 42.6 | 51.1 ^{*1} | 51.4 ^{*2} | 48.7 |
| Maros | 40.8 | 42.3 | 45.7 | 39.5 | 42.2 | 35.3 | 39.2 | 29.2 | 32.8 | 31.6 | 31.6 | 38.2 ^{*3} | 37.3 |
| Gowa | 43.1 | 43.8 | 52.9 | 43.1 | 45.4 | 37.8 | 34.2 | 40.9 | 35.7 | 44.4 | 24.8 | 38.2 ^{*3} | 40.4 |
| Takalar | 38.6 | 32.5 | 44.4 | 37.9 | 38.4 | 32.3 | 34.9 | 27.2 | 16.1 | 17.7 | 23.9 ^{*3} | 27.0 | 31.0 |

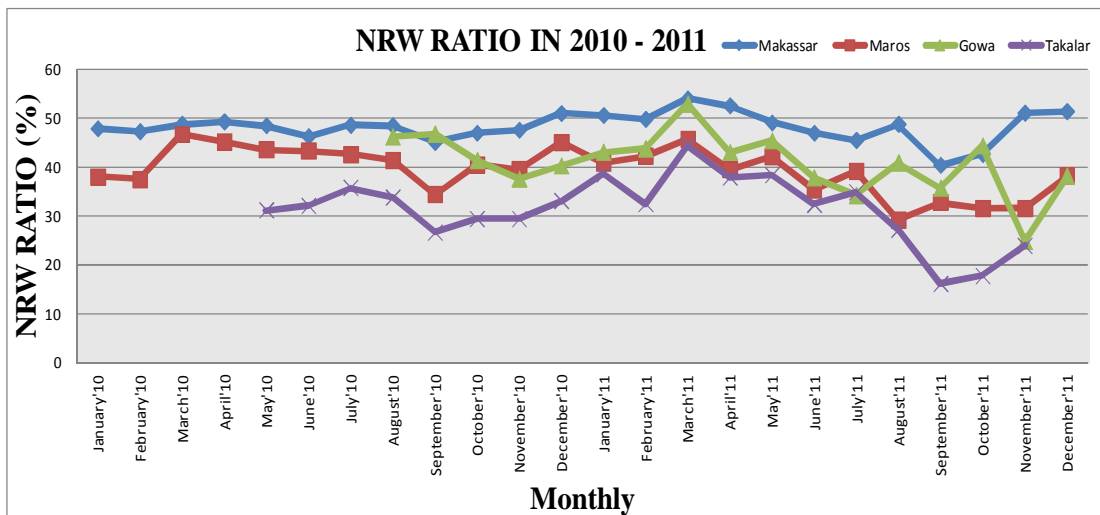


Figure 2.3-1 Transition of NRW ratio (%) in each PDAM

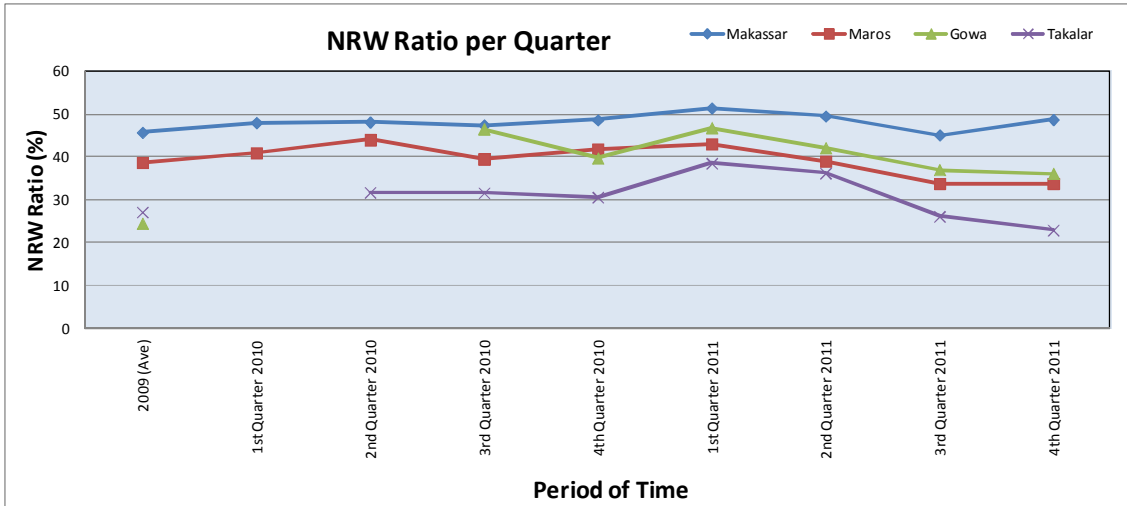


Figure 2.3-2 Transition of NRW ratio (%) in each PDAM

2.3.3 Lessons Learned

(1) Organizational Management

1) Institutional Aspect

At the beginning of the stage in the project, NRW reduction committee (Hereinafter refer to as “committee”) was organized in each PDAM with support from JET. The members of the committee in each PDAM have participated actively to reduce NRW in JET activities in the project implementation. Thereby, the communication between members of each PDAM and JET has improved in the project.

2) Securing Budget (Financial Aspect)

Before the project implementation, the counterparts, including PDAM Directors have not prepared an appropriate annual budget for NRW countermeasures. For this reason, the necessary budget for NRW reduction was allocated from limited O&M cost. After one year from inception of the first pilot project, however, a key counterpart could determine the appropriate budget for NRW reduction and, the know-how to estimate the necessary budget for the next pilot district. Moreover, it is expected that a necessary budget would be continuously secured by formulation of the “NRW Implementation Plan” which is to be prepared by each PDAM itself.

3) Understanding the present NRW ratio from Master Meters provided by JICA

Before the installation of the master meters at the inlet of W. T. P, the NRW ratio was calculated based on the capacity of W. T. P, which was an estimated value. The installation of master meters procured by JICA, it enabled PDAMs to measure accurate volume of water distributed from W. T. P., to calculate the NRW ratio based on the actually measured volume. Due to this, the data on NRW ratio became more reliable than before.

(2) Technical Management

1) To emphasize the knowledge and skill transferred by JET

The results of the NRW implementation plan revealed that the present NRW could be reduced to the target NRW ratio (Goal). With effort it could be done by leak detection and leak repair in conjunction with intensive night survey. In addition, effective countermeasures by immediate rectification of defective customer meters and illegal connections were conducted. Through the

untiring efforts of these various countermeasures, the NRW ratio in the entire PDAM including pilot district were gradually reduced as mentioned earlier (Table 2.3-20).

2) Importance for Essential Technology Transfer

Through implementation of NRW achievement test or NRW reduction committee meetings, many counterparts have already attained the level of performing the NRW activities independently. Even so, the counterparts capacity in dissemination of skills and knowledge on NRW, needs to be further strengthened after the Project completion.

3) Necessity of Improvement for Meter Reader's Skills

After one year of project inception, it was revealed that more than half of meter readers were unable to read the customer meter in the Mamminasata Area. Unfortunately this is because, various customer meters were procured by various makers or donors in this area. This was a critical matter and it was problems that were not anticipated by JET. Therefore meter reader's workshops were held immediately in order to train the meter reader's to read a wide variety of customer meters in each PDAM which has successfully improved their reading skill. At present, meter readers contributed to the appropriate measurement of Revenue Water based on the actual consumption.

4) Effectiveness of setting up DMA

The Project showed that by establishing District Metered Areas (DMAs) such as Pilot District, it was very important and effective to manage the NRW issues step by step. On the basis of NRW reduction activities in DMAs, the NRW implementation plan could be formulated, implemented and evaluated.

After completion of the Project, by increasing the number of DMAs in each PDAM and giving priority consideration, NRW reduction will be clearer, and annual action plans for NRW reduction could be designed more effectively in the future.

5) Continuous implementation of Public Awareness Campaign

The most important apparent loss countermeasure is public awareness campaign. Actually, this countermeasure isn't in immediately effective but implicitly effective. Therefore, PDAMs conducted public awareness campaigns to disseminate water awareness messages to elementary school students, and lectured on "Water Cycle" could be continued.

From these campaigns, PDAMs have been able to deliver key messages, importance of water use to prominent people (School Director etc.) in the pilot district neighborhood. Our JICA project hopes that these key people will further spread the message to others in due course.

6) Additional request for Horizontal Development Plan in the future

After termination of the project, likewise, many Pilot Districts in each PDAM would be horizontally established and all the NRW reduction activities applied in the pilot district will be similarly conducted. Currently, NRW reduction committee, including President Director of PDAM could understand preparing of the budget allocated specifically for NRW activities. Especially, all PDAMs Director can understand that the majority of NRW countermeasures have been on leak repairs, replacement of pipes and customer meter replacement.

Also in order to carry out NRW countermeasure smoothly, it is necessary to allocate a sufficient budget for preparatory work such as pipe network survey, GIS drawing preparation, customer survey database preparation, district meter area setting, etc. Such costs should be included in the annual budget so that PDAMs could continue the NRW reduction activities.

2.4 Output 4: GIS Database

2.4.1 Major Activities

Six major activities were required to establish the GIS database: 4-1 staff allocation, 4-2 procurement & basic training, 4-3 data collection, 4-4 database construction in selected model areas, 4-5 OJT on effective usage of database, and 4-6 formulation of future expansion plan. **Figure 2.4-1** shows the overall schedule of Output 4. **Table 2.4-1** summarizes the activities under Output 4.

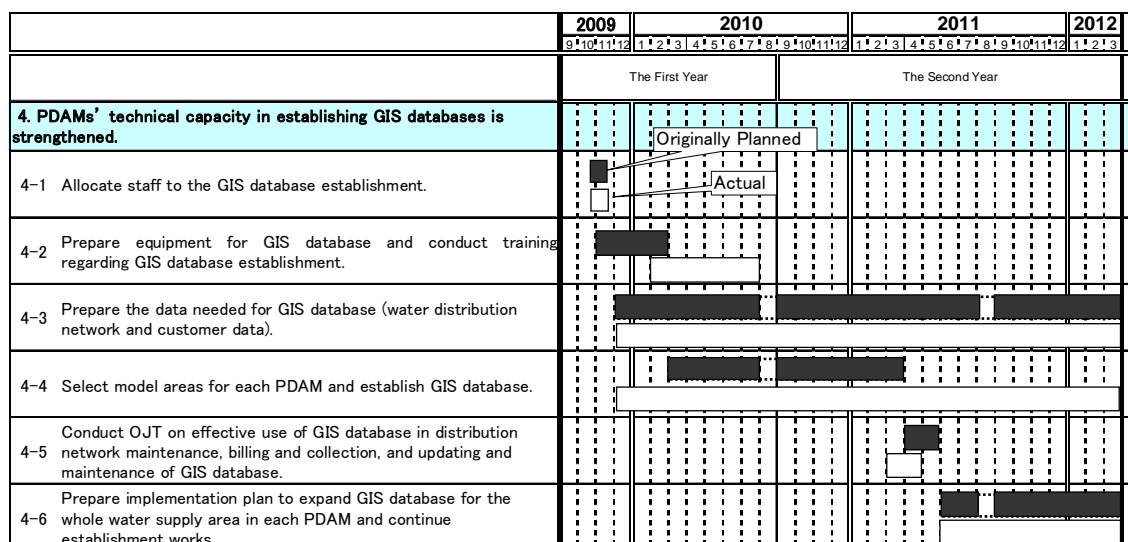


Figure 2.4-1 Overall Schedule to Establish GIS Database

Table 2.4-1 Activities Undertaken to Establish a GIS Database

| No. | Activity | Description (Responsible Party) |
|-----|--|---|
| 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 plan to expand GIS database for the whole water supply areas in each PDAM and continue establishment works. | <ul style="list-style-type: none"> • Formulated a plan to expand the area covered by the GIS database after completion of assistance from the JET (PDAM with assistance from JET) |

Sections (1) to (6) explain in detail the activities for GIS database establishment.

4-1: Allocate staff to GIS database establishment

- With the assistance of the JET, all PDAMs made the required staff allocations by December 2009.
- Changes were made to the GIS Management Team when staff were reassigned to other duties, retired or new employees were hired.
- New members to the GIS Management Team were given training on computer use, GIS software operation, and other necessary skills.

4-2: Prepare equipment for GIS database and conduct training on GIS establishment

- Equipment procurement originally scheduled for November 2009 to Feb 2010, according to the PO, was delayed to January to April 2010.
- The delay was necessary to allow time to arrange for rooms for the PCs, set up office furniture, power supply, air conditioning, etc. All these were accomplished by C/P staff with the help of the JET, by the beginning of March 2010.
- From April to July 2010, with the arrival of the equipment supply (satellite images, GIS software and hardware), software and LAN systems were set up and the base map was digitized.
- The schedule for GIS basic training was decided through discussion with C/P staff. The basic training was conducted from April to July 2010.
- At earlier opportunities, C/P staff were provided with the following as a part of the basic

training:

- General guidance on GIS concept and its application for water utility (December 2009).
- Practice using GoogleMap (March 2010).

4-3: Prepare the data needed for GIS database (water distribution network drawings and customer data)

- While PDAMs waited for delivery of GIS equipment, data on location/route of key facilities (e.g., intake, water treatment plant, reservoir, transmission route, etc.) were collected through field surveys in February 2010. These data were imported into GoogleMap and then exported to the GIS database when the latter was set up.
- Existing data (hardcopy, electronic data, knowledge of experienced/retired staff) were organized to construct the database (e.g., customer data or pipeline network data) for the selected model area (Pilot District of "Output 3")..
- C/P updated the database in coordination with the activities of "Output-3".

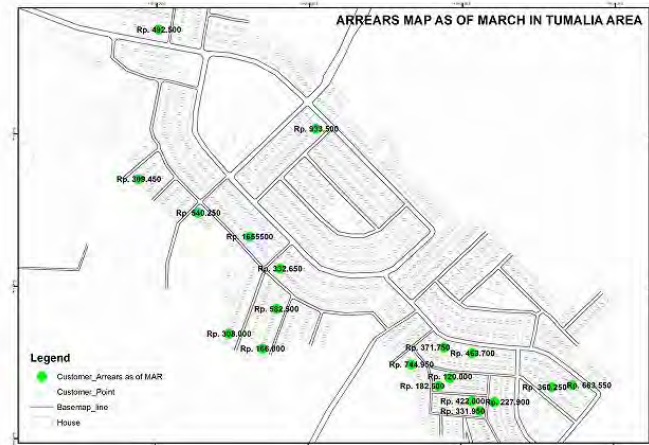
4-4: Select model areas for each PDAM and establish GIS database

- In March 2010 model areas and their relative priorities were decided in consideration of the following criteria.
 - where boundary valves or inlet points can be easily identified for smooth isolation work.
 - where it would be safe to work at night on NRW site operations such as leakage survey, isolation, meter installation, etc.
 - where traffic conditions would allow NRW site operations to be conducted easily.
 - where existing data (customer data, pipeline data, etc.) could be obtained easily.
 - preference of the PDAMs.
- Several changes have been made to the location and priority of the model areas, due to availability of existing data and/or the needs at the PDAMs (e.g. change of plan for pilot activities for NRW reduction). Data input for the model areas was completed by the end of February 2012.
- Written and practical tests were conducted in April and December 2011.
 - The first test was for the purpose of:
 - ✓ determining the trainees' basic knowledge and skill on GIS and software operation, including spatial statistics analysis.
 - ✓ identifying the knowledge/skill to be reinforced.
 - Based on the result of the first test, special attention was given to the following aspects for the rest of the training period:
 - ✓ spatial statistics analysis (eg., searching and highlighting specific objects, such as pipes more than 50 mm diameter, etc.)
 - ✓ arranging proper layout for presentation.
 - The second test conducted in December 2011, on completion of the activities of Output 4 showed that trainees' capacity of the above aspects was strengthened.

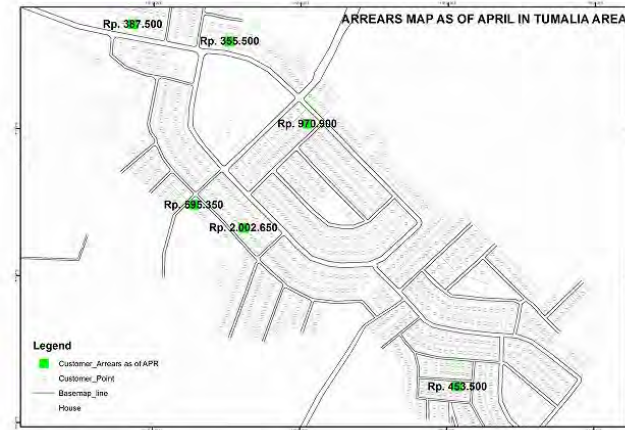
4-5: Conduct OJT on effective use of GIS database in distribution network maintenance and billing and collection, and updating and maintenance of GIS database

- After routine data input was on track, the following training utilizing the constructed database were conducted:
 - Discussion on future plan to share water resource effectively among PDAMs (e.g. inter-regional coordination to share water resources, related to "Output 1" as shown

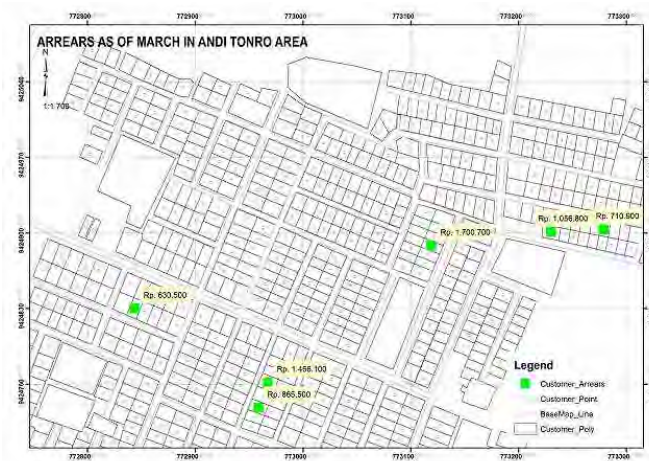
- in **Figure 2.4-2**). This OJT was conducted in March 2011.
- Utilizing the base map for "Arrears Actions Experiment" that was conducted under "Output 2" (e.g. identifying customer with considerable arrears on the base map, related to "Output 2 as shown in **Figure 2.4-3**). This OJT was conducted in June 2011.
 - Utilizing the 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. Locations of leakages and illegal users in model areas (pilot districts of "Output 3") are shown in **Figures 2.4-4** and **Figure 2.4-5**). This OJT was conducted, in coordination with the activities under "Output 3".
- In addition to the above OJT's, guidance and training on effective ways for handling attribute data (e.g. effective method of export/import, how to edit attribute data effectively using a spreadsheet, how to minimize error in data input, etc.).



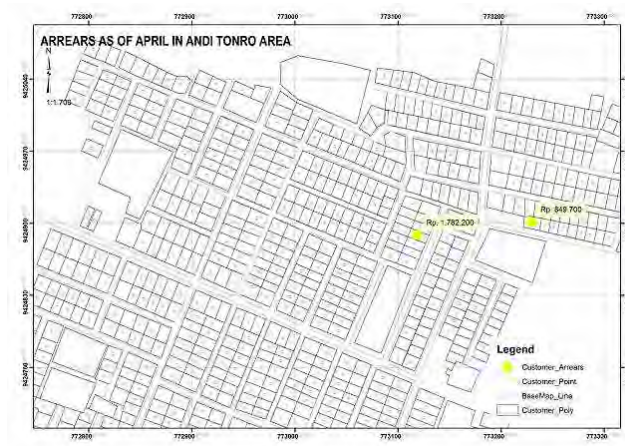
Location of customers with arrears and their respective amount of arrears. (as of March, 2011, at Tumalia, Maros)



Location of customers with arrears and their respective amount of arrears. (as of April, 2011, at Tumalia, Maros)

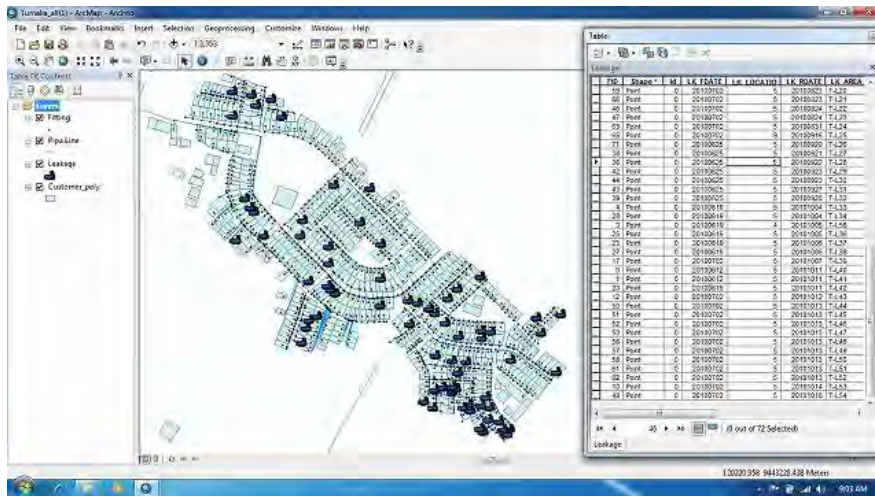


Location of customers with arrears and their respective amount of arrears. (as of March, 2011, at Andi Tonro Permai, Gowa)

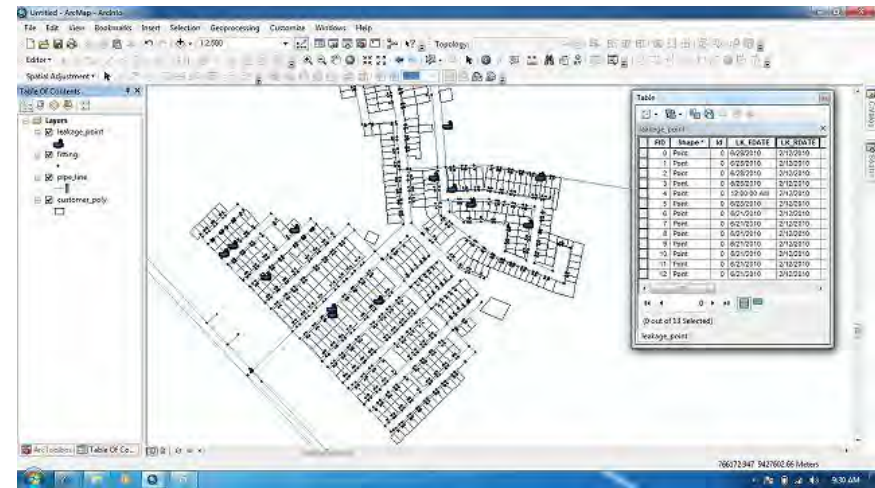


Location of customers with arrears and their respective amount of arrears. (as of April, 2011, at Andi Tonro Permai, Gowa)

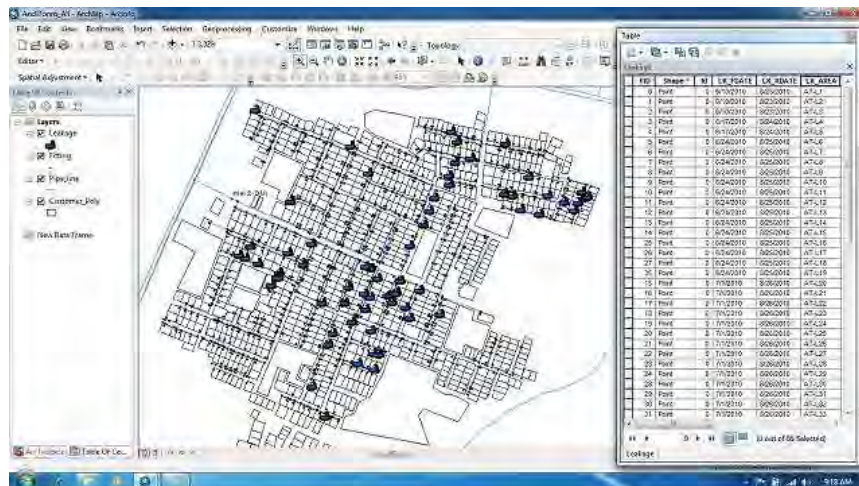
Figure 2.4-3 Effective Use of GIS Database (for Output 2)



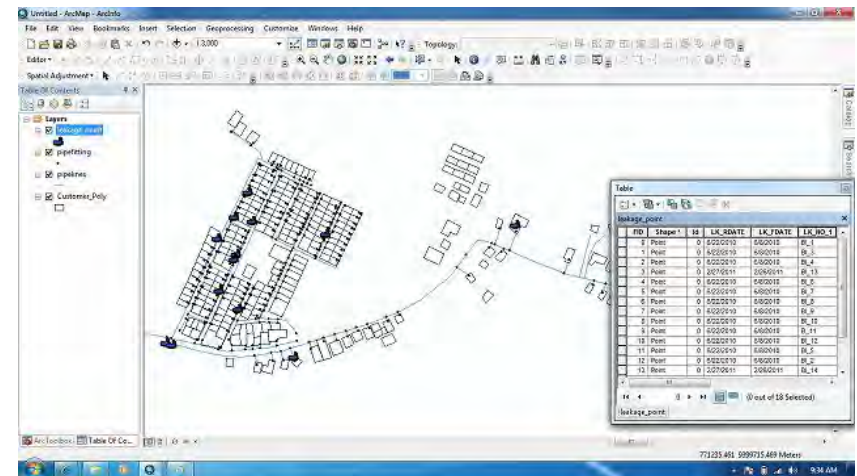
Identified leakage at Tumalia, Maros



Identified leakage at Taman Khayangan (GMTDC), Makassar

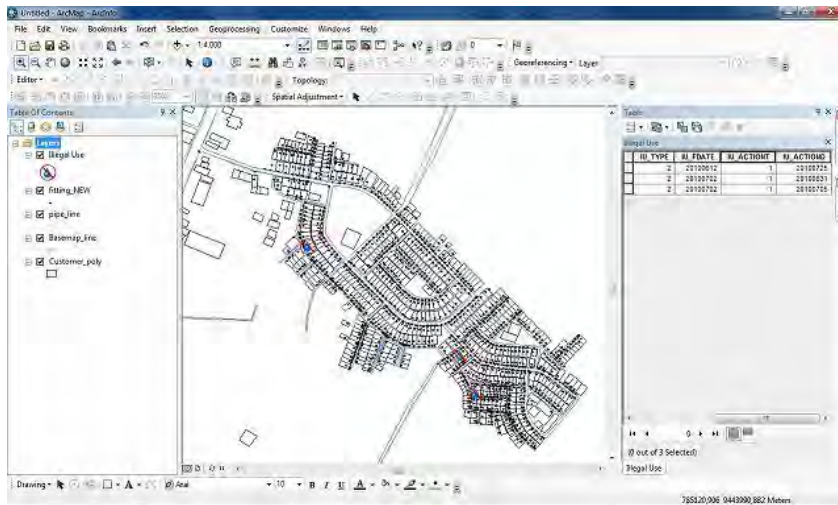


Identified leakage at BTN. Andi Tonro Permai, Gowa

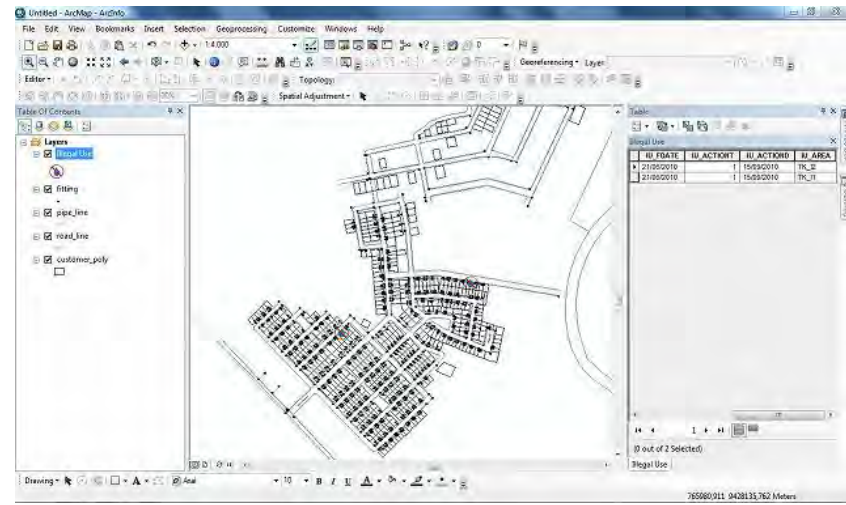


Identified leakage at Jl. Ranggong (Bombong Indah), Takalar

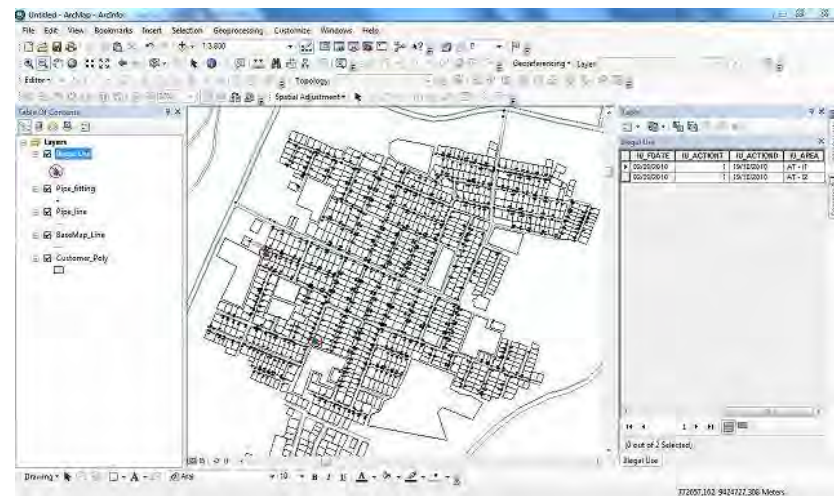
Figure 2.4-4 Effective Use of GIS Database (for Output 3, location of leakage)



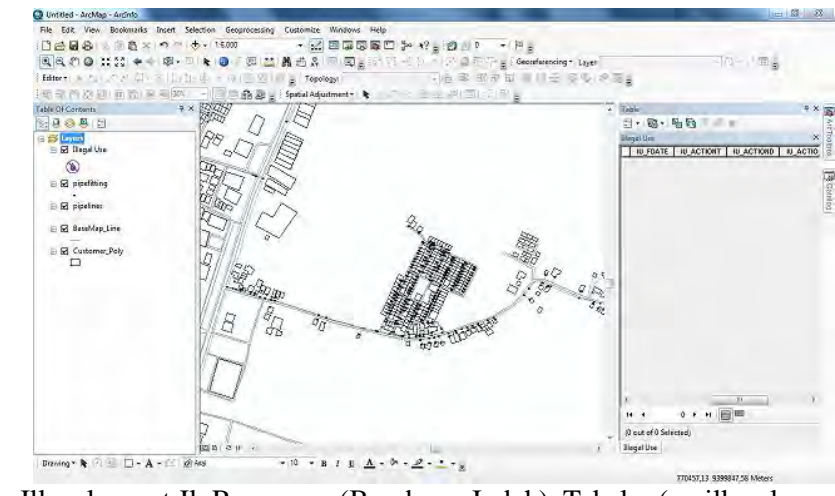
Illegal use at Tumulia, Maros



Illegal use at Taman Khayangan (GMTDC), Makassar



Illegal use at BTN. Andi Tonro Permai, Gowa



Illegal use at Jl. Ranggong (Bombong Indah), Takalar (no illegal cases were identified)

Figure 2.4-5 Effective Use of GIS Database (for Output 3, location of illegal use)

4-6: Prepare implementation plan to expand GIS database for the whole water supply areas in each PDAM and continue establishment works

- At the final stage of the activities under the Project (from June 2011 onwards), each PDAM discussed internally the plan to expand database construction activities to the rest of the service area. The plans were formulated by the end of December 2011.
- In drafting the future plan, the following issues were taken into consideration.
 - Practical workload and schedule based on the assumption that the number of members on the GIS Management Team remains unchanged, as it is difficult for PDAMs to increase the number of staff in future.
 - For PDAM Makassar
 - ✓ Facility data (pipelines) input:
 - Input by supply zone.
 - Start with areas where data can be collected easily.
 - Start with areas where CAD data is available.
 - ✓ Customer data input:
 - Input by model area.
 - As PDAM Makassar entrusts its billing and collection to a contractor, it does not have the urgency to complete customer data input within the Project period. Accordingly, PDAM Makassar focused on facility data input. PDAM Makassar intends to expand customer data when necessary (i.e. to conduct pilot activities for NRW reduction in future).
 - Model areas to be tackled will be selected by the end of every year.
 - For PDAMs of Maros, Gowa and Takalar.
 - ✓ Facility data (pipelines) input:
 - Input by Kecamatan.
 - Start with areas where data can be collected easily.
 - ✓ Customer data input:
 - Input by model Area.
 - Model areas to be tackled will be selected by the end of every year.

2.4.2 Output of the Project

(1) GIS Management Teams Formed at the PDAMs

The counterparts who worked on Output 4 are listed in **Tables 2.4-2** to **Table 2.4-5**. There were changes (departures from and additions to the team) over the course of the Project, due to events at the PDAMs such as job relocation, retirement, etc.

Table 2.4-2 Output 4: GIS Management Team at PDAM Makassar

* Current Members:

| No. | Member | | Basic Training | Current Status |
|-----|----------------|----------------------------|----------------|---|
| | Name | Current Position | | |
| 1 | Andi Matalatta | Team Leader/GIS Management | | - Named as new "Team Leader/GIS Management" after July 2011. |
| 2 | Jamal | GIS Operation 1 | Y | - Former "Relation between GIS". - Act as new key-person of operators after July 2010. |
| 3 | Indrayadi | GIS Operation 2 | | - Former "Relation between GIS & NRW & Others". - Named as one of new operators after July 2010. |
| 4 | Rachmat Dini | GIS Operation 3 | | - Newly joined after July 2010 |
| 5 | Rimbawan | GIS Operation 4 | | - Newly joined after July 2010 |

| | | | | |
|---|-----------------|-------------------------------------|---|--|
| 6 | Ihdar | Relation between GIS & NRW & Others | | - Newly joined after July 2010 |
| 7 | Andi Muhajirin | Data Management 1 | Y | - Former "GIS Operation 2". - Named as one of staff to collect existing data after July 2010. |
| 8 | Musyakkar | Data Management 2 | Y | - Former "GIS Operation 3". - Named as one of staff to collect existing data after July 2010. |
| 9 | Salahuddin Syam | Data Management 3 | Y | - Former "GIS Operation 4". - Named as one of staff to collect existing data after July 2010. |

Table 2.4-3 Output 4: GIS Management Team at PDAM Maros

* Current Members:

| No. | Member | | Basic Training | Current Status |
|-----|-------------------|----------------------------|----------------|---|
| | Name | Current Position | | |
| 1 | Abd. Rajab, S.Sos | Team Leader/GIS Management | Y | - Remain unchanged from the beginning. |
| 2 | Jamal | GIS Operation 1 | | - Newly recruited staff in November 2010 especially for this activity. - Act as new key-person of operators since November 2010. |
| 3 | Andi Rezki A | GIS Operation 2 | Y | - Remain unchanged from the beginning. |
| 4 | Ardi Iman Azis | GIS Operation 3 | Y | - Remain unchanged from the beginning. |
| 5 | Hendra | Relation between GIS | | - Newly joined after July 2010 |

Table 2.4-4 Output 4: GIS Management Team at PDAM Gowa

* Current Members:

| No. | Member | | Basic Training | Current Status |
|-----|------------------------|-------------------------------------|----------------|--|
| | Name | Current Position | | |
| 1 | Muh. Suaib Nambung, ST | Team Leader/GIS Management | | - Remain unchanged from the beginning. |
| 2 | Nur Alam M, Amd | GIS Operation 1 | Y | - Former "Data Processing". - Act as new key-person of operators after July 2010. |
| 3 | Ir. Syahril B | GIS Operation 2 | Y | - Remain unchanged from the beginning. |
| 4 | Untung | Relation between GIS & NRW & Others | | - Newly joined after July 2010 |

Table 2.4-5 Output 4: GIS Management Team at PDAM Takalar

* Current Members:

| No. | Member | | Basic Training | Current Status |
|-----|-------------------|-------------------------------------|----------------|---|
| | Name | Current Position | | |
| 1 | Muh Safril | Team Leader/GIS Management | Y | - Position as a leader remains unchanged from the beginning. - Doubles as a key-person of operators after retirement of former key-person. |
| 2 | Achmad Gasali, SE | GIS Operation 1 | Y | - Remain unchanged from the beginning. |
| 3 | Marwah | GIS Operation 2 | | - Newly joined after July 2011. |
| 4 | Habibi Yahya | GIS Operation 3 | Y | - Remain unchanged from the beginning. |
| 5 | Sahabuddin | Relation between GIS & NRW & Others | | - Newly joined after July 2010. |

(2) Project Indicators

Objectively Verifiable Indicators (OVI) for Output 4 described in PDM₁ are shown in **Table 2.4-6**.

Table 2.4-6 Objectively Verifiable Indicators (for Output 4)

| <i>Output 4</i> | <i>Objectively Verifiable Indicator</i> |
|--|--|
| 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 |

The following sections 1) to 5) summarize the achievements under the Project activities according to OVI.

1) Documents and Training Materials for Training (Related to "OVI 4-1")

Documents including training materials prepared and used for OJTs are summarized in **Table 2.4-7**.

Table 2.4-7 List of Training Materials

| <i>Documents</i> | <i>Contents</i> |
|--|--|
| General Schedule for Output 4 | Explanation from JET to C/P on general schedule |
| Location of Model Areas and Primary Facilities | Location/route of primary facilities (intake, WTP, reservoir, transmission route, etc.) and location/size of model areas prepared by C/P in each PDAM, with the assistance of JET. All data are plotted and saved as GoogleMap data. |
| General Schedule for Activity 4-2 | Explanation from JET to C/P to highlight actions to be taken by C/P to receive equipment and training |
| Schedule of Basic Training Course | Details of schedule of the basic training course. |
| Text Book for Training Course | Training materials |
| Importance of Data backup and System Maintenance | Knowledge C/P need to prepare for possible system failure. |
| Tutorial for Software Installation and System Recovery | Animated guidance on procedures for software installation and system recovery (created in movie file format). |

2) Number of Staff Participating in the Activity (related to "OVI 4-1")

The number of staff trained as of year 2011 are shown in **Table 2.4-8**.

Table 2.4-8 Number of Staff Trained

| <i>Year</i> | <i>Makassar</i> | <i>Maros</i> | <i>Gowa</i> | <i>Takalar</i> |
|-------------|-----------------|--------------|-------------|----------------|
| 2008 | - | - | - | - |
| 2009 | 13 | 5 | 5 | 5 |
| 2010 | 13 | 5 | 5 | 5 |
| 2011 | 9 | 5 | 4 | 5 |

3) Data Input for Model Areas (related to "OVI 4-2")

All data input for the designated model areas were completed. The model areas and length of pipeline digitized are shown in **Table 2.4-9**.

Table 2.4-9 List of Model Area and Total Length of Pipeline Digitized

| PDAM | Name of Model Area | Total Length of Pipeline Digitized (km) | | | |
|----------|--|---|------|------|------|
| | | 2008 | 2009 | 2010 | 2011 |
| Makassar | 1. Taman Khayangan (GMTDC) 2. BTN Hartaco Indah 3. Samalona 4. Taman Toraja 5. Masamba 6. Chrisant 7. Minasa Sari 8. Bukit Villa Mas 9. Golden Park | - | 0 | 18 | 57 |
| Maros | 1. Tumalia 2. BTN H. Banca/Lestari 3. Taniaga Permai 4. Maccopa Indah 5. Maros Regency 6. Griya Tamarampu 7. Permata Indah Bandara 8. Nusa Idaman 9. Griya Barambang | - | 0 | 24 | 78 |
| Gowa | 1. BTN. Andi Tonro Permai 2. Pelita Asri 3. Bumi Pallangga Mas 4. BTN. Bumi Batara Mawang 5. BTN. Garaganti 6. Perumahan Mutiara Timur | - | 0 | 24 | 30 |
| Takalar | 1. Jl. Ranggong (Bombong Indah) 2. Jl. S. Hasanuddin/Balinda/Sompu Raya 3. BTN Istana Permai 4. Bontomanai | - | 0 | 20 | 30 |

4) Data Input for Entire Service area (related to "OVI 4-3)

All 4 PDAM started expanding data input according to the expansion plan (see **Annex 3-1**). The outline of the expansion plan is as follows.

- Makassar

Facility Data:

- ✓ Zone 1, 2, 3A, 3B, 4, 5, 6, 7, 8 and 9 to be completed by 2013.
- ✓ Zone 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23A, 23B, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41A, 42B, 43 and "Zone-new" by 2014.

Customer Data:

- ✓ 20 model areas selected.
- ✓ 5 areas completed and another 5 to be completed before March 2012.
- ✓ 10 to be completed within 2012.
- ✓ More areas to be selected before the end of 2012.

- Maros

Facility Data:

- ✓ Kecamatan of Tulikale, Mandai, Lau to be completed in 2012.
- ✓ Kecamatan of Maros Baru, Marusu, Bontoa, Tanralilil, Bantimurung and Simbang to be completed in 2013

Customer Data:

- ✓ 51 model areas selected.
- ✓ 20 areas completed.

- ✓ 31 to be completed within 2012.
 - ✓ More areas to be selected before the end of 2012.
- Gowa
- Facility Data:
 - ✓ Kecamatan of Pallanga completed in 2011.
 - ✓ Kecematans of Patallassang, Bontomarannu, Bajeng and Parangloe to be completed in 2012
 - ✓ Kecematans of Somba Opu, Barombong and Malino to be completed in 2013
 - Customer Data:
 - ✓ 48 model areas selected.
 - ✓ 22 areas completed.
 - ✓ 46 to be completed within 2012.
 - ✓ More areas to be selected before the end of 2012.
- Takalar
- Facility Data:
 - ✓ Kecamatans of Mappakasunggu, Sanrobone, Polombangkeng Selatan, Polombangkeng Utara, Galesong Utara, Galesong Selatan and Galesong completed in 2011.
 - ✓ Kecamatans of Pattalassang and Mangarabombang to be completed in 2012.
 - Customer Data:
 - ✓ 55 model areas selected.
 - ✓ 17 areas completed.
 - ✓ 38 to be completed within 2012.
 - ✓ More areas to be selected before the end of 2012.

The total length of pipelines digitized are shown in **Table 2.4-10**.

Table 2.4-10 Total Length of Pipelines in the Entire Service Area (as of 2011)

| <i>PDAM</i> | <i>Total Length of Pipeline Digitized (km)</i> | <i>Digitized Length of Pipeline in Model Area (km)</i> | <i>Digitized Length of Pipeline outside of Model Area (km)</i> | <i>Total Length of Pipelines in Entire Service Area (as of 2010)</i> | <i>Coverage (a) / (c)</i> |
|-------------|--|--|--|--|---------------------------|
| | <i>(a)</i> | <i>(b)</i> | <i>(a) - (b)</i> | <i>(c)</i> | |
| Makassar | 577 | 57 | 520 | 3,055 | 19% |
| Maros | 281 | 78 | 203 | 264 | 106% |
| Gowa | 264 | 30 | 234 | 355 | 74% |
| Takalar | 215 | 30 | 185 | 198 | 109% |

2.4.3 Lessons Learned

(1) Technical Consultation/Follow-up after Termination of the Project

As a result of the training conducted under the Project, PDAM staff acquired basic knowledge/skills on the concepts of GIS, GIS software operation, database construction/management, practical usage of the database for day-to-day O&M and future planning. Nevertheless, they may need expert support in the future (e.g. to respond to unexpected problems/difficulties, to conduct more advanced analysis/operation). To ensure there is continuous technical support after termination of the Project, PDAMs could consider the following options:

- Employ permanent staff for GIS.
- Contract a qualified local consulting company to provide GIS support on a regular basis

- (approx. once a week).
- Contract a freelance GIS specialist to provide GIS support on a regular basis (approx. once a week).
 - Sign an agreement with a public institution (e.g. university) for GIS support on a regular basis (approx. once a week). The agreement could be an MOU outlining the mutual benefits for both sides (e.g. students and/or professors would provide GIS support, in return for internship placements for students at the PDAM offices and the use of PDAM GIS databases for university research projects)

PDAMs could pursue the above in various ways:

- Each PDAM independently.
- Four PDAMs jointly, sharing the cost.
- Through PERPAMSI (or waterworks association) in Southern Sulawesi Province.

(2) Operation and Maintenance of Hardware and Software

In case of failure or breakdown, PDAMs should contact the suppliers or local agents listed in **Annex 3-2** as soon as possible.

(3) Renewal of Hardware and Software

Hardware, software or satellite images would need to be updated regularly. A budget should be secured to cover the following:

- License for antivirus software every year.
- New desktop PCs every five years.
- New software at the time of hardware renewal.
- New satellite imagery data approx. every ten years, to have updated data that reflect changes taken place over time..

(4) Staff changes

GIS training is very specialized and requires commitment of time. Frequent turnover of GIS staff is highly undesirable. However, job changes or retirements may be unavoidable. Special effort must be made to minimize negative impacts on GIS database management when there is a turnover. The following should be considered:

- Sufficient overlap of incoming and outgoing staff of at least 3 months.
- Avoid multiple change overs at one time.

2.5 Output 5: Water Quality Management

2.5.1 Major Activities

The outputs which had been executed for “Strengthening of PDAMs’ technical capacity in WQM in small scale water treatment facilities (Output 5)” throughout the project are mentioned below in **Table 2.5-1**.

Table 2.5-1 The outputs executed for Output 5

| 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. |

The detail for activities for output 5 is explained below.

a) Allocate staff for WQM (Activity 5-1)

Allocation of staff was completed. For the latest version of C/P list, refer to **Table 2.5-4**.

b) Prepare WQA equipment (Activity 5-2)

As a result of Activity 5-2, WQA equipment was provided, inspected and introduced to each WTP (**Table 2.5-2**).

Table 2.5-2 Instruments provided to each WTP

Numbers in the table : quantity

| Name of WTP | Quantity of provision item | | | | | |
|-----------------|----------------------------|--------------|------------|-----------------|-----------------|--------------------|
| | Jar tester (1) | Turbidimeter | | pH meter (4) | pH meter (5) | Chrolimeter (6) |
| | | High (2) | Low (3) | | | |
| PDAM Makassar | | | | | | |
| Antang | - | - | - | 1 | 1 | 1 |
| Maccini Sombala | - | - | - | 1 | 1 | 1 |
| Ratulangi | - | - | - | 1 | 1 | 1 |
| PDAM Maros | | | | | | |
| Bantimurung | 1 | - | - | 1 | 1 | 1 |
| Pattontongan | 1 | - | 1 | 1 | 1 | 1 |
| PDAM Gowa | | | | | | |
| Tompobalang | 1 | - | 1 | 1 | 1 | 1 |
| Pandang-Pandang | - | - | - | 1 | 1 | 1 |
| Limbung | 1 | 1 | - | 1 | 1 | 1 |
| Borongloe | 1 | 1 | - | 1 | 1 | 1 |
| Parangloe | - | 1 | - | 1 | 1 | 1 |
| Pattalassang | - | - | - | - | - | 1 |
| PDAM Takalar | | | | | | |
| Bonto Mate'ne | 1 | - | 1 | 1 | 1 | 1 |
| Galesong | 1 | - | - | - | - | 1 |

- (1) HACH, Digital Programmable Jar Test
- (2) HACH, Turbidimeters 2100AN
- (3) HACH, Turbidimeters 2100N
- (4) HACH, Portable pH Meter sensION 1
- (5) HANNA, Waterproof pH Tester HI98127
- (6) HACH, Chlorine Pocket Colorimeter II

c) Quantification of coagulant concentration (Activity 5-3)

It is essential to prepare and maintain coagulant solutions with accurate concentrations for optimal flocculation in the water treatment process. In order to quantify concentration, training had been conducted on measurement of specific gravity by using hydrometer.

d) Coagulation tests (jar tests and WQA) (Activity 5-3)

Jar tests had been conducted using raw waters (both wet season and dry season samples). C/Ps had been trained on the methods of deriving the right coagulation conditions using jar tests and WQA results.

e) Pump calibration and injection adjustment (Activity 5-4, 5-5)

Training for operators regarding adjustment of coagulant injection had been conducted. To be based on feedback from coagulation test results, C/Ps were trained to calibrate pumps for accurate flow rate by examining relationship between pump stroke and actual flow rate.

f) Condition of treatment systems (Activity 5-3, 5-4)

Conditions of treatment systems used for injection adjustment have been updated according to information from C/Ps and measured data (Refer to Pr/R III).

g) Fixing procedures for coagulation tests and preparation of guidelines for water quality management (Activities (5-3) and (5-4))

Conditions and procedures have been accumulated and modified throughout the OJT in both dry and wet seasons.

h) Updating the guidelines for WQM followed by OJT (Activities (5-4) and (5-5))

OJT have been conducted continuously following the SOPs prepared for guidelines. A draft guideline has been modified, using methods learned through the seasons. JET would assist C/Ps to update and utilize the guideline through repetition of the OJT.

The plan of operation is shown in **Table 2.5-3**. All activities mentioned in the Table 2.5-1 (activities 5-1 to 5-5) have been completed until the November, 2011.

Table 2.5-3 Plan of operation for output 5

| | 2009 | | | 2010 | | | | | | 2011 | | | | | | 2012 | | |
|--|----------------|----|----|------|---|---|-----------------|---|---|------|---|---|----|----|----|------|---|---|
| | 9 | 10 | 11 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 |
| | The First Year | | | | | | The Second Year | | | | | | | | | | | |
| 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. | | | | | | | | | | | | | | | | | | |

2.5.2 Output of the Project

(1) Target Group

The final C/P list for Output 5 is shown in the **Table 2.5-4**. The personnel shown here are certified as C/Ps for Output 5.

Table 2.5-4 C/P list (the final) for output 5

| PDAM Maros | | | PDAM Gowa | | |
|-----------------|-------------------|--------------------------------|----------------------|--------------------|--------------------------|
| Bantimurung | | | Pandang-Pandang | | |
| 1 | Resti | Chief of laboratory section | 1 | Nuriani | Chief of Laboratory |
| 2 | Fitri | Staff of laboratory (2010.10~) | 2 | Rusdin | Laboratory |
| 3 | Bakri M | Chief of installation section | Limbung | | |
| 4 | Usman | Production staff | 1 | Subair | Operator |
| Pattontongan | | | 2 | Amir SAE | Chief of Technical Dept. |
| 1 | Abd. Razak | Chief of IPA PTT | 3 | Nawir | Operator |
| 2 | Suriani | Laboratory staff | Borongloe | | |
| 3 | Risnawaty | Laboratory staff | 1 | Hasni | Laboratory staff |
| 4 | Syaban Nur | Operator | 2 | Faisal | Operator |
| PDAM Makassar | | | 3 | Ridwan S | Operator |
| Antang | | | Parangloe | | |
| 1 | H.Gamardin | Chief of IPA | 1 | Muchtar | Chief of WTP Parangloe |
| 2 | Imran, ST. | Operator | Pattallassang | | |
| 3 | M.Idrus Maming | Operator | 1 | Arifin | Laboratory staff |
| 4 | Farida Coddig | Chief of lab | 2 | Abd. Kadir Jaelani | Operator |
| Maccini Sombala | | | PDAM Takalar | | |
| 1 | Abd. Azis P | Chief of Laboratory | Bonto Mate'he | | |
| 2 | Aswariani | Laboratory staff (2010.10~) | 1 | Salma | Laboratory staff |
| Ratulangi | | | 2 | Muh.Tahir | Operator |
| 1 | Syamsiah ST | Chief of Laboratory | 3 | Syafuruddin Tola | Operator |
| 2 | Ulyani | Chief of maintenance | 4 | Novia Mirayanti | Laboratory staff |
| 3 | Lisda J. Pasaribu | Laboratory staff | 5 | Syamsuddin | Production staff |
| PDAM Gowa | | | Galesong | | |
| Tompobalang | | | 1 | Syamsuar Djafar | Operator |
| 1 | Suleiman Rachim | Chief of Production | 2 | Abd. Rahman Makka | Operator |
| 2 | Parawansa S | Chief of WTP | 40 personnel / total | | |
| 3 | Yusuf | Laboratory staff (2010.10~) | | | |
| 4 | Muslimin Hidayat | Production Staff | | | |
| 5 | Nur Indah N | Laboratory staff (2011.3~) | | | |

(2) Project Indicators

The indicators set for the output 5 are mentioned in **Table 2.5-5**.

Table 2.5-5 The indicators for output 5

| Output 5 | Objectively Verifiable Indicator |
|---|--|
| Strengthening of PDAMs' technical capacity in WQM in small scale water treatment facilities | 5-1 Training material and number of trained staff 5-2 WQM is conducted based on the guideline of WQM. |

a) Training material

Materials used in the trainings were documents prepared by JET or provided with instruments. The details are mentioned in **Table 2.5-6**.

Table 2.5-6 The training materials

| No. | Title | Type | Activity | Prepared / provided by |
|------------------------|---|----------------------|------------|------------------------|
| The First Year | | | | |
| 1 | Training material No.1 “Coagulation” | Text document | 5-2 | JET |
| 2 | Instruction manual for “Portable pH Meter sensION 1” | Instruction manual | 5-1 | HACH |
| 3 | Instruction manual for “Chlorine Pocket Colorimeter II” | Instruction manual | 5-1 | HACH |
| 4 | Instruction manual for “Turbidimeters 2100AN” | Instruction manual | 5-1 | HACH |
| 5 | Instruction manual for “Turbidimeters 2100N” | Instruction manual | 5-1 | HACH |
| 6 | Training material No.2 “Jar test” | Text document | 5-3 | JET |
| 7 | Concentration for jar test | Text document | 5-3 | JET |
| 8 | Record sheet for jar test | Table format | 5-3 | JET |
| 9 | Training material No.3 “Measurement” | Text document | 5-2 | JET |
| 10 | Record sheet for WQA | Table format | 5-2 | JET |
| 11 | SOPs | Handwritten document | 5-2 5-3 | C/P |
| 12 | Pump calibration figure | Handwritten figure | 5-3 | C/P |
| The Second Year | | | | |
| 13 | Training material No.4 “O/M” | Text document | 5-3 | JET |
| 14 | Training material No.5 “Alkalinity” | Text document | 5-3 | JET |
| 15 | Training material No.6 “Floc carry over” | Text document | 5-3 | JET |
| 16 | Training material No.7 “Filtration modification” | Text document | 5-3 | JET |
| 17 | Training material No.8 “pH lowering” | Text document | 5-3 | JET |
| 18 | Training material No.9 “Alum & Alikalinity” | Text document | 5-4 | JET |

b) Number of trained staff

The goals for indicator 5-1 set by C/Ps and the results are mentioned below in **Table 2.5-7**. Values for attendance were not necessarily reflected the training condition because the dedicated C/Ps were being narrowed down and the denominators for calculation were larger than possible attendants. However, by referring numbers of C/Ps who constantly attended trainings, it is explained that C/Ps keep attending continuous trainings.

Table 2.5-7 The goals and results for numbers of trained C/Ps (for indicator 5-1)

| Indicator Name of WTP | Average attendance | | | | No. of main C/Ps attended | | | No. of main C/Ps attended | | |
|--------------------------|--------------------|-----|----------------------|----------------------|---------------------------|-------|------|---------------------------|-------|------|
| | Goals | | 1 st year | 2 nd year | 1 st year | | | 2 nd year | | |
| | (person) | (%) | (%) | (%) | >=50% | >=80% | 100% | >=50% | >=80% | 100% |
| PDAM Maros | | | | | | | | | | |
| Bantimurung | 3.2 / 4 | 80 | 57 | 55 | 4 | 2 | 2 | 1 | 0 | 1 |
| Pattontongan | 2.8 / 4 | 70 | 54 | 55 | 3 | 1 | 1 | 1 | 0 | 1 |
| PDAM Makassar | | | | | | | | | | |
| Antang | 3 / 4 | 75 | 39 | 56 | 0 | 1 | 3 | 1 | 0 | 1 |
| Maccini Sombala | 1.6 / 2 | 80 | 30 | 95 | 1 | 0 | 1 | 0 | 1 | 1 |
| Ratulangi | 2.4 / 3 | 80 | 35 | 83 | 3 | 0 | 2 | 1 | 1 | 1 |
| PDAM Gowa | | | | | | | | | | |
| Tompobalang | 3 / 5 | 60 | 33 | 46 | 2 | 0 | 2 | 2 | 0 | 0 |
| Pandang-Pandang | 1.2 / 2 | 60 | 26 | 53 | 0 | 0 | 1 | 0 | 0 | 1 |
| Limbung | 1.8 / 3 | 60 | 46 | 58 | 1 | 0 | 1 | 2 | 0 | 0 |
| Borongloe | 1.8 / 3 | 60 | 32 | 56 | 0 | 1 | 1 | 0 | 0 | 1 |
| Parangloe | 1.8 / 3 | 60 | 50 | - | 0 | 0 | 1 | - | - | - |
| Pattalassang | 1.2 / 2 | 60 | 36 | 60 | 2 | 1 | 0 | 0 | 0 | 1 |
| PDAM Takalar | | | | | | | | | | |
| Bonto Mate'ne | 3 / 5 | 60 | 46 | 39 | 5 | 0 | 3 | 1 | 0 | 1 |
| Galesong | 1.2 / 2 | 60 | 75 | 63 | 1 | 1 | 0 | 0 | 0 | 1 |

Goals: set in Dec. 2009, results: Dec. 2009 – Nov. 2011

c) The guideline

In accordance with the completion of the guideline, daily WQM activities are conducted based on it. Refer to Annex for the guideline, the SOP and dedicated format for wall attachments to be utilized practically.

d) Compliance rate

The compliance rate for each WTP is shown in **Table 2.5-8** for yearly results. The data collected through the OJT for data management are compared with the standard values of drinking water (turbidity; 5NTU, 6.5<pH<8.5). The compliance rates are calculated with days whose both turbidity and pH are complied (as numerator) and days in the target period (as denominator), which means that days without measurement or with only one complied parameter are treated as “not complied”.

Despite the fact that many WTPs increased the target value from 2010 to 2011, the most WTP maintained or modified the evaluation. Significant descents shown by Pattontongan and Pattallassang are due to pH meter troubles which had been not solved for a few months.

The good results are due to constant efforts having been done with sustained consciousness for improvement of C/Ps in PDAM Makassar and the significant progress from the threshold that was almost nothing in PDAM Takalar. PDAM Maros also have made a significant progress but the results indicate the influence of problems in instruments while the water quality might possibly be good. In PDAM Gowa, measurement and recording have increasingly been conducted and the consciousness of improvement is expected to be grown more.

The major sources of the problems are reported or assumed as the followings.

- Instrument troubles
- Absence of personnel in charge
- Unavailability of holiday works
- Inadequate dosage
- Careless operations

Table 2.5-8 Compliance rate (April2010-March2011)

| PDAM/IPA | | Compliance rate* | | | | | |
|----------|------------------|----------------------|--------|--------------------------|-----------------------|--------|------------|
| | | April-December 2010 | | | January-December 2011 | | |
| | | Target* ² | Result | Evaluation* ³ | Target* ⁴ | Result | Evaluation |
| Maros | Bantimurung | 80% | 58.9% | C | 90% | 95.3% | A |
| | Pattontongan | 70% | 79.3% | A | 90% | 70.7% | C |
| Makassar | Antang (35L/sec) | 95% | 97.8% | A | 95% | 100% | A |
| | Antang (50L/sec) | 95% | 96.4% | A | 95% | 100% | A |
| | Maccini Sombala | 80% | 99.3% | A | 95% | 100% | A |
| | Ratulangi | 80% | 100% | A | 95% | 98.9% | A |
| Gowa | Borongloe | 70% | 38.5% | C | 80% | 52.3% | C |
| | Limbung | 70% | 59.3% | B | 80% | 84.7% | A |
| | Pandang-Pandang | 80% | 24.4% | C | 80% | 84.9% | A |
| | Pattallassang | 70% | 42.2% | C | 80% | 30.1% | C |
| | Tompobalang | 70% | 1.8% | C | 80% | 25.8% | C |
| Takalar | Bonto Mate'ne | 80% | 92.4% | A | 95% | 98.6% | A |
| | Galesong | 80% | 93.5% | A | 90% | 92.3% | A |

*Complied days (complied for both Turbidity and pH) / days in one target year x100

*2 Set in December 2009

*3 A: Result>Target, B: Result>=Target×0.8, C: Rusult<Target×0.8

*4 Set in December 2010

2.5.3 Lesson learned

(1) Problems and advices

“The Guidelines for Water Quality Management” reflects lessons learned through the OJT for Output5 and includes anticipated problems and useful advices.

The C/Ps can refer to the guidelines for anything related to water quality management, such as:

- Basic theory and applicable methods
- Troubleshooting
- Maintenance of equipment and facilities
- Procurement of consumables
- Alternative methods and equipment
- Recommended modification of facilities

(2) Future WQA management

C/Ps learned significance of inter WTP and PDAM co-operation by the Project. It consists of aspects such as;

- Joint purchase of reagents and equipment
- Co-operative troubleshooting
- Sharing information and data
- Common training for new testing methods
- External quality control
- Sharing equipment on accidents

C/Ps used a large laboratory in Somba Opu WTP of PDAM Makassar for joint trainings. However, it does not belong to PDAM after privatization. For future activities, it is recommended to establish a central laboratory for PDAMs in Mamminasata. C/Ps suggest to utilize a building in ANT for the laboratory as shown below.



CHAPTER 3 INPUTS TO THE PROJECT

3.1 Dispatch Schedule of JICA Expert Team

3.1.1 Member of JICA Expert Team

The members of the JICA Expert Team (JET) are listed in **Table 3.1-1**.

Table 3.1-1 Member of JICA Expert Team

| No. | Name | Position | Man/Month (including activity in Japan) | |
|-------------|--|--|--|---|
| | | | First Year (Sep. 2009 – Aug. 2010) | Second Year (Oct 2010 – Mar 2012) |
| 1 | Takehiko OGA | Chief Advisor / Water Supply Management / Capacity Development | 7.40 | 9.20 |
| 2 | Yuji HONDA (for the 1 st Year), PDAM Nagoya | Water Supply Utilities Management Advisor | 2.30 | 0.00 |
| 3 | Masaaki HANDA (for the 2 nd Year), PDAM Nagoya | Water Supply Utilities Management Advisor | 0.00 | 2.00 |
| 4 | Junichi WATANABE | Deputy Chief Advisor / NRW Reduction | 7.43 | 9.10 |
| 5 | Masashi SUZUKI | Leak Detection | 2.00 | 2.00 |
| 6 | Koichi YAMASHITA | Finance Management | 4.20 | 4.60 |
| 7 | Daizo IWATA | Business Management / Customer Relations | 3.57 | 4.83 |
| 8 | Yasuo KAWAKAMI, PDAM Okayama | O&M of Water Treatment Facilities | 2.00 | 2.00 |
| 9 | Koji KIMURA | Water Quality Management | 3.50 | 4.50 |
| 10 | Tetsuji KAWAMURA | GIS | 3.00 | 4.37 |
| 11 | Nobuhiro MORI | Inter-organizational Coordination Advisor | 4.20 | 6.10 |
| 12 | Rumaria WIJAYA (for the 1 st Year) | Coordinator | 2.00 | 0.00 |
| 13 | Koichi MATSUBARA (for the 2 nd Year) | Coordinator/Assistant to Water Quality Management | 0.00 | 4.00 |
| Sub-total | | | 41.60 | 52.70 |
| Grand Total | | | 94.30 | |

As shown in **Table 3.1-1**, during the two and half year period from September 2009 to March 2012, thirteen experts with a total of 94.3 man/months were assigned to the project.

3.1.2 Dispatch Schedule of JET

(1) The First Year

Figure 3.1-1 shows the dispatch schedule of JET in the first year.

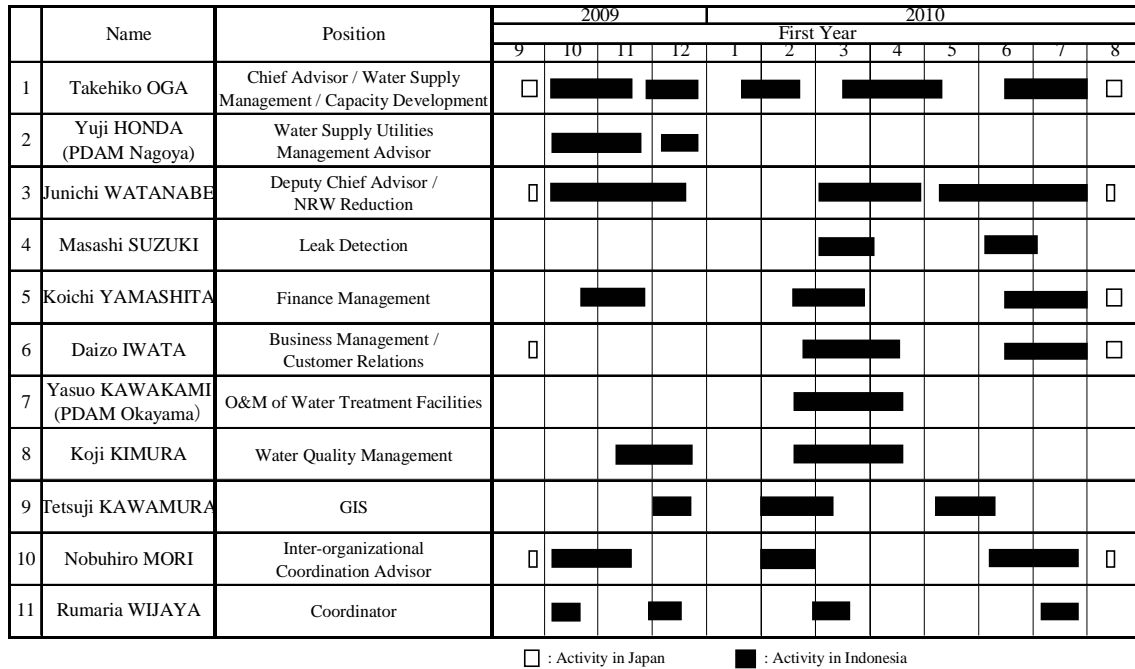


Figure 3.1-1 Dispatch Schedule of JET in the First Year

(2) The Second Year

Figure 3.1-2 shows the dispatch schedule of JET in the second year.

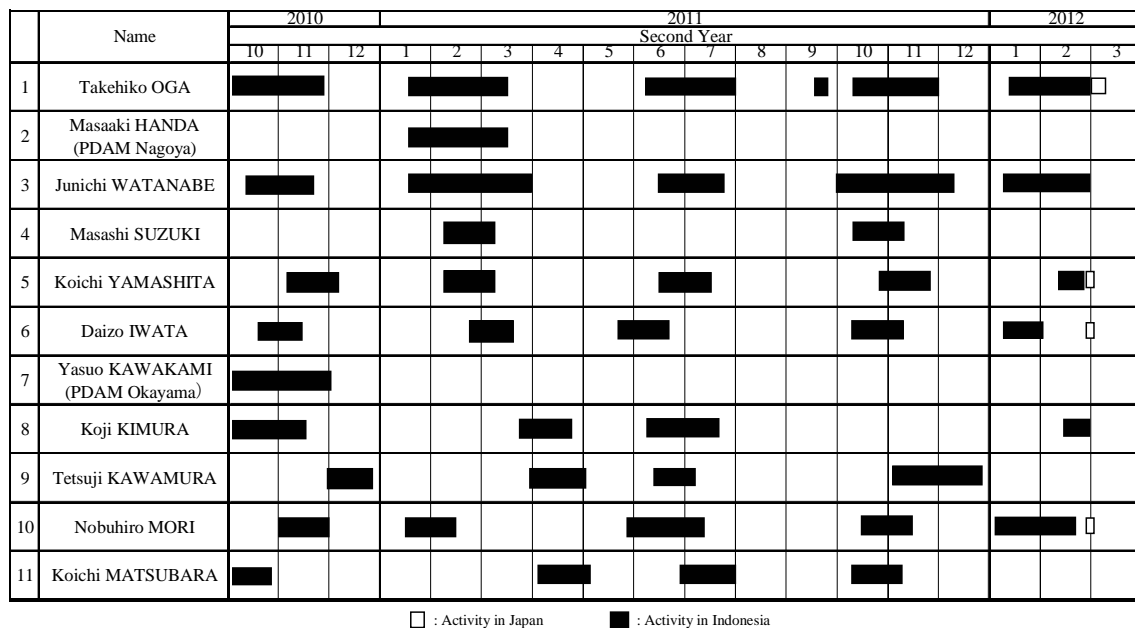


Figure 3.1-2 Dispatch Schedule of JET in the Second Year

3.2 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.

3.2.1 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 |

The trainees observed and studied the management of Japanese waterworks and had discussions with Japanese officials. They were requested to present their ideas and formulate action plans to improve the management at their respective PDAMs on the occasion of the Steering Committee and the Joint Coordinating Committee meeting.

Main components of the training program were as follows:

- Water supply management in the Japanese waterworks bureau
- Institutional management in the Japanese waterworks bureau
- Financial management, measures for NRW reduction, water quality control and customer relations in the Japanese waterworks bureau
- Motivation and needs for improvement of operation and maintenance and business management
- Discussion and preparation of priority action plan for technical improvement of operation and maintenance and improvement of financial and business management of PDAMs

Schedule of the first training program is shown in **Table 3.2-2**.

Table 3.2-2 Schedule of First Training Program in Japan

| Date | | | Place | Contents |
|------|--------|-----|---------------------------------------|--|
| 1 | 27 May | Thu | | (Jakarta to Tokyo) |
| 2 | 28 May | Fri | JICA Training Center | • Briefing |
| 3 | 29 May | Sat | | (Off) |
| 4 | 30 May | Sun | | (Off) |
| 5 | 31 May | Mon | Ministry of Health, Labor and Welfare | • Water Supply in Japan |
| | | | Japan Water Works Association | • Water Supply Management in Japan |
| 6 | 1 June | Tue | | Tokyo to Nagoya |
| | | | PDAM Nagoya | • Water Supply Vision in Nagoya City • O&M of Water Treatment Plant |
| 7 | 2 June | Wed | PDAM Nagoya | • Water Supply Master Plan in Nagoya City • Financial Management |

| | | | | |
|----|---------|-----|----------------------|---|
| | | | | <ul style="list-style-type: none"> • Water Tariff and Collection • Expansion of Supply Area |
| 8 | 3 June | Thu | PDAM Nagoya | <ul style="list-style-type: none"> • Measures of NRW Reduction • Site Visit (Pipe Installation) • Capacity Building of Staff of PDAM Nagoya |
| 9 | 4 June | Fri | PDAM Nagoya | <ul style="list-style-type: none"> • Discussion with Directors of PDAM Nagoya • Site Visit (Training Center for Staff of PDAM Nagoya) |
| 10 | 5 June | Sat | | (Nagoya to Okayama) |
| 11 | 6 June | Sun | | (Off) |
| 12 | 7 June | Mon | PDAM Okayama | <ul style="list-style-type: none"> • Water Supply in Okayama City • Capacity Building • Public Relations • Financial Management • Water Tariff |
| 13 | 8 June | Tue | PDAM Okayama | <ul style="list-style-type: none"> • O & M of Water Treatment Plant • Water Quality Control and Test |
| 14 | 9 June | Wed | PDAM Okayama | <ul style="list-style-type: none"> • Discussion with Directors of PDAM Nagoya (Ookayama to Tokyo) |
| 15 | 10 June | Thu | NSC | <ul style="list-style-type: none"> • Preparation of Findings and Action Plan |
| 16 | 11 June | Fri | JICA Training Center | <ul style="list-style-type: none"> • Presentation of Findings and action Plan • Evaluation by JICA |
| 17 | 12 June | Sat | | (Tokyo to Jakarta) |



At Ministry of Health, Labor and Welfare



At PDAM Nagoya



At PDAM Okayama

3.2.2 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 |

The trainees went through the exercise similar to the first training program for the president directors.

Main components of the training program were as follows:

- Water supply management in the Japanese waterworks bureau

- Institutional management in the Japanese waterworks bureau
- Measures for NRW reduction, leakage survey, water supply and demand planning, water rights, wise water use, wellhead protection
- Financial management, asset management, investment planning, calculation, meter reading, billing and collection of water tariff
- Operation and maintenance of water treatment plant, water quality control, disaster prevention countermeasure
- Cooperation and coordination with neighboring waterworks bureaus
- Utilization of GIS database and management of pipeline and facility data
- Performance indicators and public relations

Schedule of the second training program is shown in **Table 3.2-4**.

Table 3.2-4 Schedule of Second Training Program in Japan

| Date | | | Place | Contents |
|------|----------|-----|---------------------------------------|--|
| 1 | 22 July | Thu | | (Jakarta to Tokyo) |
| 2 | 23 July | Fri | JICA Training Center | • Briefing |
| 3 | 24 July | Sat | | (Off) |
| 4 | 25 July | Sun | | (Off) |
| 5 | 26 July | Mon | Ministry of Health, Labor and Welfare | • Water Supply in Japan |
| | | | Japan Water Works Association | • Water Supply Management in Japan |
| 6 | 27 July | Tue | JICA Nagoya | Tokyo to Nagoya • Country Report Presentation by trainees |
| 7 | 28 July | Wed | PDAM Nagoya | • Waterworks Management • Expansion of Supply Area • Function of Branch Office • Control of Drawing Data and Information • Water Supply Master Plan in Nagoya City |
| 8 | 29 July | Thu | PDAM Nagoya | • Measures of NRW Reduction • Site Visit (Distribution Center) |
| 9 | 30 July | Fri | PDAM Nagoya | • Water Supply in Nagoya City • Discussion with Directors of PDAM Nagoya • Preparation of Action Plan |
| 10 | 31 July | Sat | | (Nagoya to Okayama) |
| 11 | 1 August | Sun | | (Off) |
| 12 | 2 August | Mon | PDAM Okayama | • Water Supply in Okayama City • GIS Database and Asset Management • Financial Management • Pipe Repair Work, Leak Detection Survey |
| 13 | 3 August | Tue | PDAM Okayama | • Site Visit (Treatment Plant) • O & M of Water Treatment Plant • Water Quality Control • Public Relations and Capacity Development |
| 14 | 4 August | Wed | PDAM Okayama | • Discussion with Directors of PDAM Nagoya (Okayama to Tokyo) |
| 15 | 5 August | Thu | NSC | • Preparation of Findings and Action Plan |
| 16 | 6 August | Fri | JICA Training Center | • Presentation of Findings and action Plan |
| | | | | • Evaluation by JICA |
| 17 | 7 August | Sat | | (Tokyo to Jakarta) |



At Japan Waterworks Association



At PDAM Nagoya



At PDAM Okayama

3.2.3 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 |

The purpose of the training program is 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, especially the leadership for coordinating water works among Kota/Kabupaten, regional water supply planning, etc.

Outline of the training subjects are as follows:

- Water supply administration in Japan
- Organizational management for Japanese Water Works, especially roles of central, province and local government for water works, roles of regulator and operator.
- Regional water supply and cross-border water supply system in Japan
- Water supply planning and performance indicators in Japanese Water Works

Schedule of the training is shown in **Table 3.2-6**.

Table 3.2-6 Schedule of Third Training Program in Japan

| Date | | | Place | Contents |
|------|--------|-----|----------------------------|---|
| 1 | 25 May | Wed | | (departure from Jakarta) |
| 2 | 26 May | Thu | JICA Chubu Training Center | (arrival at Nagoya) • Briefing |
| 3 | 27 May | Fri | PDAM Nagoya | • Water Supply System in Nagoya City • Water Supply Management • Expansion of Supply Area |
| 4 | 28 May | Sat | | (Nagoya to Tokyo) |
| 5 | 28 May | San | | (Off) |
| 6 | 30 May | Mon | Ministry of Health, Labor | • Water Supply Policy in Japan |

| | | | | |
|----|--------|-----|-------------------------------|---|
| | | | and Welfare | |
| | | | Japan Water Works Association | • Water Supply Management in Japan |
| 7 | 31 May | Tue | JICA Tokyo | Courtesy Call to JICA Head Office (Tokyo to Nagoya) |
| 8 | 1 June | Wed | PDAM Nagoya | • Water Supply Master Plan in Nagoya City • Water Resource Management • Site Visit (WTP & Intake) |
| 9 | 2 June | Thu | PDAM Nagoya | • Discussion with Directors of PDAM Nagoya |
| | | | Aichi Prefecture | • Regional Water Supply Planning • Roles of City Level and Prefecture Level • Outline of Regional Water Supply System in Aichi Prefecture |
| 10 | 3 June | Fri | JICA Chubu Training Center | • Preparation and Presentation of Findings and Output from the Training in Japan • Evaluation by JICA |
| 11 | 4 June | Sat | | (Nagoya to Jakarta) |



At Ministry of Health, Labor and Welfare



At Japan Water Works Association



At PDAM Nagoya

3.3 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 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 photocopier for Dinas Tarkim, SulSel. The detailed list of the equipment procured by the Project is listed in **Table 3.3-1** and photos of the major equipment are shown in **Photo 3.3-1**.

Table 3.3-1 List of Equipment

| Name of Equipment | | PDAM | | | | |
|---|---------------------------------------|----------|-------|------|---------|-------|
| | | Makassar | Maros | Gowa | Takalar | Total |
| Procured in the First Year | | | | | | |
| Equipment stated in Form A4 dated 7 September 2009 | | | | | | |
| 1-1 | Flow Meter (for Master meter) | 1 | 0 | 2 | 0 | 3 |
| 1-2 | Flow Meter (for Pilot District) | 1 | 1 | 2 | 1 | 5 |
| 2 | Ultra Sonic Flow Meter | 1 | 1 | 1 | 1 | 4 |
| 3-1 | Metal Locator (Valve Locator) | 1 | 1 | 1 | 1 | 4 |
| 3-2 | Metal Pipe Locator | 1 | 1 | 1 | 1 | 4 |
| 3-3 | Digital sounding bar | 1 | 1 | 1 | 1 | 4 |
| 3-4 | Leak Detector | 1 | 1 | 1 | 1 | 4 |
| 3-5 | Leak Noise Correlator | 1 | 1 | 1 | 1 | 4 |
| 3-6 | Portable Pressure Meter | 2 | 2 | 2 | 2 | 8 |
| 3-7 | Distance Meter | 1 | 1 | 1 | 1 | 4 |
| 4-1 | Turbidimeter (for High) | 0 | 0 | 3 | 0 | 3 |
| 4-2 | Turbidimeter (for Low) | 0 | 1 | 1 | 1 | 3 |
| 4-3 | pH meter | 3 | 2 | 5 | 1 | 11 |
| 4-4 | Chlorine meter | 3 | 2 | 6 | 2 | 13 |
| 4-5 | Jar Tester | 0 | 2 | 4 | 1 | 7 |
| 5-1 | GIS Software (for 1server, 3 clients) | 0 | 1 | 1 | 1 | 3 |
| 5-2 | GIS server | 1 | 1 | 1 | 1 | 4 |
| 5-3 | Client PC | 3 | 3 | 3 | 3 | 12 |
| 5-4 | Monitor | 4 | 4 | 4 | 4 | 16 |
| 5-5 | OS Software | 1 | 1 | 1 | 1 | 4 |
| 5-6 | Printer | 1 | 1 | 1 | 1 | 4 |
| 5-7 | Network Equipment | 1 | 1 | 1 | 1 | 4 |
| 5-8 | Satellite Image | 0 | 1 | 1 | 1 | 3 |
| Equipment stated in Form A4 dated 11 February 2010 | | | | | | |
| 1-1 | Flow Meter (for Master meter) | 1 | 2 | 3 | 0 | 6 |
| 2-1 | Customer Meter | 436 | 600 | 600 | 209 | 1845 |
| 3-1 | Pressure Gauge (for house connection) | 3 | 3 | 3 | 3 | 12 |
| 3-2 | Non-Metallic Pipe Locator | 1 | 1 | 1 | 1 | 4 |
| 3-3 | Basic Listening Stick | 2 | 2 | 2 | 2 | 8 |
| 3-4 | Boring Bar | 1 | 1 | 1 | 1 | 4 |
| 3-5 | Hummer Drill with Drill Bit | 1 | 1 | 1 | 1 | 4 |
| 3-6 | Generator for Hummer Drill | 1 | 1 | 1 | 1 | 4 |
| 3-7 | Power Supply for Flow Meter | 1 | 1 | 1 | 1 | 4 |
| 4-1 | Hydrometer | 3 | 2 | 6 | 2 | 13 |
| 4-2 | Alkalinity Analyzer | 6 | 4 | 12 | 4 | 26 |
| 4-3 | UPS for Turbidity Meter | 3 | 2 | 6 | 2 | 13 |
| 4-4 | Tungsten Filament Lamp | 0 | 1 | 4 | 1 | 6 |
| 5-1 | Stabilizer for GIS computer | 1 | 1 | 1 | 1 | 4 |
| 5-2 | UPS for GIS computer server | 1 | 1 | 1 | 1 | 4 |
| 5-3 | Notebook computer with software | 0 | 3 | 3 | 3 | 9 |
| Procured in the Second Year | | | | | | |
| 1-1 | Ultra Sonic Flow Meter | 1 | 1 | 1 | 1 | 4 |
| 1-2 | Leak Detector | 1 | 1 | 1 | 1 | 4 |
| 2 | pH meter | 3 | 2 | 5 | 1 | 11 |

| | | |
|---|---|---|
|  |  |  |
| GIS Equipment, Makassar | GIS Equipment, Maros | GIS Equipment, Gowa |
|  |  |  |
| GIS Equipment, Takalar | Master Meter | Customer Meter |
|  |  |  |
| Ultra Sonic Flow Meter | Leak Detector | Turbidimeter with UPS |
|  |  |  |
| Jar Tester | Alkalinity Analyzer | Hydrometer |

Photo 3.3-1 Major Equipment provided by JICA

3.4 Operational Expenses

The operational expenses borne by Japanese side are shown in **Table 3.4-1**. The total amount of 30.31 million Japanese yen (approximately equivalent to 3.13 billion Indonesian Rupiah) was allocated for the first year and 25.61 million Japanese yen (approximately equivalent to 2.72 billion Indonesian Rupiah) for the second year.

Table 3.4-1 Operational Expenses borne by Japanese Side

(Unit: Japanese Yen)

| No. | Cost Items | First Year (Oct 2009-Aug 2010) Actual | Second Year (Sep 2010- Feb 2012) Plan | Total |
|-----|--|---|---|------------|
| 1 | General Cost | 13,409,000 | 22,919,000 | 36,328,000 |
| 1.1 | Staff Cost | 10,920,043 | 17,330,176 | 28,250,219 |
| 1.2 | Equipment Maintenance Cost | 0 | 0 | 0 |
| 1.3 | Consumable Cost | 423,260 | 739,958 | 1,163,218 |
| 1.4 | Travel Expense | 51,654 | 685,300 | 736,954 |
| 1.5 | Communication Cost | 53,879 | 213,408 | 267,287 |
| 1.6 | Document Preparation Cost | 328,464 | 271,408 | 599,872 |
| 1.7 | Vehicle Rental Cost | 1,470,738 | 3,246,610 | 4,717,348 |
| 1.8 | Workshop & Seminars | 161,132 | 432,860 | 593,992 |
| 2 | Equipment Shipping Cost (Other Equipment) | 0 | 423,000 | 423,000 |
| 3 | Report Preparation Cost (Printing and Binding) | 272,000 | 1,753,000 | 2,025,000 |
| 4 | Report Preparation Cost (Except Printing and Binding) | 683,000 | 516,000 | 1,199,000 |
| 5 | Local Consultant Cost | 15,948,000 | 0 | 15,948,000 |
| | Total | 30,312,000 | 25,611,000 | 55,923,000 |

CHAPTER 4 MAJOR MEETINGS AND ACTIVITIES

4.1 Joint Coordinating Committee Meeting

4.1.1 Kick-Off Meeting on 8th October, 2009

Prior to the commencement of the Project, a kick-off meeting was held chaired by the Director of Water Supply Development, Directorate General of Human Settlements (Cipta Karya), Ministry of Public Works, Mr. Ir. Tamin M. Zakaria Amin, on 8th October, 2009 in the meeting room of Cipta Karya, Ministry of Public Works, in Jakarta.



At the meeting the Japanese side explained the outline of the Project, and the two sides shared information and discussed the scope of the Project. The meeting agenda of the meeting is as follows:

- Date and Time : 8th October, 2009, 10:00 – 12:30
Place: Meeting Room, Cipta Karya, PU, Jakarta
Agenda:
- Opening speech by Director of Water Supply Development, Cipta Karya, Ministry of Public Works
 - Speech by Sub-Director of Program Development, Cipta Karya, Ministry of Public Works
 - Outline of the Project (JICA Official and JET)
 - Discussion

Minutes of the meeting are attached in **ANNEX 1**.

4.1.2 Meeting with Central Government on 9th April, 2010

After the issue of Progress Report No.1, project implementation unit (PIU) members (Ir. Zulkarnain, Chairman of PIU, President Directors of 4 PDAMs and JICA Expert Team) explained the activities and progress of the Project to the central government on 9th April, 2010, in the meeting room of Cipta Karya, Ministry of Public Works, in Jakarta. The meeting was chaired by Ir. Alex Abdi Chalik, Deputy Director of Water Supply Development, Cipta Karya, Ministry of Public Works.



The objectives of the meeting were to explain the activities and report on the progress of the Project. Minutes of the meeting are attached in **ANNEX 1**.

4.1.3 First Joint Coordinating Committee (JCC) Meeting on 23rd November, 2010

The First JCC Meeting was held at Cipta Karya, Ministry of Public Works, on 23rd November 2010 in Jakarta, to review the progress of the project and to exchange and discuss opinions on major issues for the smooth implementing of the project. The meeting was chaired by Mr. Danny Sutjiono, Director of Water Supply Development, Cipta Karya, Ministry of Public Works. Members of the Joint Coordinating Committee are listed in **Table 4.1-1**.

Table 4.1-1 Member of Joint Coordinating Committee

| Structure | Function | Member |
|------------------------------------|--|--|
| Joint Coordinating Committee (JCC) | <p>The JCC will be organized at national level to supervise and review overall progress of the Project.</p> <p>The JCC will meet whenever the necessary arises in order to fulfill the following functions:</p> <ol style="list-style-type: none"> 1) To review the progress of the annual work plan; 2) To review and exchange opinions on major issues that may arise during the implementation of the Project; 3) To discuss any other issue(s) pertinent to the smooth implementation of the Project. | <ol style="list-style-type: none"> 1) Chairperson: Director General of Cipta Karya, Ministry of Public Works 2) Members of the Indonesian Side: <ol style="list-style-type: none"> a. Director of Directorate of Water Supply Development, Cipta Karya, Ministry of Public Works b. Director of Directorate of Planning and Programming, Cipta Karya, Ministry of Public Works c. Director of Directorate of Settlements and Housing, BAPPENAS d. Vice-Governor of the South Sulawesi Province (SulSel) as the chairperson of Mamminasata Metropolitan Development Coordination Board (MMDCB) e. Head of DINAS Spatial Planning and Settlement (Tarkim), South Sulawesi Province (SulSel) f. Head of BAPPEDA, South Sulawesi Province (SulSel) 3) Members of the Japanese Side: <ol style="list-style-type: none"> a. Chief Representative of JICA Indonesia Office b. JICA Experts c. Other personnel concerned, to be assigned by JICA, if necessary |

Mr. Syarif Burhanuddin, Director of the Project and Director of Dinas Spatial Planing and Sttlements (Tarkim), South Sulawesi Province (SulSel), briefly explained the outline and progress of the Project. Representatives of PDAMs reported in detail the progress in achieving the 5 outputs. JET explained that after one year into the implementation of the project, PDAMs' performance has improved, especially concerning NRW reduction and water quality control. Minutes of the meeting are attached in **ANNEX 1**.



4.1.4 Second Joint Coordinating Committee (JCC) Meeting on 25th November, 2011

The second JCC Meeting was held at the Hotel Grand Kemang, on 25th November 2011 in Jakarta, and was chaired by Mr. Dwityo Akoro S., Deputy Director of Program Development, Cipta Karya, Ministry of Public Works.

On behalf of the Director of the Project and



Director of Dinas Tarkim, SulSel, Mr. Zulkarnain Kitta, Project Manager and Head of Technical Working Unit (UPTD) Mamminasata, Dinas Tarkim, SulSel, briefly explained the outline and progress of the Project. Representatives of PDAMs reported in detail the progress in achieving the 5 outputs.

In addition, the JICA evaluation team explained the result of the final evaluation of the project. The final evaluation was conducted from 4th November to 25th November, 2011 to verify the achievements of the Project, based on the five evaluation criteria (relevance, effectiveness, efficiency, impact and sustainability) and to recommend future actions. Minutes of the meeting are attached in ANNEX 1.

4.2 Steering Committee Meeting

4.2.1 First Steering Committee Meeting on 2nd November, 2009

A steering committee meeting was held on 2nd November, 2009, in Makassar to explain the outline of the Project to the persons concerned in South Sulawesi Province (SulSel) including Kota Makassar, Kabupaten Maros, Kabupaten Gowa and Kabupaten Takalar. The meeting was also attended by the Vice-Governor of SulSel, Bupati of Kabupaten Takalar, Head of Dinas Tarkim of SulSel. Members of the steering committee are shown in Table 4.2-1.



Table 4.2-1 Member of Steering Committee

| Structure | Function | Member |
|-------------------------|---|--|
| Steering Committee (SC) | The SC was organized at provincial level. The SC monitors and coordinates entire activities of the Project, and is held at least once a year. | 1) Chairperson: Vice-Governor of SulSel as the chairperson of Mamminasata Metropolitan Development Coordination Board (MMDCB) 2) Vice-Chairperson: Head of Dinas Tarkim, SulSel 3) Members of the Indonesian Side: a. Head of BAPPEDA, SulSel b. Mayor (Walikota) of Makassar, Municipality and regent (Bupati) of 3 Districts (Gowa, Maros, Takalar) c. BAPPEDA and PU in Mamminasata d. Chairperson of PIU 4) Members of the Japanese Side: a. Chief Representative of JICA Indonesia Office b. Representative of JICA Makassar Field Office (MFO) c. JICA Experts d. Other personnel concerned, to be assigned by JICA, if necessary |

Agenda of the first Steering Committee Meeting is as follows:

- Date and Time : 2nd November, 2009, 9:00 – 16:00
 Place: Meeting Room, Clarion Hotel, Makassar
 Agenda:
- Opening speech by JICA Official
 - Opening speech by Vice-Governor of SulSel

- Outline of the Project (Chief Advisor of JET)
- Details of the Project (Project Manager)
- Water Supply System in PDAM Nagoya (Mr. Honda)
- Project Schedule and Activities (JET)
- Speech by PDAMs
- Closing speech by Project Director

Minutes of the meeting are attached in **ANNEX 1**.

4.2.2 Second Steering Committee Meeting on 13th July, 2010

A second steering committee meeting was held on 13th July, 2010, in Makassar, to update the persons concerned in South Sulawesi Province including Kota Makassar, Kabupaten Maros, Kabupaten Gowa and Kabupaten Takalar. The Vice-Governor of SulSel, Head of Dinas Tarkim of SulSel, representative of JICA also attended this meeting.



Agenda of the second Steering Committee Meeting is as follows:

- Date and Time : 13th July, 2010, 9:45 – 12:50
 Place: Meeting Room, Clarion Hotel, Makassar
 Agenda:
- Opening speech by JICA Official
 - Opening speech by Vice-Governor of SulSel
 - Outline of the Project (Chief Advisor of JET)
 - Outline of the Project Progress (Project Manager)
 - Activities for Output 1 (Head of WS and PLP, Dinas Tarkim and Local Staff of JET)
 - Detailed Activities for Each PDAM (President Directors of PDAMs)
 - Future Activities (Chief Advisor of JET)
 - Closing speech by Project Manager

Minutes of the meeting are attached in **ANNEX 1**.

4.2.3 Third Steering Committee Meeting on 19th July, 2011

A third steering committee meeting was held on 19th July, 2011, in Makassar. This meeting was also attended by the Head of Dinas Tarkim, Sulsel, and representative of JICA.



Agenda of the third Steering Committee Meeting is as follows:

- Date and Time : 19th July, 2011, 9:30 – 12:30
 Place: Meeting Room, Clarion Hotel, Makassar
 Agenda:
- Opening speech by Director of Dinas Tarkim, SulSel,

- representative of Vice-Governor of SulSel
- Opening speech by Representative of JICA MFO
- Outline of the Project (Chief Advisor of JET)
- Outline of Progress of Each Output (JET)
- Detailed Activities for Each PDAM (Representatives of PDAMs)
- Outline of Future Mamminasata Water Supply System (Team Leader of JICA Survey Team)
- Future Activities (Chief Advisor of JET)
- Closing speech by Project Manager

Minutes of the meeting are attached in **ANNEX 1**.

4.3 Seminars

JET organized seminars 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.

4.3.1 Finance and Management of PDAM

On 23rd of March, 2010, a seminar was held for Project related staff of South Sulawesi Province, Kota Makassar, Kabupaten Maros, Kabupaten Gowa and Kabupaten Takalar. Purpose of this seminar was to provide basic information and train the staff on finance and management of water supply enterprise. After JET made the presentations, discussions were held among participants. JET made the following presentations:



- Water supply management
- Basic financial training for financial indicators
- Financial conditions of 4 PDAMs and outlines of business plans

4.3.2 NRW Reduction

A seminar on the importance of NRW reduction was held on 28th June, 2010. Activities carried out with PDAMs were also explained. Agenda of the seminar is as follows:



- Basic knowledge of NRW Reduction
- Countermeasure of NRW Reduction
- Activities for Output 3 done by PDAMs and JET

4.3.3 Water Supply System and Development

Dinas Tarkim, SulSel, held a water supply seminar at Denpasar Hotel, Kota Makassar, on 27th October, 2010. The objectives of the seminar were to share information and improve knowledge on water supply system and development. The following presentations were made:

- National Water Supply Policy for Metropolitan Water Supply, by Mr. Danny Sutjiono, Director of Water Supply Development, Cipta Karya, Ministry of Public Works
- Improvement of PDAM's Management, by Mr. Rachmat Karnadi, Head of BPPSPAM
- Provincial Policy for Water Supply Service Improvement, by Mr. Syarif Burhanuddin, Director of Dinas Tarkim, SulSel
- Water Resources in Mamminasata Metropolitan Area, by Mr. Abd Nasser Hasan, Sub-director of PSDA, SulSel
- Water Supply Problems of PDAMs in Mamminasata Metropolitan Area, Mr. Oga Takehiko, Chief Advisor of JICA Expert Team
- Reasons why NRW ratio is high and its Countermeasures, by Watanabe Junichi, Deputy Chief Advisor of JICA Expert Team



JET explained the outline and progress of the project, water supply problems of PDAMs, and NRW reduction measures.

4.3.4 Financial Issues for Kabupaten/Kota

Seminars on financial issues were held for each Kabupaten/Kota to promote the understanding of the necessity of cost recovery and sustainable financial management at each PDAM. This topic was especially important for Bupati/Walikota, who is the decision maker of water tariff and is the owner of PDAM, and also related staff of Kabupaten/Kota. At the seminar, Mr. Yamashita, Financial Management Expert of JET, explained the financial status of PDAM, appropriate tariff level for full cost recovery, etc.

4.3.5 Seminar for Indonesia Water Works Association in Jakarta on 18th January, 2011

Upon request of Chairperson of Water Works Association in South and East Sulawesi Provinces, JET presented the contents of the project to officials in charge of water supply services at IWWEF (Indonesia Water & Wastewater Expo & Forum) on 18th January, 2011 in Jakarta.

Mr. Watanabe, Deputy Chief Advisor of JET, explained the NRW reduction activities of the project at the session for “NRW Management”. At the same session, there were presentations by officials from waterworks organizations from Malaysia and the Philippines.



4.3.6 Seminar for Water Works Association in Makassar on 12th November, 2011

Upon request of Chairperson of Water Works Association in South and East Sulawesi Provinces, JET presented the project to PDAMs in South and East Sulawesi Province on 12th November, 2011 in Makassar.

Mr. Oga, Chief Advisor of JET, explained the outline and major activities of the project and Mr. Watanabe, Deputy Chief Advisor of JET, the NRW reduction activities. At the meeting, PDAMs outside the Mamminasata Metropolitan Area showed interest in the project.



4.3.7 Seminar for PDAM Toraja on 14th November, 2011

Upon request of Bupati Tana Toraja in South Sulawesi Province, JET presented to the staff of PDAM Toraja in South Sulawesi Province on 14th November, 2011 at the Government Office of Kabupaten Tana Toraja.

Mr. Oga, Chief Advisor of JET, explained the outline and major activities of the project and Mr. Watanabe, Deputy Chief Advisor of JET, the NRW reduction activities.

After the seminar, JET made a courtesy visit to Bupati Tana Toraja.



4.3.8 Final Seminar of the Project

Final seminar of the project was held on 23rd February, 2012 in Makassar for all stakeholder including central government, provincial government, local government and PDAMs. Agenda of the seminar is as follows:

- Outputs of the project and project indicators
- Activities and outputs of the project presented by each PDAM
- Contents of Project Completion Report and training materials/manuals
- Recommendations after the project
- Hand-over of equipment and training certificates
- Speech of representative of each PDAM



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) listed in **Table 4.4-1**, JICA Expert Team, representatives of agencies concerned such as provincial and local government and PDAM staff (counterpart personnel) related to the project.

Table 4.4-1 Member of PIU

| Structure | Function | Member |
|-----------------------------------|---|---|
| Project Implementation Unit (PIU) | The PIU is a counterpart team to deal with day-to-day project activities. | 1) Chairperson: Head of Technical Working Unit (UPTD), Dinas Tarkim, SulSel 2) Members: a. Head of Water Supply and PLP, Dinas Tarkim, SulSel b. Head of Natural Resources and Regional Infrastructure Division, BAPPEDA, SulSel c. Head of work unit for water supply performance management development, SulSel d. President Directors (Direktur Utama) of 4 PDAMs in Mamminasata e. Directors of 4 PDAMs in Mamminasata |

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

Agenda of the first Monthly Progress PIU Meeting is as follows:

- Date and Time : 16th November, 2009, 9:00 – 13:15
 Place: Meeting Room, PDAM Makassar
 Agenda:
- Counterpart List of the Project (JET)
 - Seminar for Responsibility of Waterworks (Mr. Honda, JET)
 - Future Prospects of PDAMs
 - Activities and Progress of the Project by each PDAM
 - Project Indicators (JET)
 - Seminar for Financial Management (JET)



4.4.2 Second Monthly Progress PIU Meeting (15th December, 2009)

Agenda of the second Monthly Progress PIU Meeting is as follows:

- Date and Time : 15th December, 2009, 9:00 – 12:20
 Place: Meeting Room, PDAM Makassar
 Agenda:
- GIS Database in PDAM Nagoya (Mr. Honda, JET)
 - Establishment of GIS Database (JET)
 - Present Conditions of Water Quality Control in Mamminasata (JET)
 - Project Indicators (JET)
 - Activities and Progress of the Project by each PDAM



4.4.3 Third Monthly Progress PIU Meeting (23rd February, 2010)

Agenda of the third Monthly Progress PIU Meeting is as follows:

Date and Time : 23rd February, 2010, 9:00 – 12:30

Time :

Place: Meeting Room, PDAM Makassar

- Agenda:
- Introduction of Water Supply System in Okayama City (Mr. Kawakami, JET)
 - Seminar for Financial Management (JET)
 - Progress of Output 1 Activity (JET)
 - Activities and Progress of the Project by each PDAM



4.4.4 Fourth Monthly Progress PIU Meeting (19th March, 2010)

Agenda of the fourth Monthly Progress PIU Meeting is as follows:

Date and Time : 19th March, 2010, 9:00 – 12:00

Place: Meeting Room, PDAM Makassar

- Agenda:
- Outline of Project Progress
 - Seminar for Leakage Survey in Japan
 - Establishment of GIS Code
 - Activities and Progress of the Project by each PDAM



4.4.5 Fifth Monthly Progress PIU Meeting (14th April, 2010)

Fifth Monthly Progress PIU Meeting was held in Kabupaten Takalar in the presence of the representative from Bupati Takalar, and its agenda is as follows:

Date and Time : 14th April, 2010, 9:00 – 12:00

Place: Islamic Center, Kab. Takalar

- Agenda:
- Opening Speech by the Representative of Bupati Takalar
 - Water Supply Program in Mamminasata
 - Seminar for “Why we cannot drink water supplied by PDAM” by Mr. Kawakami
 - Activities and Progress of the Project by each PDAM



4.4.6 Sixth Monthly Progress PIU Meeting (11th May, 2010)

Fifth Monthly Progress PIU Meeting was held in Kabupaten Maros in the presence of the representative from Bupati Maros, and its agenda is as follows:

- Date and Time : 11th May, 2010, 10:30 – 13:00
Place: Al Markas Al Islami, Kab. Maros
Agenda:
- Opening Speech by Bupati Maros
 - Water Supply Program in Mamminasata
 - Seminar on “Public Relations”
 - Activities and Progress of the Project by each PDAM



4.4.7 Seventh Monthly Progress PIU Meeting (24th June, 2010)

Seventh Monthly Progress PIU Meeting was held at PDAM Makassar in the presence of Vice-Mayor of Makassar City, and its agenda is as follows:

- Date and Time : 24th June, 2010, 9:00 – 12:00
Place: Meeting Room, PDAM Makassar
Agenda:
- Opening Speech by Vice-Mayor
 - Water Supply Program in Mamminasata
 - Activities for Output 1
 - Activities and Progress of the Project by each PDAM



4.4.8 Eighth Monthly Progress PIU Meeting (19th July, 2010)

Eighth Monthly Progress PIU Meeting was held in Kabupaten Gowa in the presence of representative from Bupati Gowa, and its agenda is as follows:

- Date and Time : 19th July, 2010, 10:00 – 12:30
Place: Bupati Office, Kabupaten Gowa
Agenda:
- Water Supply Program in Mamminasata
 - Next Step for NRW Reduction
 - Activities and Progress of the Project by each PDAM
 - Future Schedule



4.4.9 Ninth Monthly Progress PIU Meeting (20th October, 2010)

Agenda of the ninth Monthly Progress PIU Meeting is as follows:

- Date and Time : 20th October, 2010, 9:00 – 12:00
Place: Meeting Room, PDAM Makassar
Agenda:
- Discussion between provincial government (Dinas Tarkim and PSDA) and PDAM
 - Basic Knowledge of Treatment Process and Water Quality by Mr. Kawakami
 - Activities and Progress of the Project by each PDAM



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

Tenth Monthly Progress PIU Meeting was held at PDAM Takalar in the presence of the representative from Bupati Takalar, and its agenda is as follows:

- Date and Time : 15th November, 2010, 9:00 – 12:00
Place: Meeting Room, PDAM Takalar
Agenda:
- Opening Speech by Bupati Takalar
 - Water Quality Control Activities of each PDAM by Mr. Kawakami
 - Activities and Progress of the Project by each PDAM



4.4.11 Eleventh Monthly Progress PIU Meeting (25th January, 2011)

Eleventh Monthly Progress PIU Meeting was held in Kabupaten Gowa, and its agenda is as follows:

- Date and Time : 25th January, 2011, 09:30 – 12:30
Place: Gedung Tumanurung Adijaya, Kab. Gowa
Agenda:
- Measures for Water Tariff Collection in PDAM Nagoya by Mr. Handa
 - Activities and Progress of the Project by each PDAM



4.4.12 Twelfth Monthly Progress PIU Meeting (16th February, 2011)

Twelfth Monthly Progress PIU Meeting was held in Kabupaten Maros in the presence of Secretary of Kabupaten Maros, and its agenda is as follows:

- Date and Time : 16th February, 2011, 9:00 – 12:00
Place: Afiat Hotel, Kab. Maros
Agenda:
- Opening Speech by the Secretary
 - Public Relations Activity of PDAM Nagoya by Mr. Handa
 - “How to read customer meters?” by Mr. Watanabe
 - Activities and Progress of the Project by each PDAM



4.4.13 Thirteenth Monthly Progress PIU Meeting (14th March, 2011)

Agenda of the thirteenth Monthly Progress PIU Meeting is as follows:

- Date and Time : 14th March, 2011, 09:30 – 12:30
Place: Hotel Quality, Kota Makassar
Agenda:
- Financial Conditions and Financial Management of PDAM Nagoya by Mr. Handa
 - Ceremony for Poster Contest of “Importance of Water”
 - Activities and Progress of the Project by each PDAM (mainly Outputs 2 & 3)



4.4.14 Fourteenth Monthly Progress PIU Meeting (18th April, 2011)

Fourteenth Monthly Progress PIU Meeting was held in PDAM Takalar in the presence of the representative from Bupati Takalar, and its agenda is as follows:

- Date and Time : 18th April, 2011, 09:45 – 12:30
Place: Meeting Room, PDAM Takalar
Agenda:
- Opening Speech by Bupati Takalar
 - Water Quality Data for 1 year presented by Mr. Matsubara
 - Activities and Progress of the Project by each PDAM (mainly Outputs 4 & 5)



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

Fifteenth Monthly Progress PIU Meeting was held in Kabupaten Gowa, and its agenda is as follows:

- Date and Time : 21st June, 2011, 09:00 – 12:00
Place: Gedung Tumanurung Adijaya, Kab. Gowa
Agenda:
- Activities and Progress of the Project by each PDAM
 - Handover and Instruction of Equipment for Leakage Survey
 - Outline of MoU between Kab. Takalar and Kab. Gowa for cross-border water supply services



4.4.16 Sixteenth Monthly Progress PIU Meeting (18th October, 2011)

Sixteenth Monthly Progress PIU Meeting was held in PDAM Makassar. Other than the 4 PDAMs in Mamminasata, PDAM Jeneponto, PDAM Barru, PDAM Pare-Pare and PDAM Pangkep also attended to learn about the project. Agenda of the meeting is as follows:

- Date and Time : 18th October, 2011, 09:45 – 12:00
Place: Meeting Room, PDAM Makassar
Agenda:
- Activities and Progress of the Project by each PDAM
 - Introduction and Brief Explanation of Water Supply Systems of Other PDAMs attended.
 - Discussions on Future Activities



4.4.17 Seventeenth Monthly Progress PIU Meeting (16th November, 2011)

Seventeenth Monthly Progress PIU Meeting was held in PDAM Takalar in the presence of the representative from Bupati Takalar, and its agenda is as follows:

- Date and Time : 16th November, 2011, 09:30 – 12:00
Place: Meeting Room, PDAM Takalar
Agenda:
- Opening Speech by Bupati Takalar
 - Explanation about the Terminal Evaluation Mission from JICA Tokyo and Visitors from Sri Lanka
 - Activities and Progress of the Project by each PDAM



4.4.18 Eighteenth Monthly Progress PIU Meeting (8th December, 2011)

Eighteenth Monthly Progress PIU Meeting was held in Kabupaten Maros in the presence of the representative from Wakil Bupati Maros, and its agenda is as follows:

- Date and Time : 8th December, 2011, 09:45 – 12:00
Place: Baruga Bantimurung Tourist Park, Maros
Agenda:
- Opening Speech by Wakil Bupati Maros
 - Prize-giving of Poster Contest for Save and Wise Water Use in Maros
 - Activities on NRW Redustion in Sri Lanka
 - Activities and Progress of the Project by each PDAM



4.4.19 Nineteenth Monthly Progress PIU Meeting (24th January, 2012)

Nineteenth Monthly Progress PIU Meeting was held in Kabupaten Gowa, and its agenda is as follows:

- Date and Time : 24th January, 2012, 09:30 – 12:00
Place: Gedung Tumanurung Adijaya, Kab. Gowa
Agenda:
- Activities and Progress of the Project by each PDAM
 - Detailed schedule by the completion of the project



ANNEX 1: Minutes of Meetings for Major Meetings

| | | |
|-------------|--|--------------------|
| A1-1 | Kick-Off Meeting on 8th October, 2009 | ----- A1-1 |
| A1-2 | Meeting with Central Government on 9th April, 2010 | ----- A1-5 |
| A1-3 | First Joint Coordinating Committee (JCC) Meeting on 23rd November, 2010 | ----- A1-9 |
| A1-4 | Second Joint Coordinating Committee (JCC) Meeting on 25th November, 2011 | ----- A1-13 |
| A1-5 | First Steering Committee Meeting on 2nd November, 2009 | ----- A1-20 |
| A1-6 | Second Steering Committee Meeting on 13th July, 2010 | ----- A1-23 |
| A1-7 | Third Steering Committee Meeting on 19th July, 2011 | ----- A1-32 |

Meeting/Discussion Memo (1/4)

Ref. No

| | | | |
|--------------------------------|--|-------------------|-----------------------|
| Date: | Thursday, 8 th October 2009 | Time: | 10:00 am – 12:30 pm |
| Place: | Meeting Room, 8 th floor Directorate General of Cipta Karya | | |
| Purpose/ Subject: | Kick Off Meeting for Japan Technical Cooperation for The Project for Water Service Improvement in Mamminasata Metropolitan Area in South Sulawesi Province | | |
| They: (Persons met) | <u>(Name)</u> See attachment | <u>(Position)</u> | <u>(Organization)</u> |
| We: (JICA Expert) | See attachment | | |
| Things discussed: | <p>1. The meeting was opened by chairman of meeting, Director of Directorate General of Water Supply Development, Mr. Ir. Tamin M. Zakaria Amin at 10:00am by welcoming all attendances and explained the purpose of this Kick-Off meeting. Further, Mr. Tamin explained :</p> <ul style="list-style-type: none"> • Based on Minutes of Meeting and Record of Discussion (ROD) which has been signed by all authorities concerned of the Government of Republic of Indonesia and Japan International Cooperation Agency (JICA) on February 2009 and July 2009 respectively, the JICA Expert Team for the Project for Water Service Improvement in Mamminasata Metropolitan Area in South Sulawesi Province has arrived in Jakarta on 5th October 2009 to mobilize the services. Therefore, he strongly suggested that each region shall effectively coordinate, communicate and cooperate with JICA Expert Team members. • The purpose of this Kick-off Meeting is to explain briefly the purpose and target of Project and to introduce JICA Expert Team member, and asked each region of Makassar, Takalar, Gowa and Maros to support the Team in order that the Project could smoothly implementing and target could be achieved. The decision and responsibility would be made and taken by each region, whilst the central government would facilitate through joint coordinating committee meeting (JCC). • The Project is very important to improve the conditions of 4 PDAM's management, financial as well as the water quality. By improving those conditions, it is anticipated that PDAM would have their own budget to make a new investment in future, by taking into account that Pepres No. 29/2009 has allocated 5% of APBN for water supply sector. <p>2. Ibu Rina Agustini, Sub-Director of Program Development, DGCK further explained briefly :</p> <ul style="list-style-type: none"> • This Japanese Technical Cooperation for the Project for Water Services Improvement in Mamminasata Metropolitan Area in South Sulawesi Province is JICA's first time technical cooperation project to PDAMs. • In accordance to the agreement between Government of Japan and Government of Republic of Indonesia, the Project is | | |

scheduled to be implemented for 2.5years from October 2009 until February 2012.

- Also, in the agreement it has been stipulated the responsibility of Government of Japan and Government of Republic of Indonesia as well.

3. Mr. Shigeyuki Matsumoto of JICA Head Office, Japan said the following :

- JICA has dispatched JICA Expert Team to Indonesia whereas the team member consists of 10 experts and 1 coordinator. Several members have arrived in Jakarta on 5th October 2009 to mobilize the services.
- In addition to the above, based on the result of survey made by JICA earlier, the Project will also provide some equipment for leakage survey, GIS soft-wares and water quality analysis. The procurement has been started in Japan and expected to arrive in Indonesia either at late November 2009 or early December 2009.
- Another program which is planning to be carried out is an overseas training in Japan for PDAMs' staffs which is scheduled to be at end May 2010 or end September 2010 for about 14days.
- JICA hope that this Technical Cooperation Project would be useful and contribute many benefits, especially improvement of management, financial, and water quality of 4 PDAMs in particular and South Sulawesi Province.

4. Mr. Takehiko Oga, Chief Advisor of this Technical Cooperation Project has prepared and distributed a draft Inception Report both in English and Indonesian language and its summary to all attendances. During kick-off meeting, he also presented and explained the content of Inception Report.

Mr. Oga explained that the draft Inception Report would be finalized in cooperation with Indonesian side.

5. Mr. Ir. Tan Malaka Guntur, Head of Bappeda South Sulawesi Province said that South Sulawesi Provincial Government is ready and fully support this Project in order to reduce the PDAM's NRW percentage and improvement of management as well as water quality which related to people's health. Therefore, 4 regions included in this Project i.e. Makassar city, Takalar regency, Maros regency and Gowa regency shall cooperate each other to achieve the target goal of the Project effectively.

Comment from Mr. Tan Malaka :

1. Re. "equipment to be supplied by JICA": number of equipment for each region is not same, therefore at the implementation time at site, it is better to have a re-survey to confirm the required number and type of equipments.

Response from Mr. S. Matsumoto, JICA :

The total quantity numbers and type of equipment required as mentioned in draft Inception Report is based on result of survey made by JICA in February 2009.

Comment from Mr. Tan Malaka :

2. Re. "Overseas training" :

- Proposed to be borne by JICA instead of Government of Indonesia
- Proposed not only PDAM's staffs but also including staff of Provincial Government (BAPPEDA and PU TARKIM) and Central Government (Directorate of Water Supply, DPU).

Response from Mr. S. Matsumoto, JICA :

- JICA agreed to finance the overseas training.
- Considering purpose, outputs, activities and target group of the Project, president directors and directors of 4 PDAM have been nominated as trainees for the training in Japan.

6. Mr. Ir. Zulkarnain Kitta., Head of Sub-Dinas Tata Ruang dan Pemukiman Sulawesi Selatan informed that Dinas Spatial Planning and Settlement, South Sulawesi Province support the commencement of the Project and confirmed that an office space for JICA Expert Team which will locate at Spatial Planning and Settlement South Sulawesi office is ready.

7. Mr. Ruslan D. of Makassar city government said that it needs a good coordination among regions, especially regulation to support the Project in achieving the target.

8. PDAM MAROS represented by Mr. H. M. Sanusi informed that PDAM Maros support this Project. He also reported that PDAM Maros has shortage of raw water during dry season and insufficient PLN power supply, so that PDAM Maros has problem during water treatment process.

9. President Director PDAM GOWA, Mr. H. Hasanuddin Kamal said that Gowa regional government supports the Project implementation. He is very optimistic that the Project activities could be done as scheduled.

10. President Director PDAM TAKALAR, Mr. H. Syamsul Kamar said that Takalar regional government support the Project implementation and expecting through this Project, PDAM's conditions would getting improved including the pipe connection from Takalar to Makassar.

11. President Director PDAM MAKASSAR, Mr. Ir. H.M. Tadjuddin Noor said that PDAM Makassar supports this Project, and very much appreciated because Project is given as a grant.

12. In response to some alteration request from related authorities,

Meeting/Discussion Memo (4/4)

Ref. No

| | |
|--|---|
| | <p>Mr. Seiken Higa, JICA Expert of DGCK said that since the Minutes of Meeting and RoD have been agreed and signed by all related authorities, therefore it would be difficult to change it. However, when any alteration required, it is suggested to discuss with Mr. Higa, and he will be a mediator between Indonesian government authorities and JICA.</p> <p>It is concluded that :</p> <ul style="list-style-type: none">• The Project and its scheduled programs should commence immediately and each authority shall actively involve and responsible to their respective responsibilities as it has bounded in agreed minutes of meeting.• Inception Report has been prepared based on Minutes of Meeting and RoD. Therefore, it is advised to read the draft Inception Report and also refer to Minutes of Meeting and RoD as well as a reference. <p>The meeting adjourned at 12:30 and closed by Mr. Tamin as chairman of</p> |
|--|---|

Meeting/Discussion Memo (1/4)

Ref. No

| | | | |
|--------------------------------|--|-------------------|-----------------------|
| Date: | Friday, 9 th April 2010 | Time: | 14:00 pm – 15:30 pm |
| Place: | Meeting Room, 8 th floor Directorate General of Cipta Karya | | |
| Purpose/ Subject: | Project Progress Meeting for Japan Technical Cooperation for The Project for Water Service Improvement in Mamminasata Metropolitan Area in South Sulawesi Province | | |
| They: (Persons met) | <u>(Name)</u> See attendant list | <u>(Position)</u> | <u>(Organization)</u> |
| We: (JICA Expert) | See attendant list | | |
| Things discussed: | <p>1) At 14:00pm, the meeting was opened by Mr. Alex Abdi Chalik, Kepala Seksi Investasi, Water Supply Development, Cipta Karya, PU, representing the Director of Water Supply Development by welcoming all attendance.</p> <p>Further he said that this project is not only technical cooperation but also including equipment provision and he also already received letter from JICA concerning the overseas training to Japan for 4 Directors of PDAMs. Therefore the purpose of this Project Progress meeting is to have information how far the project has been done, problems and solution to be taken.</p> <p>He is then welcoming Mr. Ir. Zulkarnain Kitta, Head of UPTD Mamminasata, Dinas Tarkim Province Sulawesi Selatan, to start the project reports.</p> <p>2) Mr. Zulkarnain Kitta, representing the provincial government of South Sulawesi, said that he should support this Project as a project manager of the Project and a chairman of Project Implementation Unit (PIU). South Sulawesi Province's development is very important for Indonesia Eastern region, therefore the Ministry of Public Works would fully support any activities of the Project.</p> <p>To evaluate a success of Project and acting as PIU, Mr. Zulkarnain pointed out the following :</p> <ul style="list-style-type: none"> - Target revenue water for all PDAM in Mamminasata area is 80%. - To make clear who has responsibilities of the Project, from Indonesia side among central government, provincial government, kota/kabupaten and PDAMs, as well as Japanese side of JICA HQ (Japan) and JICA Jakarta. - Parameter indicators of 5(five) project outputs targeted should be made. - Manual / guidelines and also recommendation of any activities to be done. - To have more coordination between related authorities. At | | |

| | |
|--|---|
| | <p>present coordination and monitoring of project is not so good.</p> <ul style="list-style-type: none"> - The Project shall not only to focus to 4 PDAMs' activities and its staffs but also to ask more involvement from the executing agency such as Dinas PU, Bappeda in both regency and city. The purpose of the involvement of executing agency is also improvement of its capability, therefore for future it is easy to make policy and financial support for water supply project. <p>3) Mr. Alex Abdi Chalik, explained that it's very difficult for central government to monitor the all activities of the project and he hopes that PIU is more active to monitor this project. He also added that through training in Japan for 4 Director of PDAMs, the material of training can be reference for best practice in all PDAMs in South Sulawesi province.</p> <p>4) Mr. Takehiko Oga, Chief Advisor of JICA Expert Team, reported that he prepared and distributed the Project Progress Report No.1 for the period from October 2009 until February 2010 to agencies concerned. Further he briefly made a presentation concerning project progress and activities to date, such as :</p> <ul style="list-style-type: none"> - dispatch schedule of JICA Expert Team - major activities related to overall project activities - equipment provision - major activities for each output - project indicators - future activities <p>All equipment for NRW, water quality test, GIS, etc. as listed in the Record of Discussion, has been provided and handed over to 4 PDAM ie. PDAM Makassar, PDAM Gowa, PDAM Maros and PDAM Takalar.</p> <p>The monthly progress PIU meeting have been implemented regularly (basically every month) at South Sulawesi Province.</p> <p>5) President Director of PDAM Makassar, Mr. H.M. Tadjuddin said that he fully supports the Project and its activities has been implemented very well by having a regular monthly meeting. He is very happy that JICA technical assistance has been greatly given contribution to PDAM Makassar.</p> <p>He also confirmed that PDAM Makassar received equipments of NRW and water quality test which is now being used by PDAM Makassar.</p> <p>6) Director Technic of PDAM Makassar, Mr. Abd. Rachmansyah reported an additional explanation on :</p> |
|--|---|

| | |
|--|---|
| | <ul style="list-style-type: none"> - Output 1 requires more actions and cooperation among 4 PDAMs. - Output 3 relates to PDAM's financial/budget to maintain those equipments received from JICA. - Output 4 shall require monitoring and evaluation on GIS activities. <p>7) President Director of PDAM Gowa, Mr. H. Hasanuddin Kamal said that PDAM Gowa is happy to this JICA technical project since it has been contributed many benefits to PDAM Gowa encouraging by 5 outputs of the Project.</p> <p>However, to reach all the 5 outputs, PDAM Gowa as well as other 4 PDAMs has several difficulties, especially by their present financial condition. Therefore he is afraid that after project completion, PDAMs would not be able to maintain the target as JICA wishes.</p> <p>Considering that PDAMs at Mamminasata area are selected as a pilot project for other PDAMs, PDAM Gowa wishes other related parties to assist financing to maintain all activities targetted. Therefore a clear financial responsibility among central government, provincial government, kota/kabupaten and PDAM self are required.</p> <p>If this project is succeeded, then other PDAMs would be encouraged to do the same.</p> <p>8) President Director PDAM Takalar, Mr. H. Syamsul Kamar agreed to what President Director PDAM Gowa said. He added that PDAM Takalar has already prepared room space for GIS as well as laboratory. PDAM Takalar is very happy with the Project and people in Takalar regency have been noted that JICA team is working to assist PDAM Takalar.</p> <p>Regarding nominee for the 2nd overseas training in Japan for directors, he suggested that PDAM Takalar wanted to nominate PDAM's staff by themselves, because he knows well his staffs' capability.</p> <p>9) President Director of PDAM Maros, Mr. H.M. Sanusi said that the Project has given a good contribution to PDAMs in Mamminasata area especially for PDAM Maros. Therefore, PDAM Maros fully supports and always facilitates the project activities.</p> <p>Further, to support and maintain continuation of Project activities, it is expected to have coordination among PDAMs and provincial government and central government, especially water</p> |
|--|---|

Meeting/Discussion Memo (4/4)

Ref. No

| | |
|---|--|
| | <p>shortage which always happens in October, November and December. So that, a real action to protect the upstream raw water should be taken by the central government.</p> <p>10) Ms. Dewi C. said that all activities of this project should have indicators and recommendations and hope after this project it can be reference for PDAMs to improve their capability in future.</p> <p>11) Ms. Kitamura, JICA Indonesia Office, explained that all activities and indicators are approved and clearly mentioned in Record of Discussions signed on 31 July, 2009 between both Japanese side and Indonesian side. She also added that recommendations of all activities will be made later in a final report at the end of the Project.</p> <p>The meeting closed at 15:30pm.</p> |
| Particulars: (documents received, things committed/ followed,etc) | <ol style="list-style-type: none">1. Hand out of the presentation by Mr. Oga, Chief Advisor |

Prepared by: JICA Expert Team

Meeting/Discussion Memo (1/5)

Ref. No

| | | | |
|--------------------------------|---|-------------------|-----------------------|
| Date: | Tuesday, 23 rd November 2010 | Time: | 14:15 pm – 17:00 pm |
| Place: | Meeting Room, 3 rd floor Directorate General of Cipta Karya | | |
| Purpose/ Subject: | Joint Coordination Committee (JCC) Meeting for Japan Technical Cooperation for The Project for Water Service Improvement in Mamminasata Metropolitan Area in South Sulawesi Province | | |
| They: (Persons met) | <u>(Name)</u> | <u>(Position)</u> | <u>(Organization)</u> |
| | See attendant list | | |
| We: (JICA Expert) | See attendant list | | |
| Things discussed: | <p>1) At 14:15pm, the meeting was opened by Director Water Supply, Mr. Danny Sutjiono representing the Director General CK by welcoming all attendances.</p> <p>He then explained the purpose of JCC is for hearing from each PDAM concerning progress of project activities which has been reached.</p> <p>2) Mr. Syarif Burhanuddin, Chief of Dinas Tarkim, firstly informed that Vice Governor South Sulawesi Province would late attend JCC due to delay of his flight. Then he briefly presented the project general information such as project location, purpose and aim of project. The following are Mr. Syarif's input for this project :</p> <ul style="list-style-type: none"> - pilot project could attract other areas/PDAMs to follow these 4PDAMs ; - water production shall not counted at each respective PDAM but hoping as Mamminasata region - more coordination from PDAM Makassar is required. <p>3) In addition to Mr. Syarif's presentation on project, Mr. Takehiko Oga as Chief Advisor of this Technical Cooperation Project has prepared and distributed a hand-out of summary project progress until October 2010, concerning :</p> <ul style="list-style-type: none"> - JICA Expert Team overall schedule - major activities each output - list of equipments supplied to 4 PDAMs <p>Mr. Oga reported that after one year implementation of this project, basically 4 PDAMs' performance has been improved, especially concerning NRW and water quality control.</p> <p>4) Report of project progress of each Output from each PDAM are presented in separate paper as attached.</p> <p>5) The following are information and input from :</p> <ul style="list-style-type: none"> • Mr. K. Yamashita, JICA Expert Team for Output 2. <ul style="list-style-type: none"> - At present, after trained by JICA Team, all 4 PDAMs financial staffs can make business plan. | | |

| | |
|--|--|
| | <ul style="list-style-type: none"> - JICA has given training on cost recovery and how to do financial projection and how to calculate financial indicators to 4 PDAMs - JICA has also given training how to calculate water tariff to cover operational costs. <ul style="list-style-type: none"> • Mr. Setio Djuwono, <ul style="list-style-type: none"> - NRW calculation shall also taking into account its physic condition, therefore need test band. - To improve manpower's attitude, therefore it shall have key personal index, reward & punishment. • Mr. M. Ghazali Djakaria, <ul style="list-style-type: none"> - High NRW rate was caused due to discrepancy between water meter reading record and total distributed water record not at the same date. • Mr. Danny Sutjiono, Director of Water Supply DGCK <ul style="list-style-type: none"> - GIS technology shall contribute and produce more benefit to improve PDAM management. Based on finding GIS data, PDAM shall make effort to do a real improvement in NRW which give big impact to PDAM financial. - Advise PDAMs to coordinate with Ministry of Health for assisting on water quality test for tap water. - Advise PDAMs to give an incentive allowance to PDAM staffs when target achieved. - By having business plan, PDAMs shall improve their financial capability and PDAM shall self-effort how to make an investment without request from central government and request participation private sector in small scale at first. - PDAMs shall know how to do maintenance of equipment and wish JICA to assist in training regarding this matter, so that PDAM can repair the equipment without buying new one. - Water meter reading shall be at same date every month to avoid any discrepancy on NRW calculation. - PDAMs to do pipe washing every 6 months to maintain good water quality reached to consumer. - To improve water distribution at whole areas equally by using valve arrangement. • Mr. Agus Arifin Nu'mang, Vice Governor of South Sulawesi <ul style="list-style-type: none"> - Conveyed appreciation to JICA for this technical assistance Project which has given many benefit to PDAMs. - Mamminasata's water pipeline shall need to rehabilitate. - Recommend PDAMs to serve customer as priority not only business oriented. - To implement green plan of 1 billion trees. - PDAM shall proactively read and record customer meters every month at same date. |
|--|--|

Meeting/Discussion Memo (3/5)

Ref. No

| | |
|---|--|
| | The meeting is closed at 17:00pm. |
| Particulars: (documents received, things committed/ followed,etc) | <ol style="list-style-type: none">1. Hand-out of Mr.Oga's presentation2.3. |

Prepared by: JICA Expert Team

Meeting/Discussion Memo (4/5)

Ref. No

| PDAM | Output 1 | Output 2 | Output 3 | Output 4 | Output 5 | Remarks |
|---|--|---|--|---|---|---|
| Mr. H.M. Sanusi, President Director PDAM Maros | - Coordination among 4PDAMs has been developed. Especially with PDAM Makassar who intend to buy water from PDAM Maros to supply to a new housing area. | - staffs PDAM Maros has been trained by JICA regarding improvement financial management, efficiency, how to make financial report, calculation of water tariff, etc. | - PDAM Maros is now using equipment supplied by JICA to do leakage survey. - PDAM to do meter reading routinely at pilot project area. - PDAM replaced broken customer meters. - NRW ratio reduced from 43.32% to 33.44%. - Water selling revenue has been increasing. | - PDAM staffs got knowledge of GIS. - PDAM staffs are doing digitizing all service area routinely. | - PDAM Maros is now doing a routine test of turbidity, chlorine residue, etc. | PDAM Maros is very satisfied with this JICA project assistance, very useful and worthy. |
| Mr. Hasanuddin Kamal President Director PDAM Gowa | - Coordination among 4PDAMs has not intensively developed except with PDAM Takalar which is border of Gowa. | - PDAM Gowa could improved his financial condition, ie. water selling revenue for the last 6 months increased from Rp.600million to Rp.1 billion. - Efficiency in water billing collection increased from 55% to 70%. - PDAM Gowa could make business plan. | - PDAM Gowa appreciated JICA for supplying leakage detection equipment. - NRW ratio has reduced. - PDAM Gowa know how to calculate the NRW ratio accurately which is different with PDAM's way previously. - PDAM Gowa replaced old pipes. | - PDAM staffs got knowledge of GIS. - PDAM staffs are doing digitizing all service area routinely. - By applying GIS, PDAM Gowa found some illegal connections at pilot project area. | - PDAM Gowa has implemented water test regularly based on JICA guidance, and improved water quality. - Raw water PDAM Gowa is not so good therefore, shall make effort continuously. | PDAM Gowa is satisfied and happy with this JICA project assistant, and hope that JICA will also supply equipment not only main equipment but also supporting equipment since PDAM has a limited fund. |

4

Meeting/Discussion Memo (5/5)

Ref. No

| | | | | | | |
|--|--|--|---|--|--|---|
| Mr. H. Syamsul Kamar President Director PDAM TAKALAR | - PDAM Takalar has made coordination with PDAM Gowa by supplying water with very low rate. | - Result of audit on PDAM Takalar's financial is healthy. - PDAM Takalar staff is improving on financial knowledge. | - Before JICA project, PDAM Takalar did not know how to calculate NRW ratio correctly, but now they can do it. - NRW ratio is reduced from 30% to 28%. - PDAM Takalar has changed some customer meters. | - Before JICA Project, PDAM Takalar has no data of pipes, etc but now they know data on pipe location, etc, and also it is now very easy to detect leakage points. | - Before JICA project, PDAM Takalar has no laboratory, has no staff. But now PDAM has laboratory and staffs to do water quality test every 2 hours with JICA guidance. | PDAM Takalar is satisfied with JICA project assistance. |
|--|--|--|---|--|--|---|

Meeting/Discussion Memo (1/7)

Ref. No

| | | | |
|------------------------|--|--------------|-------------------|
| Date: | Friday, November 25 th , 2011 | Time: | 9:00 AM– 11:30 AM |
| Place: | Spiral Room , Hotel Grand Kemang, Jakarta | | |
| Topic : | Joint Coordination Committee (JCC) Meeting on November 25 th , 2011, Project for Water Service Improvement in Mamminasata Metropolitan Area in South Sulawesi Province. | | |
| Things to be discussed | <p>The Meeting was opened by Head of Sub-directorate for foreign cooperation, Directorate of Program Development, DGHS, Mr. Dwityo Akoro, at 9:00 by welcoming all attendances and explained the purposes of JCC. The details were as follows.</p> <p>A. Opening speech by Mr. Dwityo Akoro S, Head of Sub-directorate for foreign cooperation, Directorate of Program Development, DGHS. He welcomed to audiences and thanks a lot for joining in this meeting. Additionally, he apologized to audiences since Director of Program Development couldn't join in this meeting.</p> <p>B. Speech :</p> <ol style="list-style-type: none"> 1. Mr. Dwityo Akoro S, Head of sub-directorate for foreign cooperation, Directorate of Program Development, explained as follows : <ul style="list-style-type: none"> • With regards to the agenda, there would be MoU signed which has been prepared by JICA Team at the end of the meeting. • The project duration is from September 2009 to March 2012. • Mamminasata area is strategically and rapidly grown as a representative area of the eastern Indonesia • By the end of this project, we expected that the 4 PDAMs can continue 5 activities (outputs) just as hard as ever. • Representatives from 4 PDAMs attended the training in Japan to find out and study the condition of water supply service in the country. 2. Mr. Zulkarnaen Kitta, MSi., Head of Technical Implementation Unit (UPTD), representative of Head of Spatial Planning and Settlement Agency, South Sulawesi Province, explained about outline of project as follows : <ul style="list-style-type: none"> • Inter regional cooperation for water service between PDAM Makassar and PDAM Maros being prepared. The main problem is raw water availability. • One of the successes of project is the NRW reduction. The trial of NRW countermeasures is implemented in the pilot areas and achieved NRW reductions about 3 (three) to 11(eleven) %. • The equipment and materials on GIS arrangement have been received from JICA and training to PDAMs staff is still in progress by the JET. • PDAMs should prepare necessary budget to overcome the program of the NRW reduction. This is hard for PDAMs | | |

themselves, consequently in the future it is expected that there will provincial or central government aid to continue the program.

- We expect that manuals prepared by JET will be submitted, so that PDAMs team would be able to implement the activities even after the completion of the project.
- At present, two PDAMs are classified as healthy, i.e. PDAM Gowa and PDAM Takalar, and the remaining 2 (two) PDAM are still in unhealthy condition, i.e : PDAM Makassar and PDAM Maros.
- In the remaining period, he expects that JET can identify the factors that cause unhealthy condition at the 2 (two) PDAMs in order to solve the some problem by the PDAM themselves or local government associated with South Sulawesi province.
- In the future, 4PDAMs are expected to be a facilitator of central laboratory for water quality analyzing and testing and also workshop, or calibration for customer meter and training for other PDAMs in South Sulawesi under the management of Provincial Government.
- Local government of South Sulawesi considers that technical cooperation for capacity building by JICA or Central Government is still required for the preparation of appropriate approaches in order to improve the performance and water supply service of PDAMs to achieve the target of MDG (Millenium Development Goal) in Mamminasata

C. PRESENTATION OF PROGRESS REPORTS AND EVALUATION

1. PDAM Makassar

The Project progress was explained by Mr. Ir. Pandu Suryo, technical staff of PDAM Makassar as representative of President Director (Material was attached), Explained as follows:

- PDAM Makassar was very thankful to this project, because it was good impact directly to the PDAM Makassar's performance, particularly output 3 (three) i.e. NRW reduction.
- During this project implementation, there was replacement of president director of PDAM Makassar. President director and previous technical and financial Directors have attended the training in Japan held by JICA.
- Output 1 ;
 - MoU with Takalar has been signed.
 - MoU with Maros is still in process.
- Output 2 :
 - Water tariff has been increased since June 2011.
 - Financial condition is improving.
 - This year, PDAM have started to get profits.
 - PDAM's staffs have the capability to evaluate the business plan
- Output 3 (NRW) :
 - During implementation of the project, 3,000(three thousand) leakage points were detected and repaired by using leakage detector tool with assistance of JICA. Generally, leakage reduction was 7 (seven) % to 15

| | |
|--|--|
| | <p>(fifteen) %</p> <ul style="list-style-type: none"> • Output 4 (GIS): <ul style="list-style-type: none"> ➢ Digitalization of pilot project named “Taman Kayangan” has been completed. • Output 5 : <ul style="list-style-type: none"> ➢ During this project, especially skills for water quality testing and recording have been improved. ➢ Raw water from Jeneberang River has a high turbidity (\pm 9000 NTU). It is difficult to treat for existing PDAM’s facilities. ➢ In the future, continuously it is expected to get more aid from JICA. <p>2. PDAM GOWA</p> <p>The Project progress was explained by Mr. Hasanuddin Kamal SH,MH, President Director of PDAM Gowa (Material was attached), explained as follows:</p> <ul style="list-style-type: none"> • Output 1 : <ul style="list-style-type: none"> ➢ The MoU between Gowa and Takalar has been signed by both head of regencies. • Output 2 : <ul style="list-style-type: none"> ➢ Based on auditing of BPKP (National Auditor), PDAM Gowa has become health, but we still have some problems, mainly low service ratio. ➢ PDAM staff has improved the capability of preparing financial report by JET’s assistance • Output 3 : <ul style="list-style-type: none"> ➢ The NRW ratio has been reduced from 35.9% to 14.03% in pilot area ➢ The program was very good but it was too costly. In addition, due to limited budget of PDAM themselves, one of the program had not been run smoothly. • Output 4 : <ul style="list-style-type: none"> ➢ GIS establishment was helpful for PDAM. At present, all networks have been developed in GIS data base. • Output 5 : <ul style="list-style-type: none"> ➢ All WTPs have received laboratory equipment from JICA. A skill for Water quality Control has been improved. But since the raw water quality is sometimes unstable (high turbidity), the water quality of treated water is also unstable. ➢ It is requested that project can be continuously extended. • As Head of PERPAMSI Sul-Selbar (Regional Water Supply Association of South and West Sulawesi) , Director of PDAM Gowa submitted the request letters to the Ministry of Public Works and JICA that contained the extension of this cooperation project and development to other PDAMs outside Mamminasata areas. PDAM Gowa is willing to support for other PDAMs. However, PDAM Gowa can not afford to train for other PDAMs staffs due to the limited time and numbers of skilled staffs. Hence he wants to extend supports by 4 PDAMs. |
|--|--|

3. PDAM MAROS

The Project progress was explained by Mr. Rajab, Head of technical division (Material was attached), as follows:

- Due to the limited capacity of raw water, MoU between PDAM Maros and Makassar are still faced with the problem. If capacity of raw water is improved, it is expected that the MoU can be concluded.
- After the JICA dispatch, the financial condition of PDAM Maros has been improved. At present, especially full cost recovery has been achieved.
- NRW ratio in 2 (two) pilot areas has decreased by 18% and 34% respectively and got profit of 4.3 millions rupiah(Rp).
- The public awareness Campaign of water saving at elementary schools has also been implemented.
- GIS arrangement was greatly helpful to indentify and settle the NRW problem quickly. In addition, financial sector can easily monitor some customers who has not paid yet.
- At present, a recording of water quality test has been implemented regularly and systematically.
- Present financial condition in the PDAM Maros is still unhealthy due to the low service ratio caused by the low capacity of raw water sources owned by the PDAM.

4. PDAM TAKALAR

The Project progress was explained by Mr. Syamsul Kamar, President Director of PDAM Takalar. (Material was attached), explained as follows:

- In general, progress of all outputs (output 1 to 5) were same as other three(3) PDAMs.
- He expressed his gratitude to central and provincial governments, and JICA for providing the aid for them.
- At present in Output2, PDAM Takalar is in healthy condition.
- Even though the service ratio of the PDAM Takalar is still small, but right now PDAM is possible to supply water to coastal community where is facing with difficulty in getting water (before PDAM supply them, they had to go place 3 km away to get water).
- After JICA's training program, the discipline of the staffs have improved. Before that, discipline of the staff was not good.
- PDAM also got some equipment for the project implementation.
- NRW at one (1) location of IKK (Sub-district water supply system) could be reduce about 17%
- Right now, PDAM Takalar has been constructing 1 (one) unit IKK to serve coastal areas

5. Project evaluation by the JICA team was explained by Ms.Namura , (Material was attached), as follows :

- The project was started from September 2009 until March 2012.
- Interviews were conducted to the team members in the field

| | |
|--|---|
| | <ul style="list-style-type: none"> • The purpose of interviews was to verify outputs and inputs of the project. • Evaluation was conducted on 5 criteria which were composed of Relevance, Effectiveness, Efficiency, Impact, and Sustainability. • And, the required recommendations was made <p>6. Questioned, Answered and Comments:</p> <p>a. Mr. Hasanudin Kamal, SH,MH, President Director of PDAM Gowa, explained as follows:</p> <ul style="list-style-type: none"> • All 5 (five) output had been already implemented, but the program of NRW reduction has not been achieved yet optimally due to financial condition. • The MoU states that there are obligations of Japan Government and PDAM about cost of supply and repair of some equipment. During the implementation of NRW activities, the budget is high and become burdens for PDAM. It cannot be settled immediately due to limited budget in PDAM. In case in Japan, if there is any leakage, all damaged material will be replaced immediately. This is difficult for PDAM to implement in Mamminasata because PDAM's budget is limited. • We would like to recommend that NRW management in the future should be handled by the Ministry of Public Works especially financial aspect. <p>b. Mr. Ir Somba, Head Sub-Directorate, Region II, Directorate of Water Supply Development, explained as follows:</p> <ul style="list-style-type: none"> • He assumed the position of Head of Sub Directorate, Region II just about 2 months ago. • District Government or City government should maintain and preserve raw water source. <p>c. Mr. Ir. Ari, Head of Monitoring Section, Directorate of Water Supply Development, explained as follows:</p> <ul style="list-style-type: none"> • He assumed the received the report of NRW reduction. • The budget allocated to overcome leakage is too small • GIS Program is important for PDAM's NRW reduction, therefore PDAM should continue train this program. • At present, only 10% of PDAMs in Indonesia has used GIS. • So far, cooperation with JET is going very well. <p>d. Mr. Daru, Head of Sub-directorate Community Settlement Directorate of Water Supply Development, explained as follows:</p> <ul style="list-style-type: none"> • In the assessment of performance indicator, the background of all indicators should be mentioned. • Detailed responses from each PDAM and action plan to be implemented by each PDAM should be included in the report because every PDAM has different condition. <p>e. Mr. Zulkarnaen Kitta, Head of Technical Implementation Unit</p> |
|--|---|

| | |
|--|--|
| | <p>(UPTD), Spatial Planning and Settlement Agency, South Sulawesi Province, explained as follows:</p> <ul style="list-style-type: none"> • He expected more technical assistance from the Central government. • He required formal meeting between Regent/Mayor, Governor and Central Government to discuss in detail about MoU of improvement of water supply capacity of 1000 l/s in Mamminasata area. <p>f. Mr. Chandra Situmorang, Head of Multilateral Section, Directorate of Program Development, explained as follows:</p> <ul style="list-style-type: none"> • He expressed appreciation for the assistance of JICA Expert Team on Mamminasata Technical Corporation Project. • What is the program from now until March 2012? • Based on evaluation, it recommended that GIS program should be continued after completion of the project. He wants to know who will assist, because GIS program is very important for PDAMs. • How about the exit strategy and program scheme for each PDAM in the future? • In the establishment of BLU, is there exit strategies to continue the project in the future? <p>g. Mr. Dwityo Akoro S, Head of sub-directorate for foreign cooperation, Directorate of Program Development, explained as follows:</p> <ul style="list-style-type: none"> • Recommendations and requests from PERPAMSI (Regional Water Supply Association for South and West Sulawesi Province) should be included in the Minutes of Meeting. • Recheck the tables, because there are a few mistakes. <p>h. Mr. Miyamoto, the leader of JICA Mission Team, explained as follows:</p> <ul style="list-style-type: none"> • At present, since this is project evaluation phase, it is not necessarily to discuss about project continuation in the future. • The continuation of technical training by JICA is not considered. This matter is a challenge for Indonesian Side. • Program or action plan to be taken for project until March 2012 is to do routine works of the project activities. • Correction of this evaluation report will be done. • Recommendations from the evaluation team should be implemented. • Project activities will continue until March 2012, there is no change or addition of time. • Technical assistance for GIS in future such as renewed of expired software, trouble in program etc is taken from the company or software agent directly by PDAM and it is not from JICA or government. • For exit strategy in this project, agencies concerned should follow the available recommendations. • This project is closed to daily activities, therefore motivation for all staff is required. Each trained staff should keep their motivation, and transfer to other untrained staff to continue the activities which are implemented together with JET |
|--|--|

i. Mr. Hasanudin Kamal, President Director of PDAM Gowa, explained as follows :

- PDAM Gowa has covered small service area so it still work hardly to increase and improve our performance.
- PDAMs staff trained by JICA should concentrate their task to improve our performance, and train the new staff in their own PDAM respectively. Therefore it is not enough time and capability to provide training to other PDAMs.
- We hope that our request about the expansion of technical assistance from JET to other PDAMs in South Sulawesi province could be received by JICA Central Office.

j. **Mr. Dwityo Akoro S**, Head of sub-directorate for foreign cooperation, Directorate of Program Development, explained as follows:

- The letter from other PDAMs in South Sulawesi province should be submitted to JICA Central office in Tokyo.
- It also should be noted in the minutes of meeting, even the final decision will depend on JICA Central Office. It hope that JICA will consider to implement similar project in other PDAMs in the future.
- Central of provincial governments should respond this request from PDAMs.

k. Mr. Miyamoto, the leader of JICA Mission Team, explained as follows:

- Jica Expert Team has prepared the training manuals at present.
- Some adjustments of the MoU will be needed.

l. **Mr. Dwityo Akoro S**, Head of sub-directorate for foreign cooperation, Directorate of Program Development, explained as follows:

- Directorate of Program Development will help the change of the contents in MoU.
- Representative from PDAMs and stake holders should sign initial signature on the MoU which would be prepared by JICA Team. The signing of the MoU will be done later.

7. Request letters relating to the continuation of Technical Assistance project from other PDAMs in South and West Sulawesi Province are given to JICA Mission Team from Head of PERPAMSI SulSelbar. (Region Water Supply Association South and West Sulawesi Province).

D. Closing

The meeting was close at 11:30 by Mr. Dwityo Akoro S, Head of sub-directorate for foreign cooperation, Directorate of Program Development.

Prepared By: Mr. Hengky Rumba

Meeting/Discussion Memo (1/3)

Ref. No

| | | | |
|--------------------------------|--|-------------------|-----------------------|
| Date: | Nov,2nd 2009 | Time: | 09.00 AM – 04:00 PM |
| Place: | Meeting Room, Clarion Hotel Makassar | | |
| Purpose/ Subject: | Meeting SC and PIU | | |
| They: (Persons met) | <u>(Name)</u> As per attachment | <u>(Position)</u> | <u>(Organization)</u> |
| We: (JICA Expert) | As per attachment | | |
| Things discussed: | <ul style="list-style-type: none"> - Mr, TOKUMARU, JICA Opening speech by Mr Tokumaru. He explained that JICA is an official agency designated by the Government of Japan to implement technical and financial cooperation together with developing countries on the basis of the Government to Government agreements. He added that there are 3 sub-program in South Sulawesi province Regional development Program, and one of them focuses on the urban development of Mamminasata in order to promote regional development. Water supply service improvement is one of the priority area of this program. The project purpose is to enhance the capacity of PDAM staff in technical management and financial administration. He appreciated the participants and believed that the committee would bring us a step forward to the bright future of water supply service in Mamminasata. (Detail speech are shown in attachment) - Vice Governor of South Sulawesi Province There are 2 (two) points he wanted to say to JICA Expert as follows : <ol style="list-style-type: none"> 1. Beside implementation Capacity Building program , he hope also JICA Expert can help PDAM in Mamminasata region to make technical recommendation about future planning to increase the capacity to reach the target MDG'S 2015 (Millennium Development Goal 2015). From this, we propose Japanese Government to support this proposal. 2. On the other hand, he also hope that through this program the JICA Expert team train not only the PDAM staff but also all agencies concerned such as Bappeda, Dinas PU especially Spatial and Settlements. (Detail speech are shown in attachment) - Mr. OGA (Chief Advisor /Water Supply Management/Capacity Development) He explained briefly about this project including overall goal, purpose, outputs and schedule of the project. Also he introduced to audience all expert of the Jica team who involved in this project. - Mr. Zulkarnain (Manager Project) He explained in detail about project management, back ground project, activities and undertaking of Japanese side and also undertaking of Indonesian side. Finally he explained about evaluation of the project with some indicators. - Mr. HONDA (Water Supply Utilities Management Advisor) He explained condition of Nagoya Water supply system including periodic maintenance of raw water resource, transmission pipe and treatment plant and benefit and degree of NRW. After explanation by him, free dissuasion was made. | | |

| | |
|--|---|
| | <ul style="list-style-type: none"> - Lunch - Mr. N. MORI (Inter-organizational Coordination Advisor) He explained about activities of output 1 i.e. strengthening of the Inter Regional Cooperation and Coordination mechanism among PDAM. Activities include preparation of outline for inter-regional cooperation and coordination mechanism through discussion among stakeholder and preparation of agreement on how best to coordinate. - Mr. K. YAMASHITA (Finance Management) He explained about activities of output 2 i.e. strengthening of the PDAM's financial administration capacity. Activities include monitoring and development of business plan including organizational aspect and support, implementation of OJT on improvement of billing and collection efficiency, and workshop/seminars for cost recovery and financial sustainability. - Mr. J. WATANABE (Deputy Chief Advisor / NRW Reduction) He explained about activities of output 3 i.e. strengthening of the PDAM's capacity for NRW reduction. Activities include setting up of NRW reduction committee for each PDAM, installation of the master meter, measuring of the NRW accurately, implementation of OJT regarding leaks detection skill and techniques, field survey, and setting of a target for NRW ratio for the next year and preparation of annual implementation plan, And also monitoring of the result and feedback to assist in setting NRW ratio target and preparation of the annual implementation plan for the next year. - Mr. OGA (Chief Advisor/Water Supply Management/Capacity Development) He explained about activities of output 4 i.e. strengthening of the PDAM's technical capacity for establishment of GIS database. Activities includes arrangement of the needed staff, preparation of the data needed for GIS database, selection of model area for each PDAM and establishment of GIS database, implementation of OJT on effective use of the GIS database in distribution network maintenance, billing and collection, and updating and maintenance of GIS database, preparation of implementation plan to expand the GIS database for all water supply areas in each PDAM and continue establishment works. - Mr. OGA (Chief Advisor /Water Supply Management/Capacity Development) He explained about activities of output 5 i.e. strengthening of the PDAM's technical capacity in water quality management in small scale water treatment plant facilities. Activities includes arrangement of the needed staff, training for operator regarding adjustment of chemical injection based on feedback from water quality analysis result, OJT on water quality management based on the guideline. - Mr. RACHMANSYAH (Mr. Rachmansyah, Technical Director PDAM Makassar) He requested that during project if there are physical works such as repairing works for leakage control, installation of chamber for metering, additional flange or supporting material and accessories to be required, please inform |
|--|---|

Meeting/Discussion Memo (3/3)

Ref. No

| | |
|---|---|
| | <p>PDAM early. This is very important for PDAM because PDAM should prepare budgetting for the next year planning.</p> <ul style="list-style-type: none">- Mr. HASANUDDIN (Mr.Hasanuddin, Director of PDAM GOWA) Basically same question as Mr. Rachmansyah (PDAM Makassar)- Mr. SYAM (Director of PDAM Takalar) Basically he is happy regarding this project because equipments would be provided by the JICA such as laboratory equipment, GIS software and accessories, leakage detector. He requested to confirm equipment to be provided because it seems not to be enough- Mr. SANUSI (Director of PDAM Maros) The Lekopancing water resource is in Maros region, but now PDAM Makassar use it. Therefore he requested that this matter should be settled in inter-regional cooperation.- Mr. SYRARIEF BURHANUDDIN (Project Director) He hope that through this training, all PDAM staff could solve their own problem such as leakage, management capacity, and also technical capacity to establishment of GIS database and technical capacity in water quality management. By this, financial condition of PDAM can become healthy. He also reminded that this project is technical cooperation, therefore there are sharing information between PDAM and JICA expert to improve the knowledge respectively. <p>Closed the meeting on 04:00 pm</p> |
| Particulars: (documents received, things committed/ followed,etc) | |

Prepared by:

Meeting/Discussion Memo (1/3)

Ref. No

| | | | |
|--------------------------------|---|-------------------|-----------------------|
| Date: | Tuesday, 13 th July 2010 | Time: | 09:00 am – 13:00 pm |
| Place: | Room Azalea 2 Clarion Hotel, Makassar | | |
| Purpose/ Subject: | 2 nd Steering Committee for Japan Technical Cooperation for The Project for Water Service Improvement in Mamminasata Metropolitan Area in South Sulawesi Province | | |
| They: (Persons met) | <u>(Name)</u> | <u>(Position)</u> | <u>(Organization)</u> |
| | See attendant list | | |
| We: (JICA Expert) | - See attendant list | | |
| Things discussed: | <p>The meeting was started by registration of each participant and then opened at 09:45 am.</p> <p style="text-align: center;">1. WELCOMING SPEECH</p> <p style="text-align: center;">*) Mr. KAZUO NAKAGAWA, Representative of JICA Makassar Field Office</p> <p>Firstly, he expressed the appreciation to the members of the Committee and the counterparts of the Project for active participation to the Project's activities. He also expressed his appreciation to counterpart's staffs who has been working hard up to late night and willing to learn to achieve the successful of Project. He also expressed his appreciation to JICA Team Expert who headed by Mr. Takehiko Oga, the Chief Advisor of JICA Team Expert of this Mamminasata Project.</p> <p>He emphasized that JICA's project is a collaborative work between the government of Japan and government of Indonesia. Therefore, leadership of Indonesia counterparts is anticipated, especially for Output 1, the strengthening of inter-regional cooperation and coordination mechanism among PDAMs should be incorporated in the initiative of the provincial government to promote regional scale administration based on the concept of Metropolitan Area and its implementation tool, MMDCB. Hence, more active leadership of the provincial government for the activities of the Output 1 would be requested.</p> <p>According to Mr. Nakagawa, another important requirement of the Project is to ensure operation and maintenance budget of the PDAMs for countermeasures against NRW and water quality management in order to put into practice what the counterparts learned from the Japanese experts. However, it should be recognised that non-revenue-water reduction will generate income for PDAMs by increasing water tariff collection and boosting operation rates of the water treatment plants.</p> <p>At end of his speech, Mr. Nakagawa said that water service is vital for people's life and economic activities. He hope this Project will contribute further improvement and expansion of</p> | | |

the water supply service in the Mamminasata Metropolitan area to enhance the well-being of the local residents.

***) MR. IR. AGUS ARIFIN NUMANG, Vice Governor of South Sulawesi.**

Vice Governor acting as Chairman of Mamminasata Metropolitan Development Coordination Board (MMDCB) is officially open this Steering Committee by welcoming all participants of meeting.

South Sulawesi Province has been chosen as a pilot development area representing for Eastern Indonesia. In Mamminasata area, some project has been implementing such as a sewage project, and then continued by this Project of water services improvement at Mamminasata metropolitan area which is expected being smoothly implemented since water supply is vital for human.

In addition, the existing water supply in Mamminasata area is only about 42% from the total demand with its NRW (Non Revenue Water) is about 34%. We expect that in 2015 the water supply can cover about 80% in Mamminasata area and also NRW can be reduced to 20% based on MDG (Millenium Development Goal) target.

It is noted that each region of chosen 4 PDAMs have many problems i.e. Maros's raw water source has been decreasing, Gowa region which has not enjoyed a maximum water production even though Gowa is supplying its raw water to PDAM Makassar, etc. However, those 4 PDAMs which are chose as a counter sample to other PDAMs shall cooperate and coordinate each other to support the development of water supply in Mamminasata area. Therefore, it is requested to all project counterparts to actively involve together with JICA Team Expert who has given any useful recommendation for Mamminasata.

So far, the water produced by PDAMs after distributed to their customers would be considered as clean water instead of a drinking water. Therefore, Vice Governor is hoping that water produced by PDAMs would arrive to their customer as a drinking water which possible to drink it instantly without boiling.

Vice Governor closed his speech and convey his appreciation and thanks especially to JICA and also all related authorities.

2. OUTLINE OF PROJECT PROGRESS

***) MR. TAKEHIKO OGA, Chief Advisor of JICA Team Expert**

for Technical Cooperation Project on Water Service Improvement in Mamminasata Area.

He explained this Steering Committee is the second SC, whereas the first one was held on November 2009. The first SC was to explain a detailed planning, whilst this second SC is to present project implementation progress.

Further, Mr. Oga briefly explained the project aim and purpose as well as project target. To achieve those targets, there are five(5) Outputs. He also presented project schedule, project bar chart implementation up to date and its JICA Team Expert member assignment. The presented outline of this issue is also provided in a separate paper distributed to all SC meeting participants.

***) MR. ZULKARNAEN KITTA, Chief of PIU**

First of all, he is welcoming all participants and on behalf of local government South Sulawesi province, he thanked to all participant who attend this SC.

Further, he described progress of Project, starting from the organization chart of project management in charge for this Project from national level (Joint Coordinating Committee), provincial level (Steering Committee) and implementation level unit (PIU). He then also briefly informed the progress of Output 1 up to Output 5.

Output 1:

According to his knowledge, only 2 PDAMs in South Sulawesi Province is considered healthy, therefore PDAMs' capacity management are required to be improved, by means that mechanism cooperation among PDAMs shall be mutually discussed. For sample, for region who has raw water sources shall supply the raw water to other PDAM who needed, etc.

Output 2:

JICA Team has trained PDAMs on how to make a business plan includes management to reduce debt. Cooperation with private sector by technically and financially shall also taking into account. Since PDAM Makassar had ever been cooperated with private sector, so that PDAM Makassar can be taken as a case study to other PDAMs.

Output 3:

JICA has provided some equipment for NRW. It is expected that NRW level which is now considerably high for each PDAM can be reduced.

Output 4:

GIS equipment has been installed at each 4 PDAMs as well as its training to PDAMs' staffs has been conducted. It is suggested that PDAMs' staffs which has been trained for GIS shall not be replaced at least for next 3 to 5 years unless for promotion. So that, the trained staffs could transfer the GIS knowledge to another staffs. In addition, it is necessary to have a manual in order to easy learn for other staffs in future.

Output 5:

Water quality is expected to be an ideal potable drinking water in accordance to standard of ministry of health. However, to make it a realization potable instantly drinkable, it would take time. Therefore, at present, it is better to focus on how PDAMs could serve 24 hours to customer.

It is noted that many problem faces concerning raw water quality ie. dry season affects to water shortage and rainy season affects to high water turbidity.

As a monitoring, it is requested information from each PDAM regarding the effectiveness of equipments supplied, technology transfer, job training, etc relates to the implementation of this Project so far. If any requirement of equipment, etc, kindly to inform provincial government for forward discussion to JICA.

3. PRESENTATION ON OUTPUT 1

*) **MR. IR. ANDI HASBUL, H.M.T.**, Director of Water Supply Dinas Tarkim South Sulawesi.

Mr. Hasbul kicked off the session by saying:

- The activity of JICA Technical Cooperation helps the 4 PDAMs improve water supply. Output 1 defines several steps in building inter-regional cooperation between them.
- MGDs in 2015 targets water supply coverage 80% for urban area 60% for rural area. Achieving the targets shall need great effort.
- The need for cooperation is seen not only in the area of cross-border water supply but also such services areas of human resource, financial or private sector participation. Try to find them.
- Looks like PDAM generally is not in good coordination with other institutions.

*) **PROF DR. IR. MERY SELINTUNG, MSc.**, assistant of JICA Team Expert

On behalf of Mr. Nobuhiro MORI, JICA Team Expert, presented the progress of activity for Output 1 (inter-regional cooperation

and coordination) focussing on present status on development of cross-border water supply between PDAMs.

The presentation paper for Output 1 is also distributed to all meeting participant.

COMMENT & QUESTIONS

- Mr. Jaffar (Bappeda, Takalar) commented:
 - There are about 46,000 HHs in Takalar. The target is 26,000 which is 60% of 46,000, but now only 5,800 HHs are served. PDAM has to work more.
 - to improve quality of the data base of water resources capacity, water requirement, water losses, HHs coverage and what PDAM plans to improve.
- Mr. Syamsul (President Director PDAM Takalar) commented:
 - PDAM Takalar has reliable water source with capacity of 650 l/s from Poleko River and another one is from Bissua Dam. 20% of the dam capacity is for PDAM Takalar, but until now we do not use it.
 - Dinas PU and PDAM have to make contract about water share because PDAM is the operator and PU is the supplier.
 - Presentation like this should not always do by the director but the staff needs to be trained. So every output can be presented by the staff member.
 - It is not correct that Mr. Hasbul said “not good coordination”. Mr. Syamsul as the President Director PDAM Takalar, he always report to Bupati about the issue.
- Ms. Dian from Bina Program, DGCK asked questions about :
 - How do you make MoU cooperation? Do you consider the regulation PP No.50 about how to make cooperation and UU16 Tahun 2005 about SPAM. In doing inter-regional cooperation, Ministry of Home Affairs and Governor must be included.
 - How do you make cooperation for Puri Pattene while you do not have water resources?
- Mrs. Mary replied the questions :
 - As Mr. Syamsul answered Mr. Jaffar comment, suggestion will be considered.
 - Will taking into account the regulations (No. 50 and No.16/2005). MoU will be signed by both Bupati. So we are looking at higher-level institutions.
- Mr. Hasbul answered the other questions:
 - Province government needs to consider every regional needs, and also shall responsible for water resource conservation. PDAM is just the operator.

- It is required coordination about service, water resource, technical, management and financial development.

4. PRESENTATION ON PROJECT PROGRESS AND ACTION PLAN BY 4 PDAMs

*) President Director PDAM Makassar,
Mr. IR. H.M.TAJUDDIN NOOR

Mr. Tadjuddin reported project progress as follow :

- There are 5 WTPs at Makassar city.
- Profile of Makassar city :
 Population 1.3million as of December 2009, PDAM service area 72%, production water supply 6.428million as of June 2010, total customer active and inactive are 162,000 connections as of may 2010, NRW level is 44% as of 2009, and present total PDAM staff are 700staffs.
- Next action plan :
 Master Plan Makassar city was made in 1985 and it is considered necessary to have an update Master Plan. To reduce level NRW, PDAM Makassar has replaced water meters, old pipes gradually.

*) President Director PDAM Gowa,
Mr. H. HASANUDDIN KAMAL

He reported that after approximately six(6) months working together with JICA Team Expert, many positive things have been achieved through targeted of 5 Output .

Output 1 :

JICA has trained PDAM Gowa for a mutual cooperation inter-regional PDAM in Mamminasata area.

Output 2:

PDAM GOWA has submitted business plan on financial management.

Output 3 :

PDAM Gowa has received leak detector equipments from JICA, and by using those equipments during night survey, it found many leakages in several areas which caused NRW level is still high. PDAM shall allocate some budget for equipment maintenance cost.

Output 4 :

PDAM Gowa has also received GIS equipment, a new technology for PDAM Gowa which will help PDAM in monitoring the service region. The GIS training has conducted from 19th April until now.

Output 5 :

At present, targeted water quality is clean water instead of drinking water. It is more important to widen the coverage service area instead of focussing on drinking water quality which takes more time.

Next action plan PDAM Gowa :

- To increase service area with minimum 2%/year.
- To increase production capacity
- To increase water tariff

***) President Director PDAM TAKALAR,
Mr. H. SYAMSUL KAMAR DG TIMUNG**

Mr. Syamsul firstly conveyed his appreciation to JICA for the overseas training to Japan for president director of PDAMs which was made on last May 2010. The following are reported on the meeting :

Output 1:

Inter-regional cooperation PDAMs has been made between PDAM Takalar and PDAM Makassar as well as PDAM Takalar and PDAM Gowa. The meeting has also been intensively held for this matter.

Output 2 :

PDAM Takalar is still having training on improvement of financial management aspect.

Output 3 :

By using equipment provided by JICA, the leakage detection has still being continued.

Output 4 :

The training of GIS has been finished on 2nd July 2010, and now PDAM Takalar will decide 3 sampling areas for GIS implementation.

Output 5 :

By using water quality test equipments provided by JICA, PDAM Takalar has been intensively doing measurement of water quality.

***) President Director PDAM MAROS, Mr. H. SANUSI**

Mr. Sanusi reported the project progress up to present are as follow :

Output 1 :

PDAM Maros has held several meetings discussing inter-regional coordination PDAMs in Mamminasata area.

PDAM Maros has planned to increase the production capacity from 50 lt/sec to 70 lt/sec.

Output 2 :

PDAM Maros learned and trained by JICA Team Expert regarding the procedure on meter record, as one of the way to improve financial management improvement.

Output 3 :

- There are different calculation way between JICA Team and PDAM Maros. According to PDAM Maros, NRW level is 30% but according to JICA calculation, the NRW is 43%.
- PDAM Maros plans to change customer water meter as one of effort to reduce NRW. Target is 4 customers per day.
- During night survey recently conducted together with JICA Team, it found 50 leakage place and 2 illegal connections.

Output 4 :

GIS training to PDAM Maros staff has been conducted.

Output 5 :

- PDAM Maros has been doing test on water quality routinely by using equipments provided by JICA.
- Produced water could not be compared with Japan since raw water quality in Japan is totally different with Maros.

The following are summary of PDAM Maros conditions before and after this Project :

| | <u>Before</u> | <u>After JICA Project</u> |
|------------|--------------------------------------|---|
| Output 1 : | - no concept | - has concept of cooperation |
| Output 2 : | - does not know management | - know and understand management |
| Output 3 : | - has no equipment | - has equipment and know how to use and operate the equipment |
| Output 4 : | - has no GIS equipment nor knowledge | - has GIS equipment and understand its application |
| Output 5 : | - poor knowledge | - improved knowledge and has equipment |

5. FUTURE ACTIVITIES

Mr. Takehiko Oga is informing Project next activities to be held, such as :

- Project progress meeting PIU 8th on 19th July 2010 at PDAM Gowa.
- Overseas training in Japan for technical director, financial director and general affairs director will be held on July 22 – Aug 7, 2010)
- Preparation of Project Progress Report No.2

Meeting/Discussion Memo (9/3)

Ref. No

| | |
|--|--|
| | <ul style="list-style-type: none">- Joint Coordination Committee meeting in Jakarta on November 2010.- Seminar cost recovery and financial sustainability. <p>6. CLOSURE</p> <p>Mr. Ir. Zulkarnaen Kitta (Chief of PIU) on behalf of Director of Water Supply Dinas Tarkim officially closed the meeting and suggested the following points :</p> <ul style="list-style-type: none">- Nominee of overseas training shall submit bio-data soon.- Each PDAM to review this JICA Project for evaluation and discussion on JCC meeting in November 2010.- To make recommendation on additional equipments required, if any, and inform immediately to South Sulawesi provincial government, for further proposal and discussion to JICA. <p>The meeting adjourned at 13:00.</p> |
| Particulars: (documents received, things committed/ followed, etc) | <ol style="list-style-type: none">1. Agenda of 2nd Steering Committee Meeting – Tuesday 13th July 20102. Hand-out presentation paper |

Prepared by:

Meeting/Discussion Memo (1/6)

Ref. No

| | | | |
|--------------------------------|---|-------------------|-----------------------|
| Date: | Tuesday, 19 th July 2011 | Time: | 09:30 AM – 12:30 PM |
| Place: | Room Azalea , 2 nd Floor Grand Clarion Hotel, Makassar | | |
| Purpose/ Subject: | The 3 th Steering Committee for Japan Technical Cooperation for The Project for Water Service Improvement in Mamminasata Metropolitan Area in South Sulawesi Province | | |
| They: (Persons met) | <u>(Name)</u> | <u>(Position)</u> | <u>(Organization)</u> |
| | See attendant list | | |
| We: (JICA Expert) | - See attendant list | | |
| Things discussed: | <p>1. Welcome speech : by MC</p> <p>2. Opening Speech :</p> <p style="margin-left: 20px;">a. Mr Dr.Ir. SYARIF BURHANUDDIN M.Eng, representative of Vice Governor as Head of BKSP MM, explained as follows:</p> <ul style="list-style-type: none"> • Water supply sector is one of the main sectors so that its construction can not be postponed. This is because the water supply is the basic human needs and the other hand it can also trigger the other sectors to accelerate economic development in this Mamminasata region. • Currently JICA is conducting 2 (two) water supply project in south Sulawesi , first is technical cooperation project and second is the master plan and feasibility study project and would be continued to detail design. This master plan includes planning for additional capacity of 1000 lt/sec in the existing Somba Opu WTP, so that total capacity would be 2000 lt/sec from the total raw water available capacity of 3000 lt/sec. In this new planning of WTP, the provincial government has planned to manage this new WTP and distributed water to each city and regency respectively in mamminasata area. This means that this is the first time in eastern Indonesia where the provincial government manage regional water supply. • He expected that the remaining time for technical cooperation project can really be used effectively by all PDAM and also the training model of this project which is being implemented can be developed to the other region in south Sulawesi province. With the equalization capability of the whole staff of PDAM in this area in managing water supply systems and with attention to our water resources, it is expected that the MDGs target can be achieved. Furthermore, it would make the South Sulawesi province as a first province in eastern Indonesia which is able to fulfill the target of service ratio in both rural and urban area. | | |

In addition, Mr. Syarif Burhanuddin explained as follows:

- Schedule of JICA team is still six months , so I requested to all PDAM if necessary, consult or ask JET how to settle the present condition in PDAM respectively.
- As mentioned of Vice Governor speech there will be a plan of addition of 1000 l / sec WTP which will be allocated to PDAM Makassar 600 l / sec, Gowa 200 l / sec, Takalar 70 l / sec and Maros 130 l / sec.
- The Provincial Government has no program to sell water to the community. However, in accordance with the regulations, regional water supply should be managed by the provincial government.
- In general, the target of this project is how PDAM become healthy condition. One of the activities is how to reduce water leakage in each PDAM.
- Currently in South Sulawesi, there are six PDAM in health condition, where 2 of them are in the Mamminasata.area i.e. Gowa and Takalar
- As a final word, he officially opened the meeting.

b. Mr. KAZUO NAKAGAWA, Head of JICA Makassar Field Office Representative , explained as follows :

- He would like to express his heartfelt appreciation to all the members of the Committee and counterparts of the Project for active participation to the Project's activities.
Staff of South Sulawesi Province and the target PDAMs has been earnestly working with the Japanese experts in a wide range of activities, while they have also day-to-day operations.
Even during the night time, the counterparts are eager to learn the leak detection skills.
Also He would like to appreciate significant contribution by the Japanese expert team headed by Mr. Oga, the Chief Advisor of the Project.
- Next he said that this Project is the one of the most successful projects in JICA's Indonesian water supply sector cooperation. However we have to remember the original idea that this Project is the basis for the future ODA loan project.
- Now JICA is conducting the Preparatory Survey on the Makassar

| | |
|--|---|
| | <p>Water Supply Development Project (Stage II) for future yen loan. Now the study has almost finished the survey in Indonesia. Regarding this matter, he strongly reminded that the site for extension for Somba Opu Water Treatment Plant hasn't been decided yet. This is a very big problem for the appraisal of the Yen Loan. Also EIA for the project hasn't been conducted yet by Indonesian Government. Therefore it would be very much appreciated if the Indonesian Government cooperate and coordinate for the realization of the Loan Project.</p> <ul style="list-style-type: none"> • The Project is going to finish in next February. After that PDAM staff has to continue the activity by themselves. Therefore if there is any insufficient part or problems, please let the experts know and cooperate each other to solve the issues and problems, even though the time is quite limited. • Finally he said that he would like to conclude his brief remarks by wishing a fruitful sharing and discussion in today's Committee and a success of the Project. <p>3. PROJECT PROGRESS REPORT by : JICA EXPERT TEAM</p> <p style="padding-left: 40px;">Mr T. OGA (Chef Advisor of JET) , He presented the outline of the project progress for 1 year .</p> <p>4. Coffee Break</p> <p>5. PROJECT PROGRESS REPORT by : JICA EXPERT TEAM (Continued)</p> <p>1. Output 1 : presented by Mrs Prof. DR. Ir. Mary Selintung MSc She explained that it has been issued 2 (two) MoU regarding the Memorandum of inter regional cooperation as follows :</p> <ol style="list-style-type: none"> a. Between Takalar regency and Gowa regency b. Between Takalar regency and Makassar city <p>Both MoU as mentioned above has been signed by head of Regency and Mayor city respectively. The other MoU is in the evaluation stage.</p> <p>2. Output 2 : presented by Ms Made Diani Setyawati She explained the overall financial condition of all PDAM in Mamminasata.</p> <p>3. Output 3, 4 dan 5 : presented by Mr. T. OGA He continued explain about present conditions of NRW and next action plan for each PDAM, also progress about data base input for GIS system as well as water quality conditions. Generally there are progresses.</p> |
|--|---|

6. PROJECT PROGRESS REPORT by each PDAM**a. PDAM Makassar**

Project Progress report is presented by Mr. Ir. Syaifuddin.

Material is attached.

He explained :

- PDAM Makassar's Business Plan has been approved by the Ministry of Finance
- Water tariff has been increased since June 2011
- For NRW reduction activities, there are 2 locations as the pilot project i.e. Taman Kayangan and Komplek Hartaco (500 customers). The next pilot project is Minasa Upa residential area with 5000 customers.
- Implementation of the output 4 is still not optimal, because the condition and location of the service areas in Makassar are complicated. Operator who is in charge in GIS system is currently inadequate. For the future, the number of operator will be added.
- He also reported that recently the turbidity of raw water of Somba Ompu WTP is rather high.

b. PDAM Maros

Project Progress report is presented by Mr. Abdul Baddar, President Director of PDAM Maros.

Material is attached.

He explained :

- Business Plan is under checking and it hope as soon as possible could be completed. After that it will be submitted to the Ministry of Finance.
- For GIS activities, he proposed that the existing satellite image could be extended its covering area so that all customer data in Maros regency could be made.
- He added that as a new president director, he always consult and discuss with the Director of PDAM Gowa and PDAM Takalar.

c. PDAM Gowa

Project Progress report is presented by Mr. Hasanuddin Kamal, President Director of PDAM Gowa.

Material is attached. He explained :

- He requested the authorities that before signing this kind of technical cooperation project for the future, it should be studied carefully about the duties and obligations of the parties concerned, especially the

procurement of materials. For example, JICA provided master meter but the installation costs are expensive and it should be prepared by each PDAM. Such cost was not included in the budget planning yearly of each PDAM. Of course this is problem and a little bit disturbing implementation of the project.

- This project shows a positive trend for PDAM Gowa itself and creates a good competition inter PDAM in Mamminasata area for improving performance.
- NRW in PDAM Gowa is still high, because number of water meters must be replaced which requires a high cost. Also capability of the meter reader is still need to be improved. We try to settle this matter as much as we can in order to keep the program run continuously to achieve the goals.
- In general JICA's program has reached the target but not all of the programs could be carried out because the financial problem as mentioned above.

d. PDAM Takalar

Project Progress report is presented by Mr. Syamsul Kamar, President Director of PDAM Takalar. He explained :

- He apologized for not preparing presentation materials. This is due to the staff who prepared the material at the same time presented the Takalar's Business Plan in the Regional Office of Financial Ministry in Makassar.
- He also informed that in Salajangki village the number of house connections has reached 100.
- Now the NRW is increase compare with the previous month. For that we plan to enhance the ability of meter reader that may be one cause of rising of the NRW. Instruction letter already issued so that meter reader accompanied by the NRW team to do their task.

7. Outline of Future Mamminasata Water Supply System by JICA SURVEY TEAM, presented by Mr T. OGA

- He presented Outline of Proposed Bulk Water System in Mamminasata area, plan of transmission pipelines and tapping points of water distribution for each PDAM in Mamminasata area.
- Calculation results for proposed bulk water tariff would be completed next week.

| | |
|--|---|
| | <p>8. Mr .T. OGA He added further information is:</p> <ul style="list-style-type: none"> • JICA Evaluation Team from Japan will come to Makassar to evaluate the project. • JCC meeting would be held in Jakarta on November 2011 <p>9. Comments Mr. Ir. Augustine BANDASO (PSDA), explained as follows :</p> <p>In the implementation of technical cooperation projects and the Master Plan/FS project done by JICA, we requested to consider the following aspects:</p> <ol style="list-style-type: none"> a. In the Indonesia Law article no. 7 year 2004 is mentioned “Water Saving Movement”. This is related to the activities of the NRW reduction and water consumption in MP/FS. It is requested to socialized in these project. b. In order to support the water supply cooperation inter regional to supply the residential area, it is requested make a small team to monitor or evaluate this cooperation activities. c. Plan of the new construction of Somba Opu WTP where the land is owned by the PDAM Makassar, while the management plan by the Province. It is required political breakthrough (between the Governor and the Mayor of Makassar) facilitated by JICA. <p>10. CLOSING Before closing the meeting Mr. Ir. Kitta Zulakarnain MSi representing of Kadis Tarkim South Sulawesi Porvinsi explained as follows :</p> <ol style="list-style-type: none"> a. Inter regional cooperation in accordance with Article 196 on the Law no. 32 year 2004, which states that regional cooperation is mandatory if such cooperation give positive impact to these regions. b. With respect to the capacity building and according to the opening speech by Kadis as mentioned above, I would like to add that for all PDAM is requested to more proactively take parts in this project and please don't be hesitated to ask or requested suggestions from JET for improvements the performance. c. For staff PDAM who have received training, it requested to keep in their original position at least 3-5 years ahead. This is very important so that they can apply their knowledge that already acquired. d. He officially closed the meeting. <p>11. Lunch time</p> |
| | |

Prepared By. Mr. Hengky Rumba

**ANNEX 2: Draft Agreement for Inter-regional Cooperation
among 4 PDAMs**

**MUTUAL AGREEMENT
ON
PROMOTING INTER-REGIONAL COOPERATION
FOR
WATER SUPPLY SERVICES
FOR
MAMMINASATA METROPOLITAN AREA IN SOUTH SULAWESI PROVINCE**

On date of of month of of year 2012 in Makassar, we the undersigned this:.

- 1) Hamzah Ahmad, the President Director of PDAM Makassar,
- 2) Abdul Baddar, the President Director of PDAM Maros,
- 3) Hasanuddin Kamal, the President Director of PDAM Gowa, and
- 4) Syamsul Kamar, the President Director of PDAM Takalar

For hereinafter are mentioned the parties hereby agree:

1. That the parties strengthen the Inter-Regional Cooperation (IRC) and Coordination mechanism among the four PDAMs as requested by the Record of Discussion between JICA and the GoI on Japanese Technical Cooperation for the Project for water service improvement in Mamminasata metropolitan area in South Sulawesi Province.
2. That the parties cooperate and contribute for promoting integrated special management pursuant to the Perpress No. 55 of year 2011 regarding Spatial Management for Mamminasata Metropolitan Area aiming at doing integrated implementation of spatial planning and materializing integrated regional infrastructure network system for the Mamminasata Metropolitan Area.
3. That the parties fulfill the requirements called for by the government regulations governing regional cooperation among province and kota/kabupaten, including PP50/2007 regarding the procedure for implementing regional cooperation; PM 22/2009 regarding the technical guidance of IRC; and PM23/2009 regarding the arrangement of monitoring and evaluation of IRC.
4. That the parties make maximum use of experiences and lessons learned from the cross-border water supply cases for establishing the IRC mechanism. The cases include: (i) the MOU signed on June 1, 2011 between PDAM Gowa and PDAM Takalar; (ii) the MOU signed on July 8, 2011 between PDAM Makassar and PDAM Takalar; and (iii) the MOU signed on , 2012 between PDAM Makassar and PDAM Maros.
5. That the parties share a view on main points required for promoting IRC as presented in *Attachment 1* which summarizes factors progressing and blocking IRC and main pointers

progressing IRC.

6. That the parties share the key issues and measures to be addressed as indicated in *Attachment 2* which summarizes the direction of IRC and things to be addressed.

Now that the parties agree the following in order to actualize the above ideas for promoting IRC.

- a. To establish the Coordination Team of Regional Cooperation (CTRC) at the local government level as well as the provincial government level as indicated in *Attachment 3* which shows an overall institutional framework for IRC pursuant to PM 22&23/2009.
- b. To prepare detailed procedures for the cross-border water supply for waiting customers referring to *Attachment 4* which outlines objective, task and members of CTRC to be established at kota/regency level.
- c. To urge the provincial government to establish the CTRC to cope with area-wide water supply needs for Mamminasata Metropolitan Area referring to *Attachment 5* which outlines objective, task and members of CTRC to be established at provincial government level.
- d. To set up a new institution like 'Mamminasata Center' for Regional Cooperation with two main aims of (i) serving database functions for common use and (ii) disseminating knowledges learned from the JICA project to other PDAMs in and out of the South Selawesi Province.
- e. To organize task forces and/or study teams to move ahead and expeditiously execute tasks of items (a) through (d) mentioned above as well as steering committees to monitor and evaluate the progress of implementation of the tasks.

Thus this agreement is made with conscious thoughts and responsibility for mutual benefits.

The agreed party

PDAM Makassar

PDAM Maros

PDAM Gowa

PDAM Takalar

To approve

Mayor Makassar

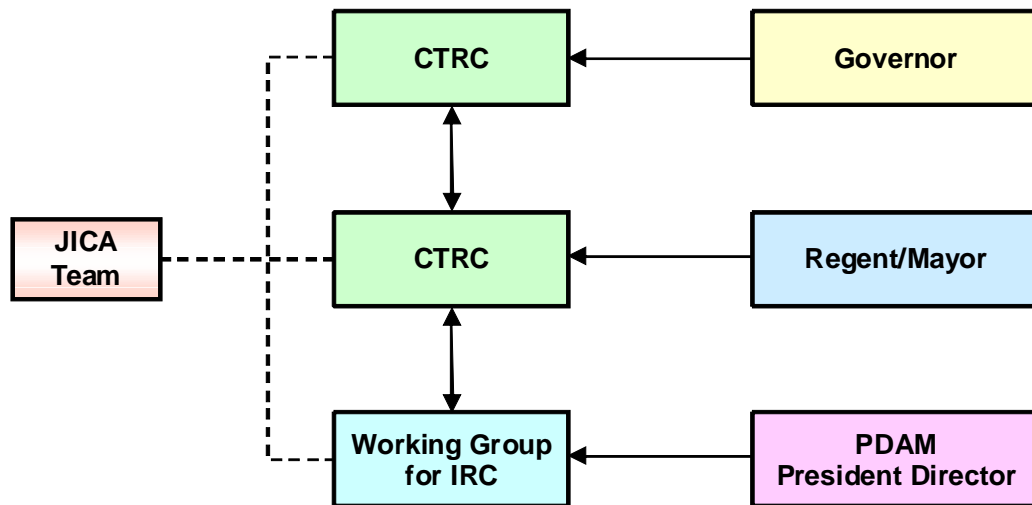
Regent Maros

Regent Gowa

Regent Takalar

To acknowledge

Governor, SULSEL Government



CTRC : Coordination Team of Regional Cooperation
 IRC : Inter Regional Cooperation

| | |
|-----------------------|---|
| Object | → Cross-border water supply for waiting customers |
| Forms | → Case 1 (without water source problems) 1-A: Semi-permanent supply (Ex. Desa Salajo, Desa Salajanki) 1-B: Temporary supply with take-over conditions (Ex. Asabnri/Nirwana/Barunga II, Sholthana Residence)? refer to 'Desa Minas Upa' case Case 2 (with water source problems) Ex. Puri Pattene complex Seek province-level CTRC assistance |
| Task of CTRC | → 1. Identify needs of regional cooperation. 2. Monitor PDAMs to conduct survey and prepare proposal. 3. Assist PDAMs to prepare MoU. 4. Advise Wali Kota/Bupatis to sign MoU. 5. Monitor and evaluate implementation of the MoU. |
| Member of CTRC | → Chief : Secretary Member : Bappeda, Dinas PU, PDAM |

Object

Area-wide water supply for Mamminasata area
(Somba Opu IPA II, Kota Baru, etc)

**Task of
CTRC**

1. Prepare proposal/TOR for IRC
2. Conduct study and survey per proposal
3. Prepare draft agreement for IRC
4. Advise Governor sign IRC agreement and/or MOU
5. Monitor and evaluate implementation of IRC activities
by regency/municipality

**Member of
CTRC**

Chief : Regional Secretary
Member : Bappeda
Dinas Tarkim (UPTD, Air Bersih & PLP)
Dinas PSDA
BBWS

ANNEX 3: Annexes for Output 4

| | | | |
|-------------|---|-------|-------------|
| A3-1 | Future Expansion Plan | ----- | A3-1 |
| A3-2 | Contact of Suppliers or Local Agents | ----- | A3-9 |

Future Rollout Plan for Makassar

1.1 Basic Concept of Future Expansion

- Facility Data (pipelines, fittings):
 - Pipeline data input will be conducted Supply-zone-wise.
 - Areas that are relatively easier in collecting data will be tackled firstly.
 - Areas where CAD data is available will be tackled firstly.

- Customer Data
 - Customer data input will be conducted Model-Area-wise.
 - As PDAM Makassar entrusts its billing and collection duty to its contractor, it does not feel urgent necessity to complete customer data input work within the Project period. Accordingly, PDAM Makassar intends to focus rather on facility data input for the time being. PDAM Makassar intends to expand customer data whenever necessary (ie., to prepare conducting pilot activities for NRW reduction in future).

1.2 Plan of Database Construction

1.2.1 Facility Data

General schedule for data input work for facility data is as follows (as of Dec 2011).

- Zone 1, 2, 3A, 3B, 4, 5, 6, 7, 8 and 9 will be completed by 2013
- Zone 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23A, 23B, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41A, 42B, 43 and "Zone-new" will be completed in 2014.

1.2.2 Customer Data

- 20 Model Areas have been selected.
 - 5 areas have been completed and another 5 areas will be completed before March 2012.
 - Balance 10 will be completed within 2012.
 - Succeeding areas will be named before the end of 2012.
- General priority order of works is as follows.

| Model Area | 2011 | | | | | | | | | | | | 2012 | | | | | | | | | | | |
|-------------------------|-----------------------|---|---|---|---|---|----|----|----|---|---|---|-----------------------|---|---|---|---|---|----|----|----|--|--|--|
| | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | |
| Taman Khayangan (GMTDC) | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| Samalona | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| Taman Toraja | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| Masamba | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| BTN Hartaco Indah | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| Minasa Sari | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| Chrysant | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| Bukit Villa Mas | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| Golden Park | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| Azalea | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| CV. Dewi | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| Bulurokeng Permai | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| Perumnas Sudiang Permai | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| Perumnas BTP | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| Perumahan Telkommas | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| BTN Antara | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| BTN Hamzy | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| BTN Asal Mula | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| Perumnas Toddopuli | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |
| Perumnas Tamalale | [Gantt bars for 2011] | | | | | | | | | | | | [Gantt bars for 2012] | | | | | | | | | | | |

Future Rollout Plan for Maros

1.3 Basic Concept of Future Expansion

- Facility data (pipelines, fittings):
 - Facility data input will be conducted Kecamatan-wise.
 - Areas that are relatively easier in collecting data will be tackled firstly.
- Customer data
 - Customer data input will be conducted Model-Area-wise.
 - Next areas to be tackled will be decided by the end of every year.

1.4 Plan of Database Construction

1.4.1 Facility Data

General priority order of works is as follows.

- Kecamatans of Tulikale, Mandai, Lau will be completed in 2012.
- Kecamatans of Maros Baru, Marusu, Bontoa, Tanralilil, Bantimurung and Simbang will be completed in 2013

1.4.2 Customer Data

- 51 Model Areas have been selected.
 - 20 areas have been completed.
 - Balance 31 will be completed within 2012.
 - Succeeding areas will be named before the end of 2012.
- General priority order of works is as follows.

| AREA | 2011 | | | | | | | | | | | | 2012 | | | | | | | | | | | |
|-------------------------|------|---|---|---|---|---|----|----|----|---|---|---|------|---|---|---|---|---|----|----|----|--|--|--|
| | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | |
| Tumalia | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| BTN H. Banca/Lestari | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Taniaga Permai | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Maccopa Indah | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Maros Regency | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Griya Tamarampu | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Permata Indah Bandara | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Nusa Idaman | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Griya Barambang | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Canranae | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Panrita Bola | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Adzikrul | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Rajana | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Cipta Mandai | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Palu Cipta | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| BTN Solindo | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Mutiara Mandai Indah | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Griya Batang Ase Permai | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Batara | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Mitra Mas BT. Ase | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| GMI Balangase | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| BTN Wesabbe Barambang | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| BTN Taroad | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Bentenge | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Pondok Mandiri | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Mustika Balangase | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Ruko Sirajuddin | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Ruko Hatta | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Ruko H. Amir | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Ruko Anugrah Alam | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Ruko Butta Toa | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Ruko Arung Pala | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Kompleks AURI | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Pasar Raya Maros | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Kosek Hanudnas | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Graha Singgasana | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Batas Kota | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum H. Bohari | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |

Future Rollout Plan for Gowa

1.1 Basic Concept of Future Expansion

- Facility data (pipelines, fittings):
 - Facility data input will be conducted Kecamatan-wise.
 - Areas that are relatively easier in collecting data will be tackled first.
- Customer data
 - Customer data input will be conducted Model-Area-wise.
 - Next areas to be tackled will be decided by the end of every year.

1.2 Plan of Database Construction

1.2.1 Facility Data

General priority order of works is as follows.

- Kecamatan of Pallanga has been completed in 2011.
- Kecematans of Patallassang, Bontomarannu, Bajeng and Parangloe will be completed in 2012
- Kecematans of Somba Opu, Barombong and Malino will be completed in 2013

1.2.2 Customer Data

- 48 Model Areas have been selected.
 - 22 areas have been completed.
 - Balance 46 will be completed within 2012.
 - Succeeding areas will be named before the end of 2012.
- General priority order of works is as follows.

| AREA | 2011 | | | | | | | | | | | | 2012 | | | | | | | | | | | |
|-----------------------------|------|---|---|---|---|---|----|----|----|---|---|---|------|---|---|---|---|---|----|----|----|--|--|--|
| | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | |
| BTN. Andi Tonro Permai | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Pelita Asri | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| BTN. Palangga Mas | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| BTN. Bumi Batara Mawang | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| BTN. Garaganti | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perumahan Mutiara Timur | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Restika Indah | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perumahan Pesona Indah | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Taman Pesona Asri | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Pao-Pao | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Jenelalasa | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Bukit Tamarunang | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum. Annisa Permai | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum. Indah Permai | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum. Pao-Pao Harmoni | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum. Surandar 02&03 | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| BUKIT TAMARUNANG | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| PERUM. PERSADA MANGGARU | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| PERUM. SAUMATA INDAH | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| GRIYA ANTANG HARAPAN | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| PERUM. BALLA SOMBAOPI | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| PERUM. DAENG RESIDENCE | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| PERUM. VILLA MANDIRI | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| PERUM. TAMAN SAFIRA LESTARI | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Tirta Pelita Asri | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Palangga Mas II | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Paccinongan | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Baji Areng | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Bukit Manggarupi | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum PIP MKS | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Kalegowa | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Gowa Sarana Indah | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Nusa Tamarunang | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Sukma | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Sejahtera | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Nuki | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Bakolu | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Taborong | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Perum Taman Asri | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| BTN AURA | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| Graha Satelit | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| PERUM. KALIMATA | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| PERUM. PANCIRO PERMAI | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| PERUM. TAMARUNANG INDAH | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| TAMARUNANG INDAH I | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| PERUM. GOWA LESTARI | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| PERUM. MANGGARUPI | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |
| PERUM. MUTIARA PERMAI | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | █ | | | |

Future Rollout Plan for Takalar

1.1 Basic Concept of Future Expansion

- Facility data (pipelines, fittings):
 - Facility data input will be conducted Kecamatan-wise.
 - Areas that are relatively easier in collecting data will be tackled first.
- Customer data
 - Customer data input will be conducted Model-Area-wise.
 - Next areas to be tackled will be decided by the end of every year.

1.2 Plan of Database Construction

1.2.1 Facility Data

General priority order of works is as follows.

- Kecamatans of Mappakasunggu, Sanrobone, Polombangkeng Selatan, Polombangkeng Utara, Galesong Utara, Galesong Selatan and Galesong have been completed in 2011.
- Kecamatans of Pattalassang and Mangarabombang will be completed in 2012.

1.2.2 Customer Data

- 55 Model Areas have been selected.
 - 17 areas have been completed.
 - Balance 38 will be completed within 2012.
 - Succeeding areas will be named before the end of 2012.
- General priority order of works is as follows.

| BLOCK_AREA | Approx. No. of Clust (as of Jan/2011) | 2011 | | | | | | | | | | | | 2012 | | | | | | | | | | | |
|---|--|--------------------|---|---|---|---|---|----|----|----|---|---|---|------|---|---|---|---|---|----|----|----|--|--|--|
| | | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | |
| 01_BTN BAJENG PERMAI | 224 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 02_BONTO MATENE | 233 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 03_JL JEND. SUDIRMAN | 166 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 04_05_06_Jl S. Hasanudin/Balinda/Sempu Raya | 113 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 08_JL K.H. DEWANTORO | 109 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 10_JL KARTINI | 105 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 11_12_Jl Ranggong/Bombong Indah | 46 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 15_JL PRAMUKA | 5 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 16_KEMAKMURAN | 109 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 17_JL SUKAWATI | 47 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 19_MANNYAMPA | 114 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 21_BONTOMANAI | 29 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 22_CILALLANG | 47 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 24_MASALLENG | 122 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 25_PATAWI | 49 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 27_PABBATANGAN | 208 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 28_TAKALAR LAMA | 233 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 30_SOREANG | 63 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 32_BANYUARA | 9 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 33_TAMAJANNANG | 79 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 34_TORANI | 97 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 41_PALANTIKANG | 90 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 53_PERUM GRIYA CITRA | 28 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 59_PASULEANG | 65 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 60_BTN ISTANA PERMAI | 168 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 64_SAYOANG | 54 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 66_BTN GRAHA ANUGRA ANANDA | 5 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 67_MATTOANGING | 49 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 68_KAMMII | 28 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 70_SALAKA | 37 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 71_BIDAYARA | 341 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 73_CAMPAGAYA | 23 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 74_PERUMNAS BAJENG PERMAI | 39 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 75_GRAHA AYU LESTARI | 111 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 76 BUMI BAJENG ASRI | 39 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 07_FITRA | 33 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 09_SYECH YUSUF | 29 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 13_JL PAJONGA DG. NGALLE | 94 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 14_MONGINSIDI | 19 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 18_AHMAD YANI | 98 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 20_LEMPONG | 30 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 23_MANGULAMBE | 20 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 26_BONTOBADDO | 24 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 31_KAMPUNG BERU | 114 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 36_TAIPA | 145 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 51_BUNGLUNG BARANI | 59 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 56_H.M MAJARUNGI | 3 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 58_GUSUNG PATTITANGANG | 32 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 61_LAMPANG | 23 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 62_MASALE | 14 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 63_BONTO POKO | 75 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 69_PAPPA | 45 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 72_CANREGO/PANGKALAN | 23 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 77_GRIYA BONTOMATE'NE | 3 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |
| 19_SAULEANG | 9 | [Gantt chart bars] | | | | | | | | | | | | | | | | | | | | | | | |

| <i>Name of Company</i> | <i>Category</i> | <i>Address</i> | <i>Tel/Fax</i> | <i>Contact Person</i> | <i>Website</i> | <i>Email</i> |
|---|--|--|---|---|---|---|
| PT. GEOMATIK Consultant | OS, MS Office, Virus Protection, System & Data Backup, GIS Software, Satellite Image, Technical Consultation on GIS in General | Jl. AP. Pettarani Komp. Pettarani Bussines Center Blok A5 Makassar | Telp : 0411-4662478 | Mr. Anto Basri | www.geomatik-konsultan.co.id | antobasri@geomatik-konsultan.co.id |
| PT. Trikomindo Karunia Utama | Microsoft (OS & MS Office) | Komplek Harco Mangga Dua Ruko Apartemen Pesona Bahari Blok R 17 | Telp : 021 - 6126941, 6120196, 6120197 Fax : 021 - 62203154 | - | www.trikomindo.co.id | wirawan@trikomindo.com |
| PT. ASIASOFT NUSANTARA (Gold Partner Kaspersky) | Virus Protection (Kaspersky) | Graha Kencana Blok BH, Jl. Raya Perjuangan 88 Jakarta Barat 11530, Indonesia | Telp : (021) 5332449 / 50 Fax : (021) 5348316 | - | http://kasperskyindonesiapartner.com/contact-us | - |
| PT Zies Tekno Indonesia | System & Data Backup (Symantec Backup) | Jl. Pluit Selatan Raya No. 1 CBD Pluit Blok S-03 | Tel: 62-21-66672760 Fax: 62-21-66672761 | Hadely Tandun Managing Director | - | hadely@aiken-tekno.com |
| PT Nusantara Secom InfoTech (NSI) | GIS Software (ArcGIS) | Jl. Jend. Gatot Subroto No.38 Jakarta 12710 | Telp: (+62 21) 250 1248 Fax: (+62 21) 250 1266 | Mr. Wahyu Adi Bintoro or Mr. Rudy Dharmawan | www.nsi.co.id | rudy@nsi.co.id |
| PT Waindo SpecTerra | GIS Software (ArcGIS) | Perkantoran Pejabat Raya Gedung 7-8 Jl Pejabat Raya No 2 Jakarta Selatan | Telp: (+62 21) 7986816, 7986405, 70853970 Fax: (+62 21) 799 5539 | Ms. Diah Saraswati (ext 112), Mrs. Lissa R.Utami | www.waindo.co.id | dis001@cbn.net.id |
| PT Dafass Indonesia | GIS Software (ArcGIS) | Gayungan AD Kav. 12 Surabaya - 60235 | Telp: (+62 31) 827 5978 Fax: (+62 31) 827 5977 | Mr. Ahmad Helmi Wedo M Budiono | www.dafassindonesia.com | helmi@dafassindonesia.com wedo@dafassindonesia.com |

| | | | | | | |
|--|---------------------------------|--|---|------------------------------------|---|------------------------|
| PT. Central Plotter Indonesia | GIS Software (ArcGIS) | Jl. Dr Saharjo No.76-B, Manggarai Jakarta Selatan 12970 | Telp : (+62 21) 830 9744 Fax : (+62 21) 8370 6763 | Kristiono Sujadi or Dodo Suhada | www.centralplott er.com | cpi@centralplotter.com |
| PT EDP MEDIA MULTIMITRA PRIMANUSA Operation | Digital Globe (Satellite Image) | Jl Kedoya Angsana Blok A2 no 35 Jakarta 11520 | Phone : (021) 580 5828, 580 5829 Fax : (021) 580 3004 | - | www.edpmedia.c om, www.edpmedia.c o.id | service@edpmedia.com |