

Summary of Evaluation Results

I. Outline of the Project	
Country: Mongolia	Project Title: The Project on Strengthening the Capacity for Solid Waste Management in Ulaanbaatar City
Issue/Sector: Environmental Management-Urban Solid Wastes	Cooperation Scheme: Technical cooperation
Division in Charge: JICA Mongolian Office	Total cost: 250 million yen at the time of the Terminal Evaluation
Period of Cooperation	Record of Discussion (R/D): October 2009 – September 2012 (three years) Partner Country's Implementing Organization: Environmental Pollution and Waste Management Department (EPWMD); City Management and Public Utility Agency (CMPUA); Waste Service Fund (WSF); District Offices
Related Cooperation: The Study on SWM Plan for Ulaanbaatar City in Mongolia (JICA, 2004–2007); and the Project for Improvement of Waste Management in UB City (Japanese Grant Aid, 2007–2008)	
1-1 Background of the Project <p>Ulaanbaatar City (UB City) has a population of approximately 1,100,000, which is over 40 % of the total population of Mongolia, which stands at 2,700,000 as of 2010. Due to the recent population surge and shift to a market economy, consumption patterns have changed resulting in a rise in the amount of waste. Consequently, issues related to Solid Waste Management (SWM) have become severe. Illegal dumping has become a serious issue, especially in the Ger area where many nomadic people have settled, due to a shortage of waste collection services. Furthermore, the final disposal site in Ulaan Chuluut, where 90 % of the waste from UB City is disposed, has become nearly full, and open dumping without sanitary landfill has negatively impacted the surrounding environment.</p> <p>Under such circumstances, JICA implemented a Development Study named the Study on SWM Plan for UB City in Mongolia for about two years from 2004, and formulated a SWM Master Plan (M/P) for UB City (Target Year 2020). In addition, the Project for Improvement of Waste Management in UB City, a Japanese Grant Aid project, was implemented in 2008, through which the new sanitary landfill, Narangiin Enger Disposal Site (NEDS), was constructed and SWM equipment such as waste collection vehicles and heavy machinery were procured. Toward achievement of the M/P, the Municipality of Ulaanbaatar (MUB) has taken several measures such as improvement of the SWM system in MUB. However, challenges in the actual operation of SWM still lie ahead before the goals of M/P are achieved. Thus the Government of Mongolia requested that the Government of Japan carry out a technical assistance project to develop human resources and improve capacities for SWM in Mongolia.</p>	
1-2 Project Overview <p>The Project has been undertaken to strengthen capacities for SWM in UB City through human resource development of the EPWMD, CMPUA, District Waste Service Fund (DWSF), and district offices. The expected outcomes of the Project are shown below.</p> <p>(1) Overall Goal: Deteriorated urban environment and sanitary conditions caused by uncontrolled solid waste will be improved in Ulaanbaatar City.</p> <p>(2) Project Purpose: Capacity for SWM in Ulaanbaatar City is strengthened through human resource development.</p>	

(3) Outputs

Output 1	Development of human resource in EPWMD for policy making and planning for solid waste management.
Output 2	Development of human resource in EPWMD and CMPUA for operation and maintenance of solid waste collection vehicles and heavy machineries.
Output 3	Development of human resource of CMPUA for proper management of Narangiin Enger Landfill.
Output 4	Development of human resource in EPWMD and WSFs for administrative/financial management in SWM.
Output 5	Development of human resource of EPWMD and District Officers for promoting public awareness and participation in SWM.
Output 6	Recommendation for the appropriate system of waste separation and recycling in Ulaanbaatar City.

(4) Inputs

Japanese Side: approximately 250 million JPY (at the time of evaluation)

Short-term Expert: 8 experts (62.51M/M)

Equipment: 6.13 million yen

Number of Trainees Received: 19 participants (5 participants for group training and 14 participants for country-focused training)

Local Cost: 29.65 million yen for the three-year project activities

Mongolian Side:

Main Counterparts: 14 people (20 people in total including personnel transfer and resignation)

Cost Borne by the Mongolian Side: 10.42 million MNT

II. Evaluation Team

Members of Evaluation Team	Dr. Mitsuo Yoshida	Leader	JICA Senior Advisor on the Environment
	Ms. Kazue Minami	Cooperation Planning 1	JICA Mongolia Office
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	Ms. Toshiko Shimada	Evaluation and Analysis	IC Net Limited
Eval. Period	May 6–19, 2012	Type of Evaluation: Terminal Evaluation	

III. Results of Evaluation

3-1 Confirmation of Achievement

(1) Output 1

The 13 laws and regulations related to SWM were drafted by the EPWMD with the assistance of the Japanese experts (Indicator 1-1). The M/P was being revised by incorporating the data of the waste amount and composition surveys and is likely to be updated by the EPWMD in the end of May 2012 (Indicator 1-2). The three-year Action Plan of SWM in the MUB from 2013 to 2016 was formulated by the EPWMD with the support of the Japanese experts and will be used as a basis for its organizational development (Indicator 1-3). The Project has made good progress on the indicators of the Output 1. The Output is likely to be achieved by the end of the Project if the update of the M/P is finalized as planned.

(2) Output 2

Since the CMPUA and the EPWMD did not grasp operation and maintenance conditions of all SWM equipment, reporting formats were developed under the Output 2 and disseminated to the CMPUA and the waste collection service providers. The submission of these reports differs from one organization to another. Even the CMPUA has not regularly submitted the monthly reports to the EPWMD due to the internal problems in 2010 and 2012, while it submitted the monthly reports six times in 2011 alone, which reached the target value of the Indicators 2-1 and 2-2. The comprehensive waste collection plan (Indicator 2-3) has been neither prepared nor submitted by each district to the EPWMD in the course of the Project. The district offices were unable to take part actively in the Project because of the City Council's decision in 2009 to abolish the DWSF. The Output 2 has been partially achieved but is unlikely to be fully achieved by the end of the Project.

(3) Output 3

The NEDS was assessed as landfilling operation by the Landfilling Monitoring Committee at the first landfill evaluation meeting with the participation of various stakeholders in 2010. The CMPUA took the initiative in conducting the waste composition surveys at both the manual and belt conveyor sorting facilities of the NEDS, and conducting the environmental monitoring of underground water quality and explosive gas in the NEDS. The CMPUA's skill to interpret these data still needs improvement. The Output 3 can be fully achieved by the end of the Project if the staff members of the NEDS and the CMPUA successfully enhance their capacity on data interpretation in the remaining period of the Project.

(4) Output 4

The Project formulated the Guideline on Estimation of Appropriate Waste Collection Fee, the standard tender procedures, and the standard tender documents for selection of waste collection organizations. However, the common financial management rules for all DWSFs were yet to be established because the counterparts were not assigned by the DWSFs after the City Council's decision in 2009. Although the EPWMD has been able to comprehend the administrative and financial management of SWM in a comprehensive manner, it has not fully grasped the financial condition of each DWSF and not completely developed the control system of waste collection organizations. The Output 4, therefore, has been partially achieved but is unlikely to be fully achieved by the end of the Project.

(5) Output 5

As the EPWMD conducted a public awareness campaign with the support of the Japanese experts in the seven pilot project sites under the Output 5, the awareness of residents on waste separation and discharging manner improved, which was verified from the results of people's opinion surveys conducted by the Project. However, it is unclear whether the capacity strengthening of district officers described in the Indicator 5-1 was adequate because they were less involved in the pilot projects than expected. Thus the Output 5 will be partially achieved by the end of the Project.

(6) Output 6

The experiments of manual sorting and belt conveyor sorting of mixed waste and separated waste were conducted under the Output 6. In these experiments, the waste pickers were employed on a trial basis to carry out sorting operation. It was verified that the waste pickers who received an orientation program followed the working requirements well enough to sort out valuables at the NEDS. The results

of these experiments were analyzed and compared in technical, financial and social aspects. Based on these results, the EPWMD prepared a draft policy on how to introduce separation of waste at source in UB City, which is likely to be finalized by the end of the Project. Therefore, the Output 6 can be achieved by the end of the Project.

(7) Project Purpose

Three of the indicators of the Project Purpose, i.e., “waste collection rate in Ger areas,” “waste collection rate in apartment areas,” and “collection rate of waste service fee from Ger areas” have already reached the target values set in the PDM. However, regarding the remaining indicator of “people’s satisfaction level for the SWM service throughout the City,” the total proportion of the respondents who rated their satisfaction level as “more than average” decreased from 58.1% to 33.3% over the past three years. Thus it is fair to say that the Project Purpose will be partially achieved by the end of the Project.

3-2 Summary of Evaluation Results

(1) Relevance: High

UB City has experienced a rise in the amount of waste and illegal dumping with rapid urbanization and changes in consumption patterns. In order to deal with such SWM problems, the Project aims to strengthen the capacity for SWM in UB City through human resource development. Thus, the project components match the needs and priorities identified by the Action Plan of the Government for 2008-2012 and the UB City Mayor’s 2009-2012 Action Plan. According to Japan’s Country Assistance Program for Mongolia in 2012, strengthening UB’s urban functions is one of the three priority areas for assistance. The program highlights the need for assistance to strengthen environmental management in urban areas. Japan has been consistently supporting SWM of UB City with the Development Study and the Grant Aid. Since the Project is expected to develop human resources and to strengthen SWM-related organizations to implement this M/P, it is consistent with the Japanese aid policies and the past assistance for SWM over the year. The Project has helped the counterparts to gain comprehensive knowledge and practical skills on SWM as well as to apply the obtained knowledge and skills at their work. With regard to the appropriateness of planning, the Project was designed to focus on development of human resources in response to a strong request from the MUB. The strengthening of organizational and institutional capacities of the SWM was not sufficiently included in the scope of the Project and was expected to be undertaken by the Mongolian side. However, this has resulted in the Project not having sufficiently produced the expected outputs because of the inadequate institutional and legal mechanism of SWM. Since it is hard to say that the project design was not appropriate given the planning situation, the joint evaluation team decided to highlight this issue as one of the lessons learned from the Project rather than the relevance of the Project. Thus it is fair to say that the Project as a whole has a high degree of relevance for technical cooperation.

(2) Effectiveness: Medium

The Project has focused on development of human resources in a practical manner by providing the counterparts various opportunities of not only gaining but also applying the acquired knowledge and skills in practice. These outcomes have contributed to the overall effectiveness of the Project.

However, the level of achievement of the Outputs varies. Capacity development for operation and maintenance of SWM vehicles and heavy machinery (Output 2), capacity development of the EPWMD and DWSFs for administrative and financial management in SWM (Output 4), and capacity development

of the EPWMD and district officers for promoting public awareness and participation in SWM (Output 5) have been partially achieved by the time of the Terminal Evaluation, and were less likely to be completely achieved by the end of the Project mainly because of external factors. The capacity of the EPWMD and the CMPUA has been considerably developed and strengthened by the Project. However, the Project Purpose has not been completely achieved. The disruption of waste collection and transportation services by private and public entities, which was beyond the control of the Project, has affected the people's satisfaction level on the SWM service in UB City, and consequently achievement of the Project Purpose. Therefore, the effectiveness of the Project can be assessed as medium at the time of the Terminal Evaluation.

(3) Efficiency: Medium

The inputs from the Japanese side were smoothly made as scheduled, while the counterparts of DWSFs were not assigned from the Mongolian side as mentioned before. Moreover, the counterparts of district officers were unable to take part sufficiently in the Project since they had a close relationship with DWSFs whose legal status had been uncertain since 2009. This issue has not been resolved until the time of the Terminal Evaluation. The Mongolian side lost a valuable opportunity to strengthen the organizational and individual capacity related to SWM of DWSFs and district offices.

The training in Japan, particularly the country-focused training course and the group training course that were directly linked to the Project activities, contributed to motivating the counterparts and the other project stakeholders to implement project activities, and smoothly producing each Output to some extent. The dispatch of the Japanese experts who were familiar with the actual situation of SWM in UB City also helped enhance the efficiency of the Project. Monitoring of the Project through such means as weekly meetings has been in place and worked well. The communication and team work have been good between the Japanese experts and the counterpart personnel, and are likely to contribute to the smooth implementation of the Project. On the other hand, transfers of some key personnel were inhibiting factors that affected the progress of project activities and caused some disruptions. Therefore, the Project's efficiency as a whole is medium.

(4) Impact: There were a number of positive impacts.

It is hard to say at the time of the Terminal Evaluation the Overall Goal would be achieved, because correlation between the one indicator of the Overall Goal, i.e., "people's satisfaction level for urban environment and sanitation throughout the City" and the project intervention was not determined since many other factors such as air pollution and traffic congestions might affect the satisfaction level.

A number of the unexpected positive impacts have been observed in both the EPWMD and the CMPUA at the time of the Terminal Evaluation. For example, the EPWMD and the CMPUA prepared to procure the waste collection vehicles with the budget of MUB. Also, the CMPUA took initiative in closing the Ulaan Chuluut Disposal Site in July 2009 and conducted upgrading works in the Morin Davaa Disposal Site with the budget of the MUB in 2011 by applying the knowledge and skills on sanitary landfill obtained from the Project. Moreover, the EPWMD and the CMPUA took the lead in disseminating the knowledge and technologies of sanitary landfill to other cities.

(5) Sustainability: Medium to moderately high

[Policy Aspect] The M/P for SWM revised by the Project is likely to continue to serve as a policy framework for SWM in UB City. As solid waste problems in UB City have become a pressing issue for the MUB, the policy environment to strengthen SWM has become considerably favorable for the Project.

However, the SWM system including the financial system is most likely to be affected by political influences and interventions. There is a gap between the legal framework and the actual operation of SWM in such cases as selection of waste service providers without tenders. The EPWMD has endeavored to amend the Law on Household and Industrial Waste in collaboration with other stakeholders to strengthen the system of SWM. If it is finalized and approved, the Revised WSF Regulations and other related regulations are also likely to be amended. Such revision of laws and regulations will influence the sustainability of the Project. However, the degree of their influences was not sufficiently prospected at the time of the Terminal Evaluation. Thus it is fair to say that the sustainability of the policy aspect is likely to be medium.

[Financial Aspect] It is definitely necessary for the CMPUA and the EPWMD to continue to allocate sufficient budget, particularly for the operation and maintenance of waste collection vehicles, heavy machinery, and other equipment, and the operation of landfill sites. As both organizations have become able to allocate the necessary budget from the MUB, the sustainability in the financial aspect is likely to be moderately high.

[Institutional Aspect] The organizational capacity of the EPWMD and the CMPUA has been strengthened by the Project. However, there is still room for improvement in each organization. The EPWMD needs to strengthen the financial management system of SWM and promote raising public awareness and behavior changes of dischargers. The CMPUA needs to strengthen operation and maintenance of collection vehicles and other heavy equipment. The agency should secure a stable supply of spare parts of equipment as well as skilled mechanics and drivers, and bulldozer operators. The frequent transfer which occurred due to political considerations in some cases is also a major concern from the perspective of the sustainability of the Project. Given these assessments, the sustainability in the institutional and organizational aspect is medium.

[Technical Aspect] Most of the counterparts have acquired sufficient practical skills and knowledge of SWM to continue to apply them. As mentioned before, the DWSFs and the district offices lost a valuable opportunity to develop the organizational and individual capacity related to SWM. As most of the stakeholders pointed out, it is necessary to further improve their capacity related to SWM. Since most of the staff members of the EPWMD and the CMPUA have become more confident and keenly aware of their responsibility to improve SWM, they have adopted their knowledge and skills to their regular work and other national-level work and disseminated them to stakeholders of other cities. Thus the sustainability in the technical aspect can be assessed as moderately high.

3-3 Factors Promoting Sustainability and Impact

(1) Factors Concerning Planning

Such a project design, which was expected to have synergistic effects of related assistance programs of JICA's Development Study, the Japanese Grant Aid and Technical Cooperation under the program-based approach, contributed to enhancing the relevance, effectiveness, impacts, and sustainability of the Project. Also, the Project included pilot projects and seminars to which the counterparts of both the EPWMD and the CMPUA could apply and disseminate the obtained knowledge and skills of SWM. This enabled the counterparts to enhance self-confidence and practical capacities of SWM.

(2) Factors Concerning the Implementation Process

The project activities have been monitored well in several ways including the weekly meetings, the bi-monthly meetings, the joint coordinating committee meetings and various types of surveys. The

weekly meetings in which the counterparts and the Japanese experts participated have significantly contributed to not only sharing and discussing the progress of activities but also promoting smooth communication and nurturing a sense of ownership and responsibility to the Project among them. In addition, the implementation of surveys enabled the project stakeholders to grasp the level of achievement of PDM indicators. It also contributed to the improvement of SWM as a public service and the improvement of capacities of the project counterparts. Accordingly, it greatly contributed to enhancing the efficiency, impacts and sustainability of the Project.

3-4 Factors Inhibiting Sustainability and Impact

(1) Factors Concerning Planning

The Project was designed to focus on development of human resources in response to a strong request from the MUB. The strengthening of organizational and institutional capacities of SWM was not sufficiently included in the scope of the Project and was expected to be undertaken by the Mongolian side. Accordingly, this prevented the Project from achieving the Outputs 2, 4 and 5 because of the external factors. Without an appropriate institutional and organizational mechanism, there were some limitations to human resource development.

(2) Factors Concerning the Implementation Process

The major external hindering factor was the City Council's decision in 2009 to abolish DWSFs. It made the legal status of DWSFs uncertain, and the counterparts of DWSFs have not been assigned to the Project by the time of the Terminal Evaluation. Consequently, the Project has not sufficiently undertaken the capacity development of the district officers who have a close relationship with DWSFs. This has adversely affected the achievement of the Outputs 2, 4, 5, and the Project Purpose, and the sustainability in the organizational, institutional and technical aspects. Also, a series of the disruptions of waste collection services due to various reasons have affected, to some extent, the improvement of discharging manners and the degree of satisfaction on SWM among citizens in UB City. In 2010, the final disposal sites were temporarily closed by a strike of CMPUA staff members, which disrupted waste collection services for a while. In some areas of UB City, waste was not regularly collected due to the lack of fuel, the non-payment for collection services from WSF to service providers, and disruptions as a result of the privatization of some waste collection services. Furthermore, the frequent transfers of the director of the CMPUA and its staff members were inhibiting factors that affected the efficiency of the Project.

3-5 Conclusion

The Project has been implemented as the third stage of a series of JICA's technical assistance programs for SWM in Mongolia, following the Development Study and the Grant Aid for construction of the NEDS and provision of collection vehicles and heavy machinery. The Project aims to strengthen the capacity for SWM in UB City through human resource development in order to implement the M/P including operation and maintenance of the NEDS Landfill and waste collection vehicles. The capacity of the counterpart personnel of both the EPWMD and the CMPUA has been remarkably strengthened by implementing project activities in which equipment and facility provided by the Grant Aid are fully utilized by Mongolian stakeholders. In this regard, the intended basic objective has been achieved in terms of human resource development at the time of the Terminal Evaluation.

However, when analyzed based on the PDM, the level of achievement of the Outputs varies. The Outputs 1, 3 and 6 have been achieved or almost achieved. On the other hand, the Outputs 2, 4 and 5 have been partially achieved, and are less likely to be completely achieved by the end of the Project.

Considering the above, there was room for further improvement in the three key areas of human resources as follows: (1) comprehensive management of waste collection services in the EPWMD and the CMPUA; (2) comprehensive financial management of solid waste in the EPWMD and DWSFs/district offices; and (3) promotion of public awareness raising at the district level. Several factors prevented the Project from strengthening the above areas of human resource development such as lack of assignment of counterparts from DWSFs, the insufficient involvement of district officers, and the limited authority of the EPWMD and the DWSF in terms of SWM of the city. The root cause might be delays in strengthening the legal system of SWM including amendment of relevant laws and regulations. As a result, the Project Purpose has been partially achieved in terms of strengthening the capacity of SWM in UB City, although the Project has produced significant results such as development of a number of human resources and introduction of sanitary landfill technology and management. However, this result seems to be seriously affected by factors beyond the project as mentioned before. The Mongolian side is required to sustain and expand the effects of the Project after the completion of the Project in order to overcome the current complicating situation and achieve the Overall Goal. It is also imperative to improve the legal system of SWM including amendment of relevant laws and regulations without delay, and to strengthen the capacity of the three key areas by utilizing the effects of the Project. Although there are still some issues to be overcome forward the Overall Goal, self-help efforts by MUB is strongly expected after the Project termination as planned.

3-6 Recommendations

(1) Strengthening the organizational and institutional capacity of the EPWMD and the CMPUA

The Amendment of Law on Household and Industrial Waste is expected to go into effect as early as this year. Thus it is recommended that the EPWMD and the CMPUA improve the organizational and institutional capacity in the new legal framework in order to institutionalize the effects of the Project appropriately. In other words, both organizations should put in place an effective mechanism for utilizing technologies, facilities and equipment provided by the Project, and various guidelines, manuals and tools, human resources developed by the Project, as per the mandate and the authority stipulated in the Amendment of Law on Household and Industrial Waste.

(2) Strengthening the three key areas of human resources of the EPWMD, the CMPUA, and DWSFs/district offices

Further capacity improvement of human resources of the EPWMD, the CMPUA and DWSFs/district offices will be the key to maximizing the effects of the Project and to accelerating the effective SWM in UB City. Therefore, these organizations should strengthen the three key areas of human resources as follows: (1) comprehensive management of waste collection services in the EPWMD and the CMPUA, (2) comprehensive financial management of solid waste in the EPWMD and DWSFs/district offices, and (3) promotion of public awareness raising in the district offices.

(3) Promoting further technical transfer of the effects of the Project to other provincial cities

Since the Ministry of Nature Environment and Tourism (MONET) has ordered provincial cities to formulate an M/P on SWM, the Project, in collaboration with the MONET, held the workshop on formulation of the M/P, in which the staff members of the EPWMD and the CMPUA shared their experiences with the stakeholders of provincial cities. Also, the CMPUA has been to other provincial cities to disseminate their knowledge and skills regarding the sanitary landfill. It is recommended that the EPWMD and the CMPUA continue to promote such technical transfer of the effects of the Project to

other provincial cities.

(4) Strengthening further collaboration with JICA Volunteer Programs

A JICA Senior Volunteer on mechanical engineering was dispatched to the CMPUA and has played a very important role in enhancing the CMPUA's technical skills on vehicle maintenance in the Project. Many CMPUA staff members appreciated his technical transfer to the agency. Thus it is recommended that collaboration with a JICA Senior Volunteer on solid waste management and a JOCV Volunteer on environmental education be strengthened for enhancing the capacity of the CMPUA and the EPWMD.

3-7 Lessons Learned

(1) Without an adequate organizational and institutional mechanism, human resource development faces some real limitations in terms of achievement of outcomes.

Since the Project was requested by the Government of Mongolia as domestic training on SWM in order to establish a suitable SWM system in UB City, it was designed to focus on human resource development of SWM rather than institutional development of SWM based on a series of discussions among the stakeholders. As the Project has implemented various activities, the capacity of counterparts has improved considerably. However, the Project has sometimes faced difficulties because of external factors beyond its control. The administrative and financial management capacity of the EPWMD, for example, has not been sufficiently improved by project interventions because of inadequate institutional and legal mechanisms of SWM. One of the lessons learned from the course of the Project is that, without an adequate organizational and institutional mechanism, human resource development faces some real limitations in terms of achievement of outcomes.

(2) Providing relevant training programs in Japan is effective in implementation of project activities.

Most of the counterparts noted that the country-focused counterpart training course in Nagoya, Japan, and group training programs in Japan were very useful for them to acquire comprehensive ideas of the SWM system, practical skills and knowledge of SWM employed in Japan. Not only the main counterparts of the EPWMD and the CMPUA but also stakeholders such as the district officers and the Khoros Governor of the pilot project site participated in the training programs, which motivated them to be actively involved in the Project activities since their own design was directly linked with the activities. Several participants have implemented in Mongolia the action plan formulated during the training courses. Thus training in Japan, particularly a country-focused training course which is directly linked with project activities, is effective in motivating counterparts and other project stakeholders to implement project activities.

(3) A weekly meeting is effective in monitoring the progress of activities and enhancing communication among project stakeholders.

The Project conducted weekly meetings more than 100 times in which the counterparts of the EPWMD and the CMPUA. The Japanese experts participated in them to share and discuss the progress of Project activities. As most of the above stakeholders pointed out, the communication and team work have been good among them through the meetings. Thus a weekly meeting helps monitor the progress of activities and ensure smooth communication and close coordination among project stakeholders. On top of such practical meetings, joint coordinating committee participated by more various stakeholders are effective to promote overall understanding the sector.

(4) On-the-job Training is effective to encourage further development of counterpart members.

Counterpart members of the EPWMD and CMPUA had many opportunities to practice knowledge and skill transferred by Japanese experts at pilot projects and technical training to other aimags (provinces). These experiences make them to build more self-confidence and encouraged them to deepen its expertise. It is effective for counterparts to have opportunity to teach third party with their expertise for further development of themselves.

(5) Indicators of PDM should be set as objectively verifiable.

Although PDM of the Project was revised 4 times, there are still some unverifiable indicators at the time of the terminal evaluation. Indicators should be paid attention if they are verifiable or not and revised properly not only at the project formulation stage but also throughout implementation period.

(6) Program approach is effective to enhance aid effectiveness.

Continuous utilization of different assistance schemes such as combination of Development Study, Grant Aid and Technical Cooperation in this project, enables to promote synergistic effects of each schemes and therefore realize effective and comprehensive cooperation for the sector. Combination of assistance schemes and time line for implementation should be cautiously designed with medium to long term prospective of the sector.