

A Summary of the Evaluation Investigation Results

1. Project Overview		
Country: United Republic of Tanzania		Project: The Project for Enhancement of Water Supply Management of Zanzibar Water Authority
Field: Waterworks		Field of assistance: Technical cooperation project
Department in charge: Global Environment Department		Amount of cooperation (total amount projected at evaluation): 290 million yen
Cooperation period	January 2008 to December 2010 (3 years)	Recipient organization: Zanzibar Water Authority (ZAWA)
		Japanese cooperation organizations: Ministry of Health, Labour and Welfare, Yokohama Waterworks Bureau

1. Background of Cooperation

The United Republic of Tanzania (hereafter, "Tanzania") consists of the former Republic of Tanganyika on the continental side and the former Republic of Zanzibar consisting of offshore islands (known as the Zanzibar Archipelago) in the Indian Ocean, centering on the islands of Unguja and Pemba. Unguja, the larger of the two islands, is home to Stone Town, the capital of Zanzibar, and has a population of about 600,000.

The urban region (Stone Town and its suburbs) of the former Republic of Zanzibar was equipped in the 1920s with waterworks based on underground water and springs, and by 1990 was provided with water supply and distribution piping extending 158 kilometers, as well as water supply plants and seven reservoirs. As the country's financial difficulties prevented the facilities from being repaired or unexpanded, however, the urban region's water supply rate is currently estimated at about 60 percent. And despite certain differences that depend on the water supply line, people must cope with their water supply being suspended for three days a week on average.

Under the circumstances, Tanzania requested Japan to extend grant aid¹ in an attempt to increase its safe and stable supply of drinking water. In response to that request, a preliminary investigation mission dispatched by Japan in 2002 confirmed the need to renew Zanzibar's urban region and expand its water supply and distribution lines, as well as the fact that the authorities rarely collected any water charges from water users (though they did collect charges from some industrial customers). The actual balance in fiscal 2003 for the Department of Water Development (DWD), which was previously in charge of the waterworks business until August 2006, was estimated at about 100 million yen in the red (7 million yen in revenues versus 110 million yen in expenditures), thereby indicating a cost recovery rate of just under 7 percent and reflecting a poor financial condition. Moreover, maintenance expenses were found to account for less than one percent of total expenditures, thus indicating an abnormally low level (whereas sales related to the repair expenses of Japan's waterworks business entities in designated cities accounted for 12 percent). As a result, the preliminary investigation mission suggested that water charges should be collected as a precondition for extending grant aid, in order to realize a sound balance. In response to that suggestion, the government of Zanzibar in September 2004 requested Japan, which is well experienced in waterworks management by public corporations, to cooperate with the present technical cooperation project.

The urban water supply of Zanzibar shifted from direct ministry and agency control under the DWD to the Zanzibar Water Authority (ZAWA), which became a public corporation in August 2006. In line with that shift, institutions are now being developed to establish a system for collecting water charges. However, since no water charges have thus far never been collected from ordinary households, the country faces such challenges as switching to an organizational culture oriented toward customer service, establishing a practical system for collecting water charges, stepping up the management aspect of the water supply business, and motivating residents to pay the charges.

Under the circumstances, the present technical cooperation project was launched in January 2008 for a scheduled period of three years until December 2010.

¹ Grant aid "Zanzibar City District Water Supply Plan" (phase 1: 2006-2008; phase 2: 2009-2010)

[Details of cooperation]

The present project aims to enhance the customer management system, promote better understanding by the customers, provide training on the practical business of collecting water charges and handling complaints, and engage in other activities, thereby establishing a charge collection system that can highly satisfy customers in the urban region of Unguja Island for ZAWA, which recently became a public corporation.

(1) High-level goals

Establish a foundation for self-support accounting in the waterworks business entity of ZAWA.

(2) Project goal

Establish a charge collection system that highly satisfies customers.

(3) Outputs

1. ZAWA employees will have established an awareness of their workplace as a public enterprise.
2. A customer management system will have been developed and is currently in operation.
3. Customers will understand the charge collection system in terms of effectively acquiring such income.
4. ZAWA employees will learn how to conduct practical business in collecting water charges and handling complaints.
5. A charge collection model will be established in the pilot project region.

(4) Inputs (as of July 2010)

Japanese side: Total input of 290 million yen

- Experts dispatched: 8
- Equipment provided: Total worth about 12 million yen
- Local cost borne: about 21 million yen

Tanzanian side:

- Counterparts assigned: 11
- Land and facilities provided: Expert Office
- Local cost borne: 345,075,000 TSh. (equivalent to about 25 million yen)

2. Overview of the Evaluation Investigation Mission

Investigators	(1) Mission leader/supervisor: Minoru Miyasaka (Counselor, Global Environmental Dept., JICA) (2) Planning regarding leaked and stolen water: Shozo Yamazaki (Tokyo Suido Services Co., Ltd.) (3) Evaluation and analysis: Tamahi Yamauchi (IC Net Limited) (4) Investigation planning: Yuki Inoue (Employee, Water Resources Section No. 2, Global Environmental Dept., JICA)	
Investigation period	July 12, 2010, to August 5, 2010	Evaluation type: Evaluation on completion

3. Overview of Evaluation Results

3-1 Result inspection

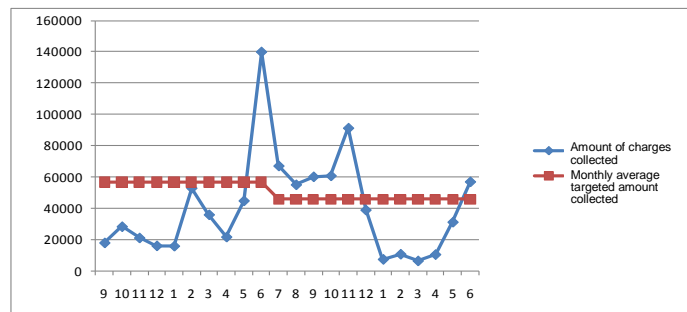
[Project goal: Establish a charge collection system that highly satisfies customers.]

For the indicator of the project goal to "increase the charges collected," the targeted annual amount of charges to be collected was set to 680 million Tsh.² For that reason, the prospects for achieving this project goal will normally be determined based on the projected amount of annual charges from January to December 2010. However, a major outage occurred in Zanzibar due to its seabed cable being disconnected with mainland Tanzania from December 2009 to March 2010. During that time, ZAWA, which largely relies on underground water for its supply, was unable to adequately supply water. ZAWA therefore utilized water supply trucks to supply the residents of Zanzibar with the necessary minimum amount of water. Also during that time, water was temporarily supplied free of charge, resulting in no water charges being collected. Moreover, the temporary supply of free water consequently discouraged the hitherto-cultivated will of the residents to pay the water charges.

Under the circumstances, judging whether the project goal was achieved based solely on the annual amount of water charges in 2010 is considered inappropriate. We therefore decided to calculate the average amount of charges targeted for each month as based on the previously annual amount of targeted charges, and monitor the status of achievement and prospects for achievement, in order to render proper judgment.

Although the average monthly amount of targeted charges (as calculated based on the annual targeted amount of 680 million Tsh.) is 56.6 million Tsh., a decision made by the MWCEL Minister in July 2009 reduced the fixed monthly sum for general customers from 4,000 to 2,000 Tsh. This fixed sum rate cuts the amount of charges collected from general customers by half, so that the annual targeted amount of charges becomes 548 million Tsh., as based on a monthly average amount of 45.7 Tsh. The present evaluation will therefore judge the degree to which the project goal was achieved, based on the monthly average amount of charges before the fixed sum of general customers was 56.6 million Tsh. and, after that, the monthly average amount of charges collected from July 2009 onwards was 45.7 million Tsh.

The following lists the monthly average targeted amounts of charges and the actual charges collected until June 2010.



The collection of water charges began in September 2008, and in June 2009, the authority collected its monthly average targeted amount for the first time. During the following six months until November 2009, the authority collected its average targeted amount for each month. However, the massive outage occurred in December 2009, and subsequently hardly any charges were collected until March 2010. Although the collection of charges was resumed in March 2010, it took three full months to again collect the monthly average targeted amount in June 2010. This is presumably because it took ZAWA some time to restore its normal business system, and also because residents were discouraged from having to pay the charges as water charges had been temporarily lifted.

These findings lead us to conclude that, although the authority temporarily fell below its monthly average targeted amount to be collected, the charges collected are on an upward trend and that, should the authority strive continuously until the end of the project, it is projected to collect its monthly average targeted amount by the latter half of 2010.

² Calculated based on assuming the total amount of charges collected (264 million Tsh. annually) from 50 percent of approximately 11,000 households as direct water supply customers, whose water supply status has been improved by Japan's grand aid, and the total amount of charges collected from commercial customers (416 million Tsh.).

[Result 1: ZAWA employees will have established an awareness of their workplace as a public enterprise.]

ZAWA must strive even further in order to achieve financial self-sufficiency as a public enterprise, but the relevant indicators lead us to conclude that result 1 has been achieved. The following indicates the achievement status of the indicators of result 1. By attending various seminars, ZAWA employees have become aware of their organization's position and targets as a public enterprise.

Indicator	Achievement status
1-1 All ZAWA employees attend the mid-term vision seminars.	Seminars were held in April 2008 [all 166 staff members on Unguja Island (except for workers)] and in October [all 33 staff members on Pemba Island (except for workers)].
1-2 All ZAWA employees attend the seminar on disciplinary regulations.	Seminars were held in July 2008 [all 116 staff members on Unguja Island (except for workers)] and in October [all 33 staff members on Pemba Island (except for workers)].
1-3 All departments establish a duty allocation plan.	The duty allocation plans of all departments and the persons responsible were prepared in October 2008 and approved in March 2009.
1-4 Attendance at the business evaluation session (targets: all directors, officers, and assistant officers)	A total of 65 staff members (including the chief, directors, officers, section leaders, and other practical business leaders) attended the session held in August 2009. Virtually all the leaders shared the challenges facing the departments. As a result, a decision was made to address the challenges identified at the present session, and given the importance of the present conference, to hold it every year from then on.
1-5 Attendance at the seminars on waterworks corporate accounting and waterworks sales (targets: all directors, officers, and assistant officers)	Experts from self-governing bodies conducted the seminars. In June 2009, a waterworks business seminar was held for the chief, directors, officers, and section leaders (a total of 20 persons). In July 2009, a waterworks management seminar was held for the same 20 personnel.

[Result 2: A customer management system will be developed and operated.]

Information contained in the customer database requires a continuous checking of addresses, and the relevant indicators lead us to conclude that result 2 has been achieved. The following indicates the achievement status of the indicators of result 2.

Indicator	Achievement status
2-1 Existing information about the main water supply facilities in the targeted region is entered into the database.	The personnel completed the entry of data on the main water supply facilities (approx. 50 wells and pumps, 20 reservoirs, and 500 km of water supply and distribution piping (at least 1.5 inches in diameter).
2-2 Customer information (60,000 items) is entered into the database and updated.	An investigation of customers was conducted in March 2008, resulting in about 60,000 items of customer information being entered into the database. However, since the information about addresses in Zanzibar contained many errors, customers representing about 5,000 households were checked in the urban region alone. As of February 2010, the customer management database had been updated for about 3,200 customers. About 2,500 of those 3,200 customers have been entered into the GIS, and the entry of about 10,000 updated items into the GIS is expected by July 2010.
2-3 Attendance at the seminars for the customer management system (billing, wage calculation, accounting, and GIS) (target: 30 attendants)	<ul style="list-style-type: none"> - Seminars for the customer management system (Smart Billing Manager) were held for a total of 15 IT officers, debt management officers, and accountants (including one staff member from Pemba Island) in April and June 2008, respectively. - The seminar for the personnel management system (Aruti) was held for five general affairs staff members (including one member from Pemba Island) in May 2008. In view of later personnel changes, another seminar was held for 13 trainees in July 2010. - The seminar for the accounting system (Sage Pastel Evolution) was held for 13 accounting and funding section members in November 2008. As certain challenges remain to be addressed for operating the accounting system, however, the seminar will be held again for the same members in August 2010. - GIS seminars were held for ten members of the Technical Dept. in June 2008, and for six members of the same department from September to December 2009. Among those ten members, four became highly skilled in GIS operation. One even became a trainer able to instruct other employees. From July to August 2010, two IT officers, three debt management officers, and three customer care officers were given training, including how to link the customer database with the GIS database.

[Result 3: Customers will understand the charge collection system to facilitate the effective acquisition of income from water charges.]

For result 3, more than 90 percent of customers understand their obligation to pay the charges. However, the target is apparently difficult to achieve for the organization handling public water taps as set forth in indicator 3-2. The following indicates the achievement status of the indicators of result 3.

Indicator	Achievement status
3-1 Customer knowledge of charge collection (targets: at least 75 percent of general customers and 100 percent of other customers)	The investigation covered 60 households located in six shehia (wards) in July 2009, and demonstrated that at least 90 percent of general customers understand their obligation to pay their water charges. An investigation of other customers (i.e., 60 industrial customers) in July 2010 revealed that 100 percent of those customers are aware of their obligation to pay.
3-2 Number of kiosks that prepared a manual on managing public water taps (target: 74)	These activities adopted an approach whereby an operation manual is prepared for the public water taps so as to match the respective methods of operation (where users pay a certain charge when using a certain amount of water, where water can be used only by households who have paid a fixed monthly sum, or a combination of both methods) according to the basic operation manual prepared in the project for kiosks. ³ With that approach, a manual on basic operation was prepared for kiosks in December 2009. But given the limited number of public water taps that supply sufficient water, little progress has been made in forming the operating organization. At the time of our investigation, no kiosks had been provided with an operation manual. In August 2010, we were scheduled to hold workshops on kiosk operation accounting for 74 public water taps, and will present a model-specific applied operation manual. Once the water supply status of each public water tap has been improved, we will make preparations to ensure that an operating organization is formed with an operation manual being prepared for each kiosk. Given the difficulty of improving the water supply status of all public water taps by the end of the project, achieving that indicator will apparently prove difficult.

[Result 4: ZAWA employees will learn how to conduct practical business in terms of collecting charges and handling complaints.]

Result 4 is projected as being achieved by the end of the project. The following indicates the achievement status of result 4.

Indicator	Achievement status
4-1 More than 80 percent of building attendants understand their own roles.	A test on understanding roles conducted in June 2009 revealed that 10 out of 13 (77 percent) building attendants had sufficient understanding (65 points or more), thereby nearly achieving the goal (of 80 percent). Retesting will be conducted in the future. A further promotion of such understanding by the end of the project will presumably achieve the goal.
4-2 Status of the complaint handling rate	Complaint handling data has been entered into the customer database since January 2009. The average rate of complaints handled is about 95 percent.

[Result 5: A charge collection model will be established in the pilot project region.]

The achievement status of the indicators apparently indicates that achieving result 5 by the end of the project will prove difficult. The following indicates the achievement status of the indicators of result 5.

Indicator	Achievement status
5-1 Water charges apply to all kiosks in the pilot region.	An operating organization for public water taps has yet to be formed for meeting the precondition for charge collection, as described in the achievement status of result 3.
5-2 Charge collection rate (target: 60 percent) from flat-rate general customers in the pilot region	Following a campaign conducted in June 2009 to urge delinquent customers to pay, the monthly charge collection rate from June 2009 to July 2010 reached 60 percent.
5-3 Charge collection rate (target: 90 percent) from general customers charged according to weight in the pilot region	Charges were not being collected according to weight at the time of the investigation.

³ Here, “kiosks” refer to public water taps run by a well-formed organization and operated based on the collection of a charge.

3-2 Summary of the evaluation results (A: high, B: medium, C: low)

(1) Validity: high

The political environment surrounding the project saw no changes since the intermediate review, so that the political validity of the project remains high. The purpose of the project supports the national development plan and water policy of Zanzibar, and complies with Japan's principles of assistance. Moreover, the project satisfies the needs of Zanzibar thanks to Japan's grand aid for ensuring a sustainable water supply for Zanzibar. Moreover, Japan's local governments have much experience in running waterworks enterprises, giving Japan an advantage in terms of experience and technology regarding waterworks management; therefore, validity is judged as being high.

(2) Effectiveness: medium

One can say that the project goal will be achieved when judged in terms of the monthly targeted amount. However, the annually targeted amount to be collected—the original purpose of the project—is difficult to achieve. This is largely due to the external condition posed by a "continuous water supply" which detracts from the result relative to the project goal. Achieved results 1, 2, and 4 and partially achieved result 3 have contributed to achieving the project goal, thereby indicating a cause-effect relationship. And although result 5 is difficult to achieve, it hardly affects the achievement status of the project goal. This leads us to judge effectiveness as being medium.

(3) Efficiency: medium

The achievement status of the results as described below indicates that results 1, 2, and 4 have been achieved, and that parts of result 3 and result 5 are difficult to achieve. Result 3 is difficult to achieve due to the poor water supply status, but the planned activities are presumably sufficient for achieving the results.

Inputs into the project were flexibly changed in response to the outage mentioned earlier, subsequent delays in activities, and other ensuing problems. However, the personnel and budget of ZAWA were allocated to address those ensuing problems. Unfortunately, both personnel and budget were not intensively used for this project, and thus cannot be considered adequately efficient.

In view of the above, the efficiency of the project is judged as being medium.

(4) Impact: medium

In order to achieve the cost recovery rate (i.e., a high-level goal), it will be necessary to ensure the following: (1) no policy changes in response to the collection of charges, (2) no outage or other disorder occurs to complicate management, and (3) progress made in installing water meters, resulting in a smooth transition to a system of charging according to weight, etc. And thanks to the project, ZAWA employees learned the charge collection procedure and ZAWA became able to collect charges on its own. In order to continue increasing the amount of charges to be collected in the future, it will be necessary to install water meters covering a wide range, read the meters and distribute water bills, and increase the number of building attendants and plumbers. Another impact of developing the charge collection system is seen in the African Development Bank deciding to cooperate for enhancing the water supply equipment in rural areas of Unguja and Pemba. This is expected to further increase the charges collected and enhance the foundation toward self-sufficiency. In view of these findings, we judge the efficiency of this project as being medium.

(5) Sustainability: medium

The project goal, high-level goals and other project targets (i.e., increase in the amount of charges collected and future realization of self-sufficiency) support the national development plan and water policy of Zanzibar as mentioned earlier, and are highly likely to continue doing so. This project also obtained support from the Arusha Urban Water Supply and Sewerage Authority (AUWSA) of mainland Tanzania, which is adequately run with German support, in such areas as training on the GIS and water meters. ZAWA has an MOU with AUWSA and will be able to obtain continued technical support after the end of the project. Moreover, the customer database will continue to require the checking of addresses after the project, but ZAWA employees are already capable of doing the task alone. Thus, this task is expected to continue being conducted.

Continuing to increase charge collection by using the charge collection system established by this project will entail improvement of the water supply status. It will be necessary to establish a charge collection model, operate and distribute it in a practical manner, and continuously monitor charge collection practices. Ensuring a stable water supply requires the repair and replacement of deteriorated water distribution piping and household-specific water supply piping. The current balance status of ZAWA makes it difficult to secure the funds necessary for that purpose. Moreover, this project aimed to establish a charge system according to weight in the pilot region, but expanding the region where charges are to be collected according to weight requires the ongoing procurement and installation of water meters. As ZAWA is short of personnel for that purpose, however, we consider effectively expanding the applicable region to be difficult.

Under these circumstances, we judge sustainability as being medium.

3-3 Factors contributing to realizing effects

(1) Matters related to the contents of the plan

As stated above, the project was designed to obtain technical support from AUWSA of mainland Tanzania. This allowed technology to be transferred from Tanzanians to other Tanzanians, thereby helping the project to prove effective.

(2) Matters related to the process

This project involved training in Japan and the dispatch of short-time experts in cooperation with the Yokohama Waterworks Bureau. In Japan, the respective local governments run the entities that operate the waterworks business. Consequently, Japan's waterworks business entities possess a wealth of knowledge and experience required for technology transfer in this project. And the cooperation provided by the Yokohama Waterworks Bureau enabled an even more practical transfer of technology.

3-4 Problems and factors that led to the problems

(1) Matters related to the contents of the plan

This project is designed on the precondition that the local water supply status will be improved with Japan's grant aid and by enhancing ZAWA's facilities. However, some regions saw little improvement in water supply status even after such efforts. This is because the piping network had deteriorated more than expected before the project began. The locals living in regions with a poor water supply were thus discouraged from paying water charges, thereby adversely affecting the project's intended effects.

(2) Matters related to the implementation process

As stated before, a massive outage occurred during the course of this project, causing a delay in the project activities. This, together with other causes, discouraged the inhabitants from paying the charges.

3-5 Conclusion

The targeted annual amount to be collected as set as an indicator in the project goal is presumably found difficult to achieve due to such causes as the outage that lasted from December 2009 to March 2010, and the fact that the fixed sum was reduced by half starting in July 2009. However, the average targeted amount to be collected monthly as calculated from the targeted annual amount is projected to continue being achieved beginning in and after June 2010. The establishment of a charge collection system, which is the project goal, can be considered as being at the expected level.

In view of the five evaluation items, the project meets the policy, needs, and assistance principles of the recipient country, and thus its validity is considered high. Although part of results 3 and 5 are difficult to achieve, the project goal has been achieved. As a result, the effectiveness is judged as being medium. With regard to efficiency, ZAWA was unable to intensively use the input personnel, materials, or equipment in this project as the personnel were busy addressing the outage, coupled with a subsequent delay in the project and other unexpected problems; therefore, efficiency is judged as being medium. The impact is also judged as being medium due to remaining challenges to address before the high-level goals can be achieved, even though charge collection has been launched and expectations run high for future development. Sustainability is judged as being medium for the following reason:

Efforts designed to increase the amount of charges to be collected as targeted by this project are highly likely to continue, but increasing the amount to be collected requires the renewal of deteriorated piping and the ongoing installation of water meters, as well as addressing the remaining challenges regarding the budget and ZAWA personnel.

For the part of result 3 that is difficult to achieve, we can state the following:

Since improvement of the water supply status (i.e., a challenge to be addressed) requires a large fund, this challenge is difficult to address within this project. Moreover, result 5 could be achieved during the remaining period of the project, as supported by efforts made by ZAWA. Consequently, this project should desirably be terminated according to schedule, even without achieving part of this result.

3-6 Proposal

[Until the end of the project]

- (1) Regarding result 4, encourage the Community Development Committee to complete the unfinished kiosk application manual as soon as possible. Also urge them to develop public water taps that serve as the related precondition. Should these tasks not be done, identify the inhibitive factors and take necessary action.
- (2) For result 5, complete the installation of water meters in the pilot region as soon as possible, and collect the charges according to weight.
- (3) For result 5, provide the personnel of the Commercial Dept with additional training on skills for installing water meters.

[After the end of the project]

- (1) Conduct continuous training on skills for piping and installing water meters.
- (2) Conduct continuous monitoring on the charge system in order to expand the region where charges will be collected according to weight, as established in the pilot project region.
- (3) Consider a future plan for shifting to a charge collection system where all charges are collected according to weight, as soon as possible.
- (4) Consider and implement a future plan concerning measures to combat the use of leaked and stolen water, centering on water leakage prevention, in order to improve water supply efficiency. Moreover, as aboveground water leaks may occur in the pressure-recovered regions after the grant-aid project is completed, develop a system for immediately repairing any water leaks discovered.
- (5) Secure the necessary personnel (such as building attendants and plumbers) in order to collect the charges effectively. In particular, consider a system for conducting meter reading and distributing bills for weight-charged customers at least every two or three months. Moreover, review all the tasks and commission those that can be outsourced.
- (6) Develop a business system with consideration given to employing and recruiting excellent executives, shifting to a charging system according to weight, and taking similar action to improve the system for making it an efficient management system.
- (7) After this project is completed, consider securing a budget for improving the water supply status, which is a challenge to be addressed for achieving the high-level goals, provide support for running ZAWA even more efficiently, and implement new projects based on a new design and including project monitoring.

3-7 Lessons learned

- (1) This project is designed to generate expected synergic effects of hardware and software from establishing a charge collection system, and maximizes the use of German cooperation projects involving Arusha in mainland Tanzania for the transfer of technology. The project can therefore contribute to securing sustainability by maximizing the use of resources in the relevant country, thereby serving as a lesson for other projects.

- (2) The project is planned on the precondition that a good water supply is ensured, and on an external condition that water will continue being supplied. However, the water supply was suspended due to a massive outage lasting from December 2009 to March 2010, coupled with considerable water leakage due to the further deteriorated condition of water distribution and water supply piping running beyond the piping network that was developed with grand aid. The project was thus promoted while customers were dissatisfied with the available water supply service. These factors affect the amount of charges collected as targeted by this project and should be sufficiently considered in the planning stage, in order to build a framework for the project in portions not dependent on the water supply status.
- (3) To step up the capabilities of the recipient organization and encourage it to change its behavior, experts should reside at the site instead of just providing manuals and other documents, in hopes that the recipient party's self-reliance would ensure continuous implementation or as a form of "giving them homework to be done" by the time the next group of experts arrives in a shuttle manner.

3-8 Follow-up status

Nothing in particular