

Annex-7 List of the Jamaican Counterpart Personnel

C/P Name	Title	Field	Working Period	In case of transfer or turnover, present position or present job. The date of transfer or turnover
Lewis Lakeman	Project Manager	Project Management	June 2007 - present	
Dawn Bryan	Training Coordinator	Training	January 2008 - present	
Billy Meikle	Team Leader, Manager Technical Services	Maintenance	June 2007 - present	
Patrick Hunter	Manager Maintenance	Maintenance	June 2007 - present	
Garrick Lewis	Electrical Equipment - Hope WTP	Maintenance	January 2008 - present	
Errol Reid	Mechanical Equipment - Hope WTP	Maintenance	January 2008 - present	
Jermaine Jackson	Team Leader /WTP Operation - Spanish Town	Operation	January 2008 - present	
Eaton Lindsay	Team Leader / WTP Operation - Hope	Operation	January 2008 - present	
Ray McBean	Water Treatment Plant Operator - Hope	Operation	January 2008 - present	
Kirkwood MaGhee	Water Treatment Plant Operator - Hope	Operation	January 2008 - present	
Oneil Shand	Team Leader, Manager Technical Services	Maintenance	June 2007 - present	
Curtis Thomas	Manager Maintenance	Maintenance	June 2007 - present	
Dwain Wright	Maintenance Engineer, Mechanical	Maintenance	January 2008 - present	
Deon Coke	Team Leader, Wastewater - Mobby Electrical Technician	Maintenance	January 2008 - present	
LaToya Jackson	Team Leader Water Production - Great River	Operation	January 2008 - November 2009	
Dionne Sampson	Team Leader Water Production - Great River	Operation	November 2009 - present	
Anthony Farlough	Team Leader WTP Operation - Logwood	Operation	January 2008 - present	
Don Streete	Team Leader, Manager Water Quality	Water Quality	June 2007 - present	
Fendly Foster	Senior Technical Officer Microbiology	Water Quality	January 2008 - present	
Calvert Selby	Senior Technical Officer Chemistry	Water Quality	January 2008 - present	
Nadine Patterson	Team Leader, Manager Water Quality	Water Quality	June 2007 - present	
Michael Hyde	Senior Technical Officer, Microbiology	Water Quality	January 2008 - present	
Gregory Wilson	Senior Technical Officer, Chemistry	Water Quality	January 2008 - present	
Colin Roach	Team Leader NRW	Water Supply	June 2007 - present	
Dwayne Francis	NRW Coordinator	Water Supply	January 2008 - present	
Kevin Kerr	Manager NRW, Western Division	Water Supply	June 2007 - present	
Carlton Green	Divisional Engineer, Western Division	Water Supply	June 2007 - present	

Annex-8 Achievements of Activities

Variable Indicators		Activities (PO)		Achievement
(Operation and Maintenance) Efficiency of O&M is strengthened.				
0	Taskforce	1-1	Organize task force consisting of Technical Service Department (Maintenance Section), Water Production Section (responsible for pilot WTP) and operators of pilot WTPs.	Completed
1	Operation of the 4 pilot water treatment plants is conducted in accordance with developed manual and standard operation procedures.	1-5	Prepare a list and specifications of equipments and drawings (arrangements and dimension of the facilities, flow diagram, and wiring, etc.) in the pilot WTPs.	Completed
		1-6	Compile and input the basic data of pilot WTPs to the computerized database of pilot WTPs.	Completed
		1-7	Conduct seminars to counterparts related. (Information sharing, emergency measurement, etc)	Completed
		1-8	Prepare operational manuals and standard operation procedures for pilot WTPs.	Completed
		1-10	Conduct training for other WTPs.	In Progress (by Nov 2010)
2	Plant down time specific to 'breakdown maintenance' is shortened for each 4 pilot water treatment plants. (Target should be set for each treatment plants.)	1-2	Prepare manuals for dismantle, assembly and repair works at the workshop and machine shop, and manuals for on-site repair works.	Completed
		1-3	Make suggestions for improvement on inventory ledger for parts.	Completed
		1-9	Evaluate the current condition of facilities and equipments in pilot WTPs.	In Progress (by Jul 2010)
3	Daily and regular inspections/ maintenance are conducted and reported in standardized template at Divisional Offices.	1-4	For computerized data management of WTP revise formats of daily and regular inspection sheets and develop work flow processes of repair request and repair completion.	In Progress (by Jul 2010)
		1-7	Conduct seminars to counterparts related. (Information sharing, emergency measurement, etc)	Completed

Variable Indicators		Activities (PO)		Achievement
(Water Quality Management) Water Quality Management is strengthened.				
0	Taskforce	2-1	Organize task force consisting of Quality Assurance Department and Water Production Section including Manager and Team Leader (responsible for pilot WTP).	Completed
1	Optimum chemical dosage is specified and applied at four pilot plans.	2-6	Conduct jar testing and chlorine demand (consumption) testing of the raw water of pilot WTPs.	Completed
		2-7	Develop the chemical dosage manual based on the results of activity 2-6.	Completed
		2-8	Prepare water quality testing manuals for WTP operators and mobile operators.	Completed
		2-11	Strengthen existing training course on water quality based on activity 2-7 to 2-10.	Completed
2	Water quality data is timely collected and recorded in the database.	2-2	Revise the internal water quality testing procedure.	Completed
		2-3	Revise the drinking water quality database.	Completed*
		2-4	Strengthen the chemical water quality monitoring.	Completed**
		2-5	Conduct seminars on water quality testing, quality assurance and quality control procedures for the laboratory staff in both divisions.	Completed
		2-9	Procure necessary equipment for water quality testing of the pilot WTPs.	In Progress (by Jul 2010)
		2-10	Improve record keeping and inspection of water quality data in pilot WTP.	In Progress (by Jul 2010)
		2-11	Strengthen existing training course on water quality based on activity 2-7 to 2-10.	Completed***
3	Operators at other water treatment plants and mobile operators are trained to manage water quality. (Target:50 operators and mobile operators)	2-12	Conduct seminars on water quality testing for WTP operators, mobile operators and sample takers based on activity 2-11.	In Progress (by Nov 2010)
		2-13	Conduct training on water quality management at the pilot WTPs based on activity 2-11.	In Progress (by Nov 2010)
		2-14	Revise the training course on water quality based on the results of 2-12 and 2-13.	In Progress (by Nov 2010)

* : database was created for Western Division, but LabMIS is needed to improve.

** : formulating sampling plan is still in progress.

***: Training materials prepared by JICA expert were revised based on conducted training.

Variable Indicators		Activities (PO)		Achievement
(Water Supply Management) Efficiency of water supply is enhanced through application of water supply management planning.				
1	Water supply is improved with designed water supply management plan in the service areas of Hope WTP and Logwood WTP	3-1	Conduct hydraulic analysis of the service areas from Hope WTP and Logwood WTP.	Completed
		3-2	Design water supply management plan of the service areas from Hope WTP and Logwood WTP	Completed
		3-3	Examine the water supply management plan using existing facilities and develop the hydraulic manuals.	Completed
2	Water supply management plan at additional two service areas are developed by trained NWC staffs.	3-4	Select other service areas to design water supply management plan.	Completed
		3-5	Design water supply management plan for the other service areas.	Completed

Annex-9 List of Master Trainers

	Name	Course
1	Kevin Kerr	Water Supply Management
2	Colin Roach	Water Supply Management
3	Dwayne Francis	Water Supply Management
4	Chadron Stern	Pump Operation & Maintenance
5	Andre Brown	Pump Operation & Maintenance
6	Winston McFarlane	Pump Operation & Maintenance
7	Dwain Wright	Pump Operation & Maintenance, Daily Inspection
8	Russell-Kay Ricketts	Pump Operation & Maintenance
9	Erron Reid	Daily Inspection
10	Deon Coke	Daily Inspection
11	Calvert Selby	Water Quality Testing for WTP Operators, Water Quality Testing for Lab Personnel, Chemical Dosing for WTP Operators, Water Treatment Process
12	Fendly Foster	Water Quality Testing for WTP Operators, Water Quality Testing for Lab Personnel, Chemical Dosing for WTP Operators, Water Treatment Process
13	Gregory Wilson	Water Quality Testing for WTP Operators, Chemical Dosing for WTP Operators, Water Treatment Process
14	Nadine Patterson	Water Quality Testing for WTP Operators, Water Quality Testing for Lab Personnel, Chemical Dosing for WTP Operators, Water Treatment Process
15	Kirkwood McGhie	Water Quality Testing for WTP Operators, Chemical Dosing for WTP Operators
16	Carole Tomlinson	Water Quality Testing for Lab Personnel
17	Michael Hyde	Water Quality Testing for Lab Personnel
18	LaToya Jackson	Chemical Dosing for WTP Operators, Water Treatment Process
19	Jermaine Jackson	Chemical Dosing for WTP Operators, Water Treatment Process

Annex-10 List of Manuals developed by the Project

Date	Manual	Section for the manuals to be used
Sep. 2008	Manuals for Assembly and Repair Works	Maintenance
Sep. 2008	Manuals for Installation Works	Maintenance
Sep. 2008	Chemical Dosing Manual	Water Production
Sep. 2008	Water Quality Testing Manual for WTP	Water Production
Sep. 2008	Revised Internal Water Quality Testing Procedure	Water Quality
Sep. 2008	Manual of Hydraulic Analysis	NRW
Mar. 2010	Internal Water Quality Procedure	Water Quality
May. 2010	Pump Stations Design Manual	Engineering Maintenance

ANNEX-11 Evaluation Grid

PERFORMANCE

Topics	Questions	Information/data to be collected	Findings/Results
Input	Was the input from the Jamaican side provided as planned? (Counterparts, offices and equipment, project cost, etc.)	Input record	A total of 27 staff members of NWC were appointed as C/P. (see Annex for the list of C/P). The NWC provided office space at the Eastern and Western Divisional Offices for Japanese experts. The NWC provided the operational expenses of 5,140 thousand Jamaican dollars for the Project
	Was the input from the Japanese side provided as planned? (experts, counterpart training, equipment, project cost, etc.)	Input record	A total of 9 short-term experts have been assigned since the inception of the Stage 1 of the Project (see Annex for the list of experts). Under the Counterpart Training Scheme in Japan, a total of 16 NWC staff members were trained in Japan (see Annex for the list of trainees). Machinery and equipment valued at 35 million yen in total were allocated for the Project activities. (see Annex for the list of equipment and its current condition)
	Has the Output 0 been achieved?	Indicator 1: Prepared PDM1 and Plan of Operation (PO) 1 (Target: Achieved)	A total of 8.9 million yen was allocated for the Project activities by the Japanese side. (see Annex for the Achieved at the end of Stage 1.
	Has the Output 1 been achieved? "The project framework, pilot areas and activities are specifically identified."	Indicator 1 Operation of the 4 pilot treatment plants is conducted in accordance with developed manual and standard operation procedures.	At all four WTPs operation manuals for "chemical dosing" and "filter washing" were prepared, while training for operators for "treatment process", "chemical dosing" and "water quality" were carried out.
	Has the Output 1 been achieved? "Efficiency of O&M is strengthened."	Indicator 2 Plant down time specific to 'breakdown maintenance' is shortened for each 4 pilot treatment plants.	Actually, there have been no full "plant down time" at 4WTPs therefore the targets were not set. However, The records of 'service orders' which are reporting format of the outsourcing of maintenance services, there were significant decrease in both Eastern and Western Divisions in 2009, compared with 2007, in the number of services, indicating improvement of preventive maintenance in general. On the other hand no improvement was observed in the incidences of burnt motors.
Has the Output 2 been achieved? "Water quality management is	Indicator 3 Daily and regular inspections/maintenance are conducted and reported in standardized template both in Eastern and Western Divisions. Indicator 1 Optimum chemical dosage is specified and applied at four pilot plants.	Daily inspections by plant operators will be introduced shortly. Regular maintenance is being conducted by maintenance sections in both Divisions. The template for maintenance proposed by JICA Expert Team were being examined by NWC maintenance sections for finalization.	
			Jar test and chlorine demand tests were conducted at the four pilot plants. Based on the results, a correlation between raw water turbidity and alum dose was determined. The Chemical Dosing Manual was created and installed at each plant. Training for chemical dosing was conducted in 2008 at the four pilot plants; 27 staff members were trained.

<p>strengthened."</p>	<p>Indicator 2 Water quality data is timely collected and recorded in the database.</p>	<p>The results of the chemical and microbiological tests carried out by the laboratories were recorded both in the "LabMIS" Database System and in existing spreadsheets. In the Eastern Division samples were collected according to the "Chemical Short Analysis Sample Schedule" until 2007. After installation of the ion chromatographs, samples will be collected according to the new sampling plan. In order to strengthen monitoring capacity, the outsourcing of heavy metals and agrochemical residues has been suggested in the sampling plan. Water quality data from the pilot plants was recorded both in the log sheets and in the GIS System (Spanish Town, Great River and Logwood WTPs). Training for Water quality testing and management was conducted, and 21 laboratory staff members, 28 operators and 40 mobile operators were trained. Throughout the training, the importance of recording data and record keeping were highlighted.</p>
<p>Achievement of the Outputs</p>	<p>Indicator 3 Operators at other training plants and mobile operators are trained to manage water quality (Target: 50 operators and mobile operators).</p>	<p>The following materials were prepared for the training: a. Water Quality Testing Procedures for Mobile Operators b. Chlorination Training (for both operators and mobile operators) c. Treatment plant operation (for both operators and mobile operators) d. Sampling Procedures (for both operators and mobile operators) e. Water Quality Testing Procedures for WTP operators.</p> <p>13 operators at the other water treatment plants and 40 mobile operators have been trained in both the Eastern and Western Division to date. More training for operators at the other water treatment plants is scheduled for the rest of the Project period and will be conducted by the NWC Training Department.</p> <p>With the plan, water supply was improved as follows: 1) Water Supply Management Plan for the Hope System A) The number of pumps in use at the Hope High Level pumps was reduced from 4 to 3, saving about 16% of pump running time. B) Operating time of the Beverly Hills pump was reduced from approximately 10 hours to 8 hours per day/all pumps, saving 20% of its daily energy use. C) It was recommended that the Hope Pastures tank be cleaned and used efficiently by operating two pumps at the Hope Pastures pump station. 2) Water Supply Management Plan for the Logwood System A) Operating time of the Logwood pumps was reduced from 66 hours to 60 hours per day/all pumps, saving 9% of the daily energy use. B) It was recommended that the deficiency in the outlet pipeline of the Red Ground Tank be investigated. C) It was recommended that the Jinger Hills Tank be investigated to find out the reason why it was empty. D) It was recommended that the tank be installed in the Nonpareil, Salt Spring and Saxham areas to ensure water supply management plans for the Hellshire system and the Minard system were completed in March 2010. Hydraulic models and water supply management plans were developed for the both system. The taskforce team found some deficiencies in the systems and sought to formulate a more effective pump operation schedule. After the analysis of models and field tests, suggestions were made for energy reduction in a couple of pumps and cut down on overflows at the tanks. All the process was proceeded with the NWC staff's initiative.</p>
<p>Has the Output 3 been achieved? "Efficiency of water supply is enhanced through applications of water supply management planning."</p>	<p>Indicator 1 Water supply is improved with designed water supply management plan in the service areas of Hope WTP and Logwood WTP.</p>	<p>By extending filtration time and minimizing water loss by filter washing, for Great River (new) and Logwood pilot WTPs, water loss was reduced by 35% and 39% respectively after December 2009, compared with the data in 2007. The indicator has been achieved. Further, as a result of water supply management program, overflow at Beverly Hills and Hope High Level reservoirs were tremendously improved.</p>
<p>Indicator 1. Percentage of water loss in water production is reduced at pilot WTPs.</p>	<p>Indicator 2 Water supply management plan at additional two service areas are developed by trained NWC staffs.</p>	<p>By extending filtration time and minimizing water loss by filter washing, for Great River (new) and Logwood pilot WTPs, water loss was reduced by 35% and 39% respectively after December 2009, compared with the data in 2007. The indicator has been achieved. Further, as a result of water supply management program, overflow at Beverly Hills and Hope High Level reservoirs were tremendously improved.</p>

<p>Indicator 2. Frequency of water samples being tested below a desirable water quality (<NTU1 for turbidity and above 1.5 mg/l for residual chlorine) for treated water will be increased over 80 percent for turbidity and 100 for residual chlorine of all the test samples taken at pilot WTPs in one year.</p> <p>Indicator 3. Energy consumption is reduced at pilot WTPs.</p>	<p>As for turbidity, the target was achieved in 2009 at Hope and Spanish Town WTPs with frequency of 93.1% and 99.2% respectively, while at Great River and Logwood WTRs the frequencies were 54.0% and 73.1% respectively. As for residual chlorine, the target was not achieved in 2009 at all 4 pilot WTRs. The frequencies were 68.3% at Hope, 97.9% at Spanish Town, 80.1% at Great River and 63.4% at Logwood. Thus, the degree of achievement of the indicator is rather low.</p> <p>The turbidity of treated water from the Hope and Spanish Town WTPs has greatly improved. At the Hope WTP sand washing was restarted in 2008. Although the added sand depth is about 8 cm, it could help to improve the water quality, because the sand depth before sand washing was less than 20 or 15 cm. Renovations were completed in 2008 at the Spanish Town WTP; new settling tanks have been constructed and the filter sand has been changed. The renovation has greatly contributed to the improvement in water quality.</p> <p>Changes in chemical dosage resulted in improvements in settled water turbidity. To further improve the turbidity of treated water, certain Electricity consumption per water production (KWh/m³) decreased at Hoper and Logwood WTPs (two pilot WTPs for WSM) by 6.4% and 0.5% respectively. As energy efficiency was improved, it is interpreted that the indicator has been achieved.</p>	<p>By the end of the Project, will the Project Purpose be achieved? "Capacities of NWC to provide quality and quantity of water supply is enhanced through piloting at four water treatment plants."</p>
<p>Indicator 4. Training courses on operation and maintenance, water quality, and water supply management are planned and conducted with developed textbooks.</p>	<p>Since October 2008, the JICA Expert Team has prepared training courses in the areas of operation and maintenance, water quality and water supply management in conjunction with NWC C/P. Training materials were prepared by JICA Experts and C/P. So far in a total of 17 training courses (8 for O&M, 7 for water quality and 2 for water supply management) around 400 trainees attended:</p> <ul style="list-style-type: none"> O&M Pump Maintenance 63 Pump Operation 21 Daily Inspection by Operators 35 Electrical Equipment Maintenance 22 Electrical Installation 16 Water Treatment Process Advanced 15 Water Treatment Process for Specialists 10 Water Treatment Process for Operators 28 WQM Chemical Dosing for Operators 35 Water Sampling for Operators 20 Water Quality Management for WTP Operators 16 Water Quality Management for Laboratory Staff 6 Water Quality Testing for Laboratory Staff 21 Water Quality Testing for Mobile Operators 32 Water Quality Testing for WTP 29 WSM Hydraulic Analysis for Specialists 18 <p>Hydraulic Analysis for Laboratory Staff 4</p> <p>For 8 training courses, 40 master trainers have been registered so far;</p> <ul style="list-style-type: none"> O&M Pump Operation & Maintenance 5 Daily Inspection 3 Water Treatment Process 6 WQM Chemical Dosing for Operators 7 Water Sampling for Operators 7 Water Quality Testing for Laboratory Staff 5 Water Quality Testing for WTP 4 WSM Water Supply Management 3 <p>Although the specific target was not set previously, the number of registered master trainers seems to be large enough to conduct training courses.</p>	<p>Indicator 5. Numbers of registered master trainers on Operation and Maintenance, Water Quality and Water Supply Management</p>
<p>Achievement of the Overall Goal</p>	<p>Performance indicators (i.e. staff costs as % of revenue, operating costs as revenue, compliance with MOH standards, all the learning and growth targets submitted from NWC to OUR are improved.</p>	<p>Within 5 years after the completion of the Project, is the Overall Goal likely to be achieved? "Reliability of NWC's water supply is enhanced both in terms of quality and quantity."</p>

IMPLEMENTATION PROCESS

Topics		Questions	Information/data to be collected	Findings/Results
Activities	Have the "Activities" of the Project been implemented as planned throughout the Project period?	Progress of the "Activities"	All activities described in PDM2 and PO2 have been implemented mostly as scheduled, with a few exceptions. It is ensured that delayed activities will be completed before the end of the Project period.	
Transfer of technology	Was there any problem in the process of transfer of technology from the Japanese experts?	How the transfer of technology has been carried out.	Most of CP show satisfaction about transfer of technology from Japanese Experts in general. Especially, "Back to Basic" approach where importance and reasoning of the data collection are emphasized was appreciated. Further, in many cases solutions to problems were not simply given by Experts but sought by CP themselves, which strengthened C/P's motivation and ownership.	
Monitoring	How has the Project been monitored? Was the result of monitoring utilized in the Project activities?	System of monitoring. How the result of monitoring is used?	With the Project, the monitoring is conducted as 1) meetings between Project Manager and Japanese Experts, 2) meetings among three output task force teams. Four Progress Repots and an Interim Report were prepared by Japanese Experts. Annual JCC meetings were held four times in accordance with R/D. JICA dispatched a monitoring mission in September 2007 and Mid-term Review Team in June 2009.	
Communication	Did the Japanese experts and Jamaican Counterparts communicate well?	How and How often the Project members communicate each other. How they reacted to the change of the plan. How they coordinate themselves to solve problems. How trust has been built between the Project members. How the Counterparts participated in the Project and took initiative.	Good communications and working relations between Japanese Experts and Jamaican C/P have been established throughout the Project.. Although sometimes language problems arose, that were minor ones and did not affect the Project activities adversely. Enhanced communications were made possible through various media including: 1) Steering Committee Meetings with Team Leaders of Task Force Members, 2) Task Force Meetings with Team Leaders and Task Force Members, 3) One to one weekly meeting with JICA Expert Leader and NWC Project Manager, and 4) via E-mail and telephone as and when necessary.	
Communication	Did the Japanese partner organizations (JICA Jamaican Office and Headquarters) support the project well? Was the communication good?	Frequency, style and content of communication. How they reacted to the change of the plan.	No problems were observed	
Ownership	Do the Jamaican project leaders actively participate in the project management?	Ownership and participation of the Jamaican staff members	Involvement of senior management was increased after the Mid-term Review. Now key senior executives are kept abreast of the progress of the Project via minutes of meetings, etc. and by attending Joint Steering Committee meetings and Task Force Team meetings.	
Ownership	Do the Jamaican project members take proactive participation in the Project activities?	level of participation in project activities, frequency, style and contents of participation	Ownership of Jamaican C/P has increased with their enthusiasm and changing awareness as observed by Japanese experts. Especially participants of training course in Japan express improvement of awareness.	
Others	Is there any challenge in the process of project implementation?	Issues that came up in the process of Project implementation. Causes and solutions.	Some of equipment were not adequate. Arrangement of new equipment is now underway.	

5 Evaluation Criteria

1. RELEVANCE

Topics	Questions	Information/data to be collected	Findings/Results
Needs	<p>Are the Project Purpose and the Overall Goal relevant to the needs of Jamaica?</p> <p>Are the Project Purpose and the Overall Goal relevant to the needs of the target groups?</p>	<p>Problems and challenges identified for the water sector in Jamaica</p> <p>Needs of the NWC</p>	<p>Project Purpose and the Overall Goal are completely relevant to the needs of Jamaica as efficiency and equality in water supply remain to be the most critical agenda in the water sector.</p> <p>Project Purpose and the Overall Goal are completely relevant to the needs of the NWC, which supplies 90% of potable water in Jamaica, as the NWC needs to enhance capacity of its engineers and technicians.</p>
Priority	<p>Is the Project relevant with the development policy of Jamaica?</p> <p>Is the Project relevant to the Japan's country assistance policy for Jamaica?</p> <p>Has the Project taken up a good strategy to tackle challenges identified for the water sector in Jamaica? (i.e. approach, selection of the target areas)</p>	<p>National development policy in Jamaica</p> <p>Japan's development assistance policy (ODA charter, etc.), JICA's assistance policy for Jamaica and priority areas.</p> <p>How the accumulated know-how in Jamaica and Japan has been utilized.</p> <p>Whether the Project applied methods and techniques that were relevant to the situation of Jamaica.</p>	<p>Under the Vision 2030 Jamaica, the country's long-term National Development Plan, strong economic infrastructure, such as development of world-class transport, telecommunications, water supply and sanitation is ensured. The Project contributes to the Plan by complementing the NWC's capital works in developing infrastructure in the water sector.</p> <p>Japan's basic ODA policy for Jamaica sets 4 priority areas; 1) job creation and human resources development, 2) health and sanitation, 3) environment protection and disaster prevention, and 4) agriculture and fisher, tourism, etc. The Project is relevant to 1), 2) and 3).</p> <p>Project has generally had a good strategy in capacity building of the NWC. However, as pointed out in the Mid-term review, more careful consideration should have been made as to how to transfer technologies to the NWC where no designated section to work on water supply management plan.</p>
Appropriateness	<p>Does Japan has comparative advantage in this technical area?</p>	<p>History and achievement of JICA's assistance in similar areas.</p>	<p>Japan has high level of skills and technologies in the field of operation and maintenance of water supply/treatment facilities. JICA has abundant experiences in assistance in water management area.</p>
Others	<p>Was there any change in the environment of the Project (political, economic</p>	<p>Information on change of political, economic and social conditions.</p>	<p>There is no major change in policy direction.</p>

2. EFFECTIVENESS

Topics	Questions	Information/data to be collected	Findings/Results
Achievement of the Project Purpose	<p>Will the Project Purpose be achieved by the end of the Project based on the inputs, outputs and the progress of the activities?</p>	<p>Project performance: Degree of achievement of the Project Purposes</p>	<p>Project Purpose has been mostly achieved as shown in the results of 5 indicators above. However, the level of achievement indicator on water quality management is rather low, requiring further efforts.</p>

<p>Were the four "Outputs" only prerequisites for the achievement of the "Project Purposes"? Are there any other activities that would have been necessary for achievement of the "Project Purposes"? Are there any factors that particularly contributed to achievement of the Project?</p>	<p>Consequences between the Output and the Project Purposes</p>	<p>Four outputs, including Stage 1, have contributed to the high level of achievement of Project Purpose.</p>
<p>Are there any factors that particularly impeded achievement of the Project?</p>	<p>Contributing factors</p>	<p>Training coursed in Japan increased motivation and awareness of C/P, contributing to achievement of the Project Purpose.</p>
<p>Are the 6 important assumptions from Outputs to Project Purpose secured? If not, how did the Project approach the issues?</p>	<p>Impeding factors</p>	<p>No major factors to impeded achievement of the Project Purpose, though several problems slowed down the smooth implementation of the activities, such as inadequate equipment at pilot WTPs, and no existence of the NWC section to solely responsible to formulate water supply management plan.</p>
<p>"Personnel related to the project will not be transferred or retired frequently", "No replacement of Task Force members", "Mandate of each department and section is to be revised if necessary", "Duplication between other donors is avoided by NWC", "Cooperation of the Department of Human Resource Development and Administration is ensured", and "Budgetary and human resource allocation for rolling out training in the NWC is ensured"</p>	<p>Effect of the Important Assumptions and other factors</p>	<p>All the 6 assumptions have been more or less ensured. As for the sixth assumption "Budgetary and human resource allocation for rolling out training in the NWC is ensured", the NWC demonstrated strong commitment though specific budget plan was not available for the Evaluation Team.</p>
<p>Causality</p>		

3.EFFICIENCY

<p>Topics</p>	<p>Questions</p>	<p>Information/data to be collected</p>	<p>Findings/Results</p>
---------------	------------------	---	-------------------------

Input	Were the Jamaican and Japanese inputs appropriate in terms of quality, quantity and timing?	Record of Input	<p>1) Jamaican Side Allocation of C/P was generally appropriate and effective. However, it might have been more efficient, as expressed by Japanese Experts, if small numbers of C/P would have concentrated more on Project activities, not much occupied with "a daily job." The NWC appropriately provided office space at the Eastern and Western Divisional Offices for Japanese Experts. The NWC appropriately provided the operational expenses of the Project activities Some of operators at WTPs are of sub-standards in capability and qualification, as operators differ much in their educational background. For those operators with low capability, basic or entry level training would be necessary.</p> <p>2) Japanese Side Allocation of Experts was mostly appropriate and effective. However, it might have been better if assignments of Experts would have been continued for a longer period at one batch, which could have enabled to adjust the schedule of Project activities with C/P more efficiently. Also short dispatch of short term experts on specific Most of the equipment provided by the Project are fully utilized and well maintained. A few exceptions include: analog hydrometers, which are being replaced with digital ones</p>
Achievement of Outputs	Were the four Outputs achieved?	Achievement of Outputs	As described in PERFORMANCE section above.
Causality	Were the "Activities" sufficient for the achievement the "Outputs"?	Record of Activities and achievement of the Outputs	The degree of achievement of the Outputs shows that activities specified in PDM2 have appropriately contributed to the Project Outputs.
	Are the 3 important assumptions from Activities to Outputs secured? If not, how did the Project approach the issues? "Budgetary allocation for procurement of necessary equipment is ensured", "Relatively reliable information on water supply such as on network is available" and "Sufficient time of counterparts is allocated".	Record of Activities, Record of Input	All 3 assumptions were fulfilled at the satisfactory level.

4. IMPACT

Topics	Questions	Information/data to be collected	Findings/Results
--------	-----------	----------------------------------	------------------

Achievement of the Overall Goal	Will the Overall Goal be achieved within five years after the end of the Project based on the result of inputs, outputs and activities, and achievement of the Project? Are there any factors that would impede achievement of the Overall Goal?	Achievement, Effect of Important Assumptions, contributing and impeding factors	As described in PERFORMANCE section. Major changes in policy directions in the water sector would affect the possibility to achieve Overall Goal, but that is not likely.
Causality	Is the consequence from the Project Purposes to the Overall Goal logically designed? Are the 3 important assumptions likely to be secured: "NRW reduction is tackled and accelerated by NWC", "No significant changes of the Government's policy on NWC" and "Budgetary and human resources allocation for equipment and training is secured"? Are there any positive impacts on political, social, cultural, economical, environmental or institutional aspects?	Structure of the Project, Effect of Important Assumptions, contributing and impeding factors	The second and third assumptions are almost the same as conditions to ensure sustainability. Refer to 5. SUSTAINABILITY. As for the first assumption, the NWC has been making an effort to reduce NRW through various projects financed by international/foreign donors, including North-Western Parishes Project and Kingston Water and Sanitation Project.
Impact	Are there any negative impacts on political, social, cultural, economical, environmental or institutional aspects?	Examples	Communications and relations between Eastern and Western Divisions of NWC have become better and frequent through the Project activities, accelerating sharing information and standardization of work formats. The findings of the Project were one of the reasons for the establishment of an Energy Steering Committee in the NWC. The Project revealed reduction in electricity consumption and savings in water losses at some of the Pilot Water Treatment Plants. The work methodology/approach and findings of the Water Supply Management component of the project is being used to advise and inform the Committee on how to achieve electricity reduction and reduction in water losses. No negative impact have been observed.

5. SUSTAINABILITY

Topics	Questions	Findings/Results
--------	-----------	------------------

Policy aspects	Will the policy directions of the water sector be maintained by the Jamaican government after the end of the Project?	Policy and strategy of the Jamaican government	Because improvement in water supply remains high priority in Jamaica, it is unlikely there will be major changes in policy directions of the water sector.
Institutional and financial aspects	Is there any institutional mechanism in the NWC to continue improvement in O&M of WTPs, water quality management and water supply management planning? Has the NWC secured necessary budget for full operation of O&M, water quality management and water supply management planning?	Institutionalization of the Project Financial condition of the NWC, policy and strategy of the Jamaican government	Since the Mid-term review of the Project, the NWC has recognized the need for a Centralized Unit/Department for a Water Supply Management from which a 'structured' WSM Plan can be developed for the NWC. To this end, the NWC has commenced arrangement to strengthen related departments/sections. As for training system for all three areas, the Training Unit of the HRDA Department of the NWC is responsible for implementation of training activities. The training schedule is under preparation, which will utilize outputs of the Project such as operation manuals and training manuals. For the past several years the NWC has been making operational loss. Even after an increase of the water charge in 2008, the operational revenue has not exceeded operational expenditure. In this sense the financial condition of the NWC is not fully secure in the future, although the NWC demonstrates strong commitment to the Project activities after the termination. However, a number of major Development Project, financed by international and/or foreign financial institutions, will support continuity of the Project activities by huge investment in facilities.
Technical aspects	Does the NWC have technical capacities to fully maintain effects of the Project by continuing and enhance activities after the Project? Are the equipment provided by the Project actively utilized and maintained? Will they be they utilized after the end of the Project with proper planning and budget? Are the techniques and methodologies of skill transfer used by the Project being accepted? (i.e. Level of skills, social and cultural appropriateness)	operation and management system, utilization mechanism, staffing and budget, level of skills/technologies How the equipment is utilized and maintained. How the manuals developed by the Project are utilized by the engineers and technicians.	Technically, C/P can more or less continue the Project activities including training on operation and maintenance of WTPs, water quality management and water supply management planning by themselves after the termination of the Project since most of C/P have become capable through the Project and are confident about own capability. Technical transfer has been appropriately conducted and training system of the NWC has been improved by the Project. With more than 40 Master Trainers, internal training system is geared for sustainable human resource development of the NWC. With a very few exceptions, equipment and machinery provided by the Project are being actively utilized and well maintained. However, it will depend on budget allocation whether the maintenance of the equipment will be properly made in the future. Transfer of technology/skills/knowledge has been duly accepted by Jamaican side. A large numbers of manuals have been developed by Japanese Experts and Jamaican C/P jointly.

Response to Recommendations of Mid-term Review?

Topics	Questions	Information/data to be collected	Findings/Results
	Have any reactions been taken to "1. Strengthen Public Relations"?	Reactions taken	Information on the Project has been communicated via various media including: 1) NWC's newsletter (print), 2) News releases by radio, and 3) NWC's web site. In addition a number of sessions were held with Senior Executives of the NWC to let them know the Project activities.

	<p>Have any reactions been taken to "2. Take measures to Ensure Technical sustainability"?</p>	<p>Reactions taken</p>	<p>The Training Unit of the HRDA Department, NWC is responsible for the implementation of the training activities. A Master Training schedule has been prepared as well as training materials and literatures. Once training activities are advanced, the NWC will be implementing a mechanism to measure and monitor the effectiveness and impact of the training activities.</p>
	<p>Have any reactions been taken to "3. Strengthen involvement of the Senior Management"?</p>	<p>Reactions taken</p>	<p>Involvement of senior management was increased after the Mid-term Review. Now key senior executives are kept abreast of the progress of the Project via minutes of meetings, etc. and by attending Joint Steering Committee meetings and Task Force Team meetings.</p>
	<p>Have any reactions been taken to "4. Ensure Financial Allocations for Necessary Equipment"?</p>	<p>Reactions taken</p>	<p>The NWC has two means to finance equipment to sustain the Project activities. 1) Arrangements are in place to have the procurement of these be undertaken through the NWC's Major Capital Development Projects (i.e. JWSIP – BNPP/INCI , KWSP- IADB) which are now underway. 2) An allocation in each year's budget will be made for the future roll out of the project activities.</p>
<p>Reactions to the recommendations of Mid-term Review Report?</p>	<p>Have any reactions been taken to "5. Develop Information Framework on Water Supply Management Plan"?</p>	<p>Reactions taken</p>	<p>The NWC has recognized the need for a Centralized Unit/Department for a Water Supply Management from which a 'structured' WSM Plan can be developed for the NWC. To this end, the NWC has commenced the strengthening of the Divisional Units by: - Changing of the names of the two Divisional NRW Managers to Water Supply Management. - Commence the process of employment of a Water Distribution Engineer with specific expertise and responsibility in Hydraulic Modeling and Analysis. This person will be employed to the WSM Department and report to the Department Manager for Water Supply Management Department. - Procurement of water GEMS hydraulic Model software for two Divisional Water Supply Management Units. - The intention is to have an organic link/synergy between the Engineering Department and the eight Operational Areas via the two Divisional Water Supply Management Units.</p>
	<p>Have any reactions been taken to "6. Institutionalize Training"?</p>	<p>The second and third assumptions are almost the same as conditions to ensure sustainability. Refer to 5. SUSTAINABILITY.</p>	<p>The same as response to Recommendation 2</p>
	<p>Have any reactions been taken to "7. Revise the Project Framework and Scope"?</p>	<p>As for the first assumption, the NWC has been making an effort to reduce NRW through various projects financed by international/foreign donors, including North-Western Parishes Project and Kingston Water and Sanitation Project.</p>	<p>The Project framework has been modified as PDM2, which was proposed by the Mid-Term review Team in June 2009.</p>

2. PDM2 (和)

プロジェクト名: ジャマイカ上水施設維持管理能力強化プロジェクト

プロジェクト実施期間: 2007年3月 - 2010年9月 (3.5年間)

作成日: 2009年6月12日

実施機関: 国家水委員会 (NWC)

対象地域: ホープ浄水場、スベインタンク浄水場、ロックウツ浄水場、新グレートリバー浄水場

対象: 技術サービス部維持管理課及び無収水課、水生産課、水質保証部、パイロット対象浄水場職員、その他の浄水場職員 (東部・西部)

プロジェクトの要約		指標	入手手段	外部条件
上位目標 NWCによる水供給の質・量の信頼性が高められる。		1 歳入に占める人件費の割合、歳入に占める運営費の割合、MOH基準の遵守度、「学習・発達」目標の達成率、などNWCがOURIに提出する義務のある業績指標が改善する。	1 OUR報告書、(OURへの報告義務を果たすための) NWCの年次・月次報告書	
プロジェクト目標 4浄水場におけるパイロットを通じてNWCの水供給能力が質・量・量の両面において強化される		1 4つのパイロット浄水場においてそれぞれ水生産時の水損失割合が減少する。 2 1年間の浄水水質検査サンプル全数のうち、望ましい水質 (濁度はNTU1以下で残留塩素は1.5以上) とされている目標値の検査結果が出る頻度が、濁度については80%以上、及び残留塩素については100%まで上昇すること。 3 パイロット浄水場においてエネルギー消費が減少する。 4 (プロジェクトが) 開発した教材を用いた運転維持管理、水質、水運用に係る研修コースが計画、実施される。 5 NWC内で登録された運転維持管理、水質、水運用に係る研修講師の人数	1 浄水場記録 2 検査室データベース、プロジェクト記録 3 浄水場報告書、NWCの情報管理システムよりのデータ、プロジェクト報告書 4 プロジェクト報告書、NWCの年次報告書、NWC年次訓 練計画・訓練報告書 5 人材管理: 総務部の記録、文書、プロジェクト報告書	無収水への対策が取られ、加速的に実施される。 NWCに係る政府の政策に大きな変更がない。 機材・研修に係る予算・人の手当てがなされる。
成果 ステージ1 0 プロジェクトの枠組み、パイロット地域、活動の詳細が明確にされる ステージ2 1 運転・維持管理の効率性が改善される 2 水質管理が強化される 3 水運用計画を通じて水供給の効率性が改善される		1 作成されたPDMI及びPO 1 4パイロット浄水場における運転が (プロジェクトを通じて) 開発されたマニュアルや標準作業手順書に準拠して行われる。 2 4パイロット浄水場において予防維持管理に係る浄水場機能不全時間が短縮される (4の浄水場それぞれにつき短縮目標を設定する) 3 東西地区事務所において日常・定期検査/維持管理が標準化されたフォーマットで実施・報告される。 1 4つのパイロット浄水場において最悪薬品投入量が規定され、適用される。 2 水質データが適時収集され、データベースに記録される。 3 (パイロット浄水場以外の) その他の浄水場の運転者及び移動運転者が水質管理の研修を受ける (目標: 運転者及び移動運転者を合わせて50名)。 1 ホープ・ロックウツ浄水場の配水区において算定された水運用計画の適用により水供給が改善される。 2 研修を受けたNWC職員が追加された2地区において水運用計画を策定する。	1 PDMI・PO1 1 プロジェクト報告書/関係者からの聞き取り調査 2 NWCの情報管理システムに盛り込まれている浄水場運転に係るデータ 3 現場視察や聞き取り調査を通じて標準化されたフォーマットの利用状況確認/プロジェクト報告書 1 検査室と4パイロット浄水場におけるデータ/プロジェクト報告書/聞き取り調査 2 検査室と4パイロット浄水場におけるデータ/プロジェクト報告書/聞き取り調査 3 研修報告書/プロジェクト報告書 1 電気使用量・不損失量データ/プロジェクト報告書 2 水運用計画/プロジェクト報告書	プロジェクトに関連する人材の異動や離職が頻繁に起きない。 タスクフォースのメンバーの交代がない。 必要に応じて各部署の役割の見直しが行われる。 NWCは他の援助機関との支援内容と重複しないように図る。 人事・総務部の協力が確保される。 研修事業の水平展開に必要な予算・人の手当てが確保される。

活動		投入		外部条件
	ジャマイカ側	日本側		
0-1	NWCが管理している浄水場におけるO&M状況・課題とNWCスタッフの能力を把握し、パイロット対象の浄水場を選定する	1. カウンターパート	1. 専門家	必要な機材調達のための予算が確保される。 配管網も含め、水供給に係る相対的に信頼性が高い情報が入手可能である。 カウンタースタッフが十分な時間を割ける。
0-2	中央ラボと浄水場での水質管理に関する課題とNWCのスタッフの能力を把握し、パイロット対象の浄水場を選定する	- プロジェクト責任者 - プロジェクト管理者 - 技術サービスマネージャー（東部・西部） - 技術サービス部職員 - 水生産課職員	- 総括/プロセス設計/浄水場運転・維持管理/電気 - 浄水場運転・維持管理(機械) - 水質分析 - 水質管理 - 水供給計画	
0-3	無取水分野における他ドナーによる支援の動向を把握し、NWCのスタッフの能力を把握し、パイロット対象地域を選定する	- 水質保証責任者（東部・西部） - 水質保証部職員 - パイロット浄水場の地域責任者	- プロジェクト調整員	
0-4	0-1、0-2、0-3の結果を元に、ステージ2のPDM案、PO案を作成する	2. 施設・機材	2. 機材提供	
0-5	プロジェクトで対象とするカウンタースタッフの能力向上チェックリストを作成する	- NWC内にプロジェクト事務所及びオフィス機材	3. 日本における研修	
0-6	プロジェクトで対象とする部署の能力向上チェックリストを作成する	3. プロジェクト運営費	- 無取水、浄水場の運営維持管理、水質管理に係る研修	
1-1	技術サービス部維持管理課、選定された（パイロット）浄水場を管理している水生産課、パイロット浄水場のオペレーターから成るタスクフォースを形成する			
1-2	ワークショップやマシントップにおける分解・組立、修理マニュアルワークショップ手順マニュアルを整備する。			
1-3	部品在庫台帳に係る改善提言をする。			
1-4	浄水場におけるコンピュータデータベース管理のために、修理依頼、修理終了報告書を改定し、日常・定期検査の作業フロープロセスを開発する			
1-5	パイロット浄水場の資機材情報リスト及び施設図面を作成する。			
1-6	パイロット浄水場の基本データ整備、データベース化を行う			
1-7	関係カウンタースタッフに対しセミナー（浄水場運転・維持管理に関する情報共有、緊急対策）を開催する			
1-8	パイロット浄水場の運転マニュアルと標準作業手順書を作成する。			
1-9	パイロット浄水場の施設と機器類の評価を行う。			
1-10	他の浄水場に対して研修を実施する。			
2-1	品質保証部、水生産課、及びパイロット浄水場の管理者・チームリーダーから成る構成されるタスクフォースを組成する			
2-2	内部水質検査手順を改訂する			
2-3	上水道水質データベースの改訂を行う			
2-4	化学水質検査を強化する			
2-5	両地域の検査室職員に対し、水質検査、水質保証、水質管理手順に係るセミナーを実施する			
2-6	パイロット浄水場の原水質のジャマータースト及び塩素量検査を実施する			
2-7	2-6の結果に基づいた薬品投入マニュアルを作成する			
2-8	浄水場の運転担当職員や移動運転職員に対する水質検査マニュアルを作成する			
2-9	パイロット対象浄水場における水質検査に必要な資機材を調達する			
2-10	浄水場における水質データの記録・監査を強化する			
2-11	2-7から2-10の活動を受けて、既存の水質研修コースを強化する			
2-12	2-11の結果に基づき、浄水場運転管理者、移動運転職員等、水質サンプル入手担当者に対し水質検査セミナーを実施する			
2-13	2-11の結果に基づきパイロット対象浄水場において水質管理研修を行う			
2-14	2-12及び2-13の結果に基づき水質研修コースの改訂を行う			
3-1	ホープ・ログウッド浄水場のサービス地域における水質解析を行う			
3-2	ホープ・ログウッド浄水場のサービス地域を包括する水運用計画を策定する			
3-3	既存の施設を用いた水運用計画を精査し、水質解析マニュアルを作成する			
3-4	水運用計画を策定する他のサービス地域を選定する			
3-5	他のサービス地域の水運用計画を策定する			

3. 評価グリッド (和)

評価項目	評価設問	
	大項目	小項目
1. プロジェクトの実績	<p>プロジェクト目標「研修を受けたNWC職員によってパイロット浄水場の効率的な運転・維持管理が実施され、パイロット浄水場の給水区域における水運用計画が策定される」をプロジェクト目標とするPDMIが策定・承認された。</p> <p>プロジェクト目標は、事前評価の結果を受けて、「パイロット浄水場及び取水対策パイロットエリアにおいて、安全で効率的な給水事業が行える体制が整う」と定められ、当事前評価書に基づきジャマイカ側と2007年3月にR/Dを締結した。第2ステージの開始に際し、2007年9月にモニタリング調査団が派遣された。他援助機関の活動との重複を避けるべく、当初プロジェクト案の柱であった無取水対策の代わりに水運用計画を盛り込むことが検討され、新たに、「研修を受けたNWC職員によってパイロット浄水場の効率的な運転・維持管理、水質管理が実施され、パイロット浄水場の給水区域における水運用計画が策定される」をプロジェクト目標とするPDMIが策定・承認された。</p>	<p>プロジェクト目標は、事前評価の結果を受けて、「パイロット浄水場及び取水対策パイロットエリアにおいて、安全で効率的な給水事業が行える体制が整う」と定められ、当事前評価書に基づきジャマイカ側と2007年3月にR/Dを締結した。第2ステージの開始に際し、2007年9月にモニタリング調査団が派遣された。他援助機関の活動との重複を避けるべく、当初プロジェクト案の柱であった無取水対策の代わりに水運用計画を盛り込むことが検討され、新たに、「研修を受けたNWC職員によってパイロット浄水場の効率的な運転・維持管理、水質管理が実施され、パイロット浄水場の給水区域における水運用計画が策定される」をプロジェクト目標とするPDMIが策定・承認された。</p>
		<p>①「パイロット浄水場における機材の故障頻度の減少(回数/月)」については、パイロット浄水場の運転停止を引き起こすような深刻な機材の故障が起きる回数であることを示している。研修の展開中であり、当プロジェクトの貢献により故障頻度の減少が見込まれない。2007年1年間の運転・維持管理報告から故障頻度を算出したところ、ホープ3回、スパニッシュ・タウン6回、グレート・リバー4回、ログウット5回であった。維持管理に係る研修の実施を展開している現時点において、新たな知識・技能を活用して実際に故障頻度が減少するかに基づいての測定は困難であるという立場から、2009年6月の中間レビューに至るまで指標データの収集・分析は行われてこなかった。2009年10月から2010年9月の1年間の水質検査報告から不適合な水質の頻度を算出し、達成度を算出した。2009年10月から2010年9月の1年間の水質検査報告より故障頻度を算出し、達成度を測定する予定である。目標は、これら故障頻度をそれぞれ10回にすることである(※ただし、終了時評価の時点では、スパニッシュ・タウン浄水場については、JBIC案件の貢献を考慮する必要あり)。</p> <p>②「不適合な水質の水が供給された日数の減少(日/月)」の評価指標については、2007年1年間の水質検査報告から、保健省のガイドラインで残留塩素、大腸菌の量が多いということの不適合な水質とされるNTU5以上が起きた頻度から、ホープ浄水場2回、スパニッシュ・タウン浄水場4回、グレート・リバー浄水場0回、ログウット浄水場0回というペーパーライン値を算出した。浄水施設での水質管理や維持管理の改善に係る研修が実施されているものは、実際に水質の改善の当プロジェクトの貢献を測定するのは困難であるという立場から、2009年6月の中間レビューに至るまで指標データの収集・分析は行われてこなかった。今後、2009年10月から2010年10月の1年間の水質検査報告から不適合な水質の頻度を算出し、達成度を測定することができると見込みである(※水質改善を測る指標として、「1年間の全サンプル数のうち、飲料水として望ましい目標値とされているNTU以下の発生割合が80%以上となる」が提案された。ペーパーラインとしては、ホープ浄水場58%、スパニッシュ・タウン浄水場8.6%、グレート・リバー浄水場46.2%、ログウット浄水場26.1%)。</p> <p>③「パイロット浄水場において削減された水生産量(m³/人)」指標については、浄水場の効率的な運転を測定するには他の要因の影響を受け易いということから、当プロジェクトの達成度を測るに適切な指標とはなり得ないということから、2009年6月の中間レビューに至るまでデータ収集は行われてこなかった。日本人専門家からは代替指標として「パイロット浄水場においてロスされた水生産量の割合(浄水量/取水量、%)」を採用したい旨が確認されたが、ジャマイカ側との意見調整はまだ行われていない。この指標データの収集については、パイロット浄水場すべてに流量計がないことから、2009年10月に調達が予定されているポータブルフローメーターを利用しての計画である。</p> <p>④「パイロット浄水場における電気代の削減(kWh/時間/m³)」: 水理解析結果をみながらポンプの制御方法を検討することによって、これまで電力消費過多となっていた施設を適切に運転することができるようになり、電力エネルギーの消費量を抑えることができたようになった。ホープ浄水場では、2007年12月の月間電力量の13万9,224kWhから2008年12月には18%減少して11万3,964kWhとなった。ログウット浄水場では、2008年10月の月間電力量の35万2,560kWhから2008年12月には32万2,808kWhへと10%減少した。特にログウットではネットワークの拡張に伴う生産量の増加がありながら、KWh/m³の電力量は、2,918から2,339まで20%も減少したことが確認されている。上記2つの浄水場における2008年12月時点での月毎電力代金(5,820万ジャマイカドルの10%減少、1カ月で1,582万ジャマイカドル、見込めると仮定すると、NWCの50万大浄水場における2008年12月時点での月毎電力代金を節約できることが推測できる。これは、NWCの650ある浄水施設全体で考えると、月間5%の節約が可能になるということである。水運用計画の策定は上述した2つの浄水場(ホープとログウット)を対象としていたが、プロジェクトとしてのパイロット浄水場としては、これらに加え、グレート・リバーとスパニッシュ・タウンの2つがある。EU案件の実施されているグレート・リバー浄水場については水運用計画を策定する予定がないために改善の見込みはない。スパニッシュ・タウンについてはJBIC案件で新しいポンプの導入が来年度中に計画されており、運転効率の改善そのものは期待される。しかしながら、当プロジェクトの活動の結果、当指標である電気代の削減が確認できるのは、プロジェクトが対象とする4つの浄水場のうち2つの浄水場にとどまる(注:前述したように水運用計画のアウトプットは元々パイロット対象は2つの浄水場であったため、プロジェクト目標の達成を確認する指標としては、より具体的に、水運用計画対象の2つの浄水場で電気代の削減が行われる、とされるべきであった)。</p>
	<p>プロジェクト目標「研修を受けたNWC職員によってパイロット浄水場の効率的な運転・維持管理が実施され、パイロット浄水場の給水区域における水運用計画が策定される」の達成予測</p>	<p>プロジェクト目標の達成度は、</p>

評価項目	評価設問		調査結果
	大項目	小項目	
1. プロジェクトの実績	アウトプット産出の度合い	プロジェクトO「プロジェクトの枠組み、プロジェクト地域、活動の詳細が明確にされる」は計画どおり産出されているか。	特になし
		アウトプット1-1「パイロット浄水場の効率的な運転・維持管理体制が強化される」は計画どおり産出されているか。	<p>指標 1-1-1 「作成されたパイロット浄水場の運転維持管理 (O&M) マニュアル」の達成状況：施設の古いホーロー浄水場を除き、維持管理マニュアルがログブック、グレート・リバー浄水場については既に整備され、また、JBIC案件を通じて施設が補修・新設されたスバニッシュ・タウンについても施設維持管理マニュアルは導入されている。この状況にかんがみ、当該プロジェクトでは、これら既存のマニュアルを補完する形で、①浄水プロセス (沈殿池の排泥、ろ過池の逆洗)、②薬品注入、の2つを柱とした運転維持管理マニュアルを作成することにした。うち②については既に作成が終了している。①については2009年度中に作成完了予定である。</p> <p>指標 1-1-2 「作成された電子データ入力フォーマットの」の達成状況：修理依頼、修理終了報告書が電子データ入力フォーマットの形で作成された。2009年9月までに東西の関係者を集めて、現場での使いやすさやオペレーターの技術レベルに合わせた表記法などの検討を行い、必要な修正を行う予定である。2009年中に最終版が維持管理課を通じて、全国の浄水場からの報告書のフォーマットとして採用される予定である。</p> <p>指標 1-1-3 「作成されたパイロット浄水場の図面」の達成状況：パイロット浄水場については、雇用了AutoCADオペレーターにより主要図面 (施設配置、寸法、フローシート、結線図) が作成され、完了している。ただし、JICA専門家により運転・維持管理研修に利用されていることが確認されたものの、NWCに対し、進捗報告書の添付での提出がなされたために、これら作成された図面が十分に活用されていないことがNWC側より指摘された。本部に対しては、NWCのGISにデータとしてリンクされるようこれら図面のソフトコピーの提出、浄水場が十分に担保されるよう図面の利用状況の再確認が必要である。</p> <p>指標 1-1-4 「オペレーターによる定期点検の実施頻度 (90%)」の達成状況：浄水場オペレーターによる日常点検の積み重ねをすることで、変化を確認し、維持管理課の報告をすることが重要であるという観点から、日常・定期点検表案を作成した。現場での使いやすさを確認すべく、2009年9月までに東西の関係者を集めて、検討会を開催する予定となっている。その際、4つの浄水場のうち、例えばホーロー浄水場にはオペレーターが使用するコンピュータの不備及びコンピュータ知識の不足が浄水場から指摘されており、エクセルなどを利用しての修理依頼・修理終了報告書の作成が現場で実際に可能なのか、十分に実施可能性を確認する必要がある。さらに、多くの浄水場ではEUプロジェクトを通じて導入されたGIS端末未使用し、維持管理に係るさまざまなデータ入力が行われており、NWCではその展開を強化することから、当活動により準備された日常・定期検査表との整合性が十分に確保されるよう確認する必要がある。東西の関係者によって合意・統一化された日報・点検シートを用い、オペレータを対象とした点検表の再研修を通じ、定期点検の展開を全浄水場において図る計画である。日点検する場合、1カ月31日のうち90%に上る27日間において点検を実施することを目指す。</p> <p>指標 1-1-5 「Maintenance Section による定期点検の実施頻度 (90%)」の達成状況：維持管理費用の低減をめざし、予防的維持管理・保全体制を構築するために定期点検実施のための点検表案を作成した。今後、東西関係者によって当案の統一・合意を行い、定期点検を実施する計画である。毎月点検した場合12月のうち90%に相当する11カ月に毎月点検が実施されることを目標としている。</p> <p>その他指標に表れない達成度：</p>
		アウトプット1-2「NWC 職員の効率的な浄水場の運転・維持管理に係る能力が強化される」は計画どおり産出されているか。	<p>指標 1-2-1 「研修を受けたNWC 職員の数 (80名)」の達成状況：これまでに、東西の維持管理課職員、4つのパイロット浄水場オペレーター・オペレーター助手、計83名 (東45名、西38名) が研修に参加した。2009年度中は、維持管理課職員が研修講師となり、他浄水場職員に対して水平的に維持管理研修を展開していく計画である。当指標がこの水平展開の際の他の浄水場職員の研修人数を意図した指標と判断し、また他浄水場への維持管理に係る研修実施は行っていないため、現時点での達成状況は低いといわざるを得ない。</p> <p>指標 1-2-2 「NWC 職員の研修到達度」の達成状況：研修到達度は、日本人専門家による課題別の研修理解度の評価によって判定される予定である。今後、研修実施、モニタリングについては現在1名で担当している研修コーディネーターのより強い関与と研修参加や習熟度が人事評価に反映されるよう対策を取ることが必要であることが指摘されている。</p> <p>指標 1-2-3 「作成された他浄水場のO&M マニュアル (2 浄水場以上)」の達成状況：パイロット浄水場以外のO&M マニュアルは作成されていない。プロジェクト終了時までにはパイロット4浄水場以外の2浄水場についてO&M マニュアルを作成予定。浄水場の選定については今後行う予定である。</p>

評価項目	評価設問		調査結果
	大項目	小項目	
1. プロジェクト の実績	アウトプット産 出の度合い	アウトプット2-1「パイロット浄水場の水質管理体制が強化される」は計画どおり産出されているか。	指標1-2-4「キャパシティアセスメントが行われた浄水場(2浄水場以上)」の達成状況：当該指標のキャパシティアセスメントの意図する点がプロジェクト関係者に不明であったため、中間モニタリングに至るまで必要な情報は収集されてきていない。 その他指標に表れない達成度：
		アウトプット2-1「パイロット浄水場の水質管理体制が強化される」は計画どおり産出されているか。	指標2-1-1「薬品注入マニュアルを導入したパイロット浄水場の数」の達成状況：凝集剤の最適注入量を決定するジャーテラス及び塩素必要量検査を実施し、4パイロット浄水場において、これまでの注入方法の改訂を行い、薬品注入マニュアルとして2008年秋にパイロット浄水場すべてにおいて導入された。 その他指標に表れない達成度：
		アウトプット2-2「NWC職員の研修に受けたNWC職員の数」の達成状況：これまでの、東西の検査室職員と4つのパイロット浄水場オペレーター、計57名(東31名、西26名)が研修に参加した。2009年度中は、検査室職員が研修講師となり、他浄水場職員に対して水平的に水質管理研修を展開していく計画である。当該指標はこの水平展開の際の他の浄水場職員の研修人数を明確に意図していないため、他浄水場への研修実施は行っていない現状から、現時点での達成状況は低いといわざるを得ない。	指標2-2-1「研修を受けたNWC職員の数(50名)」の達成状況：これまでに、東西の検査室職員と4つのパイロット浄水場オペレーター、計57名(東31名、西26名)が研修に参加した。2009年度中は、検査室職員が研修講師となり、他浄水場職員に対して水平的に水質管理研修を展開していく計画である。当該指標はこの水平展開の際の他の浄水場職員の研修人数を明確に意図していないため、他浄水場への研修実施は行っていない現状から、現時点での達成状況は低いといわざるを得ない。
		アウトプット2-2「NWC職員の研修到達度」の達成状況：残留塩素、濁度、pHの三大水質検査項目を浄水場に調達予定の簡易検査設備(pH計、濁度計、残留塩素計)を用いてNWC職員が正しい水質測定ができるようになること、をこの指標の意味として捉えられていないこと、各職員がこうして正しい水質測定ができるようになるようになったのか、という判断は日本人専門家によって行われる。現時点では、他浄水場職員の研修が開始されていないため、未達成である。	指標2-2-2「NWC職員の研修到達度」の達成状況：残留塩素、濁度、pHの三大水質検査項目を浄水場に調達予定の簡易検査設備(pH計、濁度計、残留塩素計)を用いてNWC職員が正しい水質測定ができるようになること、をこの指標の意味として捉えられていないこと、各職員がこうして正しい水質測定ができるようになるようになったのか、という判断は日本人専門家によって行われる。現時点では、他浄水場職員の研修が開始されていないため、未達成である。
		アウトプット2-3「作成された他浄水場の水質手順書」の達成状況：パイロット浄水場に向けて作成された薬品注入と水質検査マニュアルが作成されているものの、他の浄水場に向けて個別にこれらのマニュアルを作成する必要があるプロジェクト関係者には認められなかったため、実施されていない。	指標2-2-3「作成された他浄水場の水質手順書」の達成状況：パイロット浄水場に向けて作成された薬品注入と水質検査マニュアルが作成されているものの、他の浄水場に向けて個別にこれらのマニュアルを作成する必要があるプロジェクト関係者には認められなかったため、実施されていない。
		アウトプット3-1「パイロット浄水場(Hope、Logwood)の給水区域において水運用計画が策定される」は計画どおり産出されているか。	指標3-1-1「策定されたホープ浄水場配水区とログウッド浄水場配水区における水運用計画」の達成状況：ホープ浄水場配水区とログウッド浄水場配水区の水運用計画が策定され、実証実験を行い、策定された水運用計画の有効性が確認されている。 その他指標に表れない達成度：
		アウトプット3-2「NWC職員の水運用計画策定能力が強化される」は計画どおり産出されているか。	指標3-2-1「策定された他配水区における水運用計画(2配水区以上)」の達成状況：日本人専門家による水理解析・管網モデル構築の研修を受けたNWC職員が講師となり、東部では12名(NRW担当官、水生産課職員、浄水場関係者)が毎週水曜日(St.Catherine)にあるHeilshire配水区の水運用計画を策定中である。2009年6月末までに完了予定である。西部ではWest-MorlandにあるMearnsville配水区の水運用計画の策定をxx名に対する研修を通じて実施中である。2009年9月中旬に2配水区での計画策定という目標は達成される見込みである。さらに、2配水区が選定され、水運用計画の策定が予定されている。 その他指標に表れない達成度：
		活動の進捗状況は。	2008年夏にジャマイカ事務所を通じて米国から導入予定であったイオンクロマトグラフは、本部からの調達が必要となり、1年以上の遅延があり、ようやく2009年10～11月には調達完了する見込みである。そのため活動の延期・調整をする必要が生じたが、全体の活動としてはおおむね計画どおりであった。
		活動の実績	問題解決の仕組みとその有効性：ジャマイカ側プロジェクト責任者や2か月ごとに開催の実行委員会や適宜開催のタスクフォースとの会議を通じ、本部の関係者と問題点を協議し、早期解決を図った。

評価項目	評価設問		調査結果
	大項目	小項目	
プロジェクトの実施プロセス	投入の実績	投入の実績は、	<p>ジャマイカ側</p> <p>*C/P：プロジェクト開始及び途中に配置されたC/Pの総計は27名。特記すべきは、NWCでは職員の離職率が非常に低く、C/Pの交代も全くなかったことである。</p> <p>*2008年度及び2009年5月現在までに職員の出張経費、維持管理・修理、電話会議を含む通信費などで総計119万6,820 (J\$)が支出されたことが確認されている。ただし、これら経費は本部で当該プロジェクトに係る出費項目として計上されている金額のみであり、それ以外のNWC本部でのプロジェクト実施経費（会議費、交通費など）や活動が実質的に行われている東西統括事業部や浄水場の経費については、詳細が把握されていない。</p> <p>*日本人専門家とローカルスタッフはNWC内東部統括事業部及び西部統括事業部それぞれに執務室が1部屋確保されている。</p> <p>日本側</p> <p>*専門家派遣・業務実施型専門家（ステージ1専門分野：上水道維持管理、無取水対策、水質管理・業務調整；ステージ2専門分野総括/プロセス設計/浄水場運転・維持管理（機械）、浄水場運転・維持管理（電気）、水質分析/水質管理、上水道計画）が8名派遣され、2009年4月末現在の実績は38.78カ月である。</p> <p>*本邦研修員受入・水運用4名、上水道運転維持管理/水質管理6名、水道事業管理4名、総計14名の受入れを行った。</p> <p>*供与機材は689万4,000円で、主な項目は、レーザー・調節機器、赤外線放射温度計、電源品質分析器などである。</p> <p>*現地コスト負担：2006年度には、131万円、2007年度260万3,000円、2008年度は530万2,000円、の総計921万5,000円）が現地業務費として支出された。備入費と機材購入費用が主要費用項目である。</p>
	プロジェクトのマネージメント体制	モニタリングの実施状況は。	<p>*計画の修正が活動計画(PO)やPDM 1に反映されず、PDMの修正がなかった。現行のPDMIには、期待するアウトプットとその活動が必ずしも論理的・有機的に結び付かず、またその表現に曖昧さがあったため、プロジェクト関係者間で解釈が異なっていた。これがプロジェクト実施やその進捗に影響を直接与えていないなかったものの、PDM 1(PO)が必要でもモニタリングツールとして効果的ではなかったことが確認された。</p> <p>*活動の進捗等のモニタリングは、モニタリングは専門家が作成の年次・派遣期間計画に沿い、プロジェクト責任者をはじめとするC/Pとの会合、タスクフォースの主要メンバーから構成される作業委員会や専門家の進捗報告書を通じて行われている。</p> <p>*JICA側本部のモニタリングとしては2007年9月にモニタリング調査団派遣が行われ、ステージ1で行われた情報収集と分析に基づく技術移転計画をPDM 1とPO 1として、合意をした。</p> <p>*プロジェクトのR/Dでは合同調整委員会の開催に関して合意された、これまでに2008年3月4日、2009年2月24日の2回開催された。ただし、合同調整委員長をはじめ、関連機関の上層部の参加が得られておらず、ジャマイカ側の巻き込みが十分であったとはいえない。</p>
	コミュニケーション	関係者とのかわり方は適切であったか	<p>本プロジェクトでは、業務実施契約型案件でみられるシャトル型の専門家派遣形式であるため、それぞれの専門家が最大限の努力をしても、時間的制約や不在時にはきめ細かな対応ができない状況もある。赴任期間が最長である総括を務める専門家がフオローアップをすることで対処されている。赴任期間に制約があるながら、専門家とC/Pとの関係性はおおむね良好である。その理由としては、専門家がそれぞれコミュニケーションの緊密化に務め、問題解決を促したりしながら業務を推進してきたためだと思われる。ただし、日本人専門家間のコミュニケーションについては、アウトプットごとに分業制的に活動実施が行われているため、PDMや活動についての情報共有の強化が必要とされていることが認められた。NWCでは東と西がほぼ独立した形で運営されているため、東西の職員が同時に顔を合わせて、情報や経験の共有をすすめる機会が限定されている。プロジェクトでは2008年に東西の関係者を集めたワークショップを2回開催したり、日本での研修にも東西から均等に職員を派遣するなどの工夫をして、東西間の連携を強める努力をしたことが確認された。</p>
	技術移転の方法	技術移転の方法に問題はなかったか	<p>日々のプロジェクト活動及びカウンターパート研修を通じての技術移転の方法については特に問題は確認されなかった。</p>
	カウンターパートの参加度合い	相手国実施機関のオーナーシップは醸成されているか。	<p>積極的にイニシアティブを採って実施する、などオーナーシップの度合いは非常に高い。</p> <p>C/Pのかわり方・度合いの変化：本邦研修参加後、プロジェクトの活動に更に積極的になったC/Pが数名いた。水運用計画については、実際に電気代削減といった非常に目に見える形での成果を生んだことで、強い関心が寄せられるようになり、研修参加を希望する職員が増えた。</p>

評価項目	評価設問		調査結果
	大項目	小項目	
3. 妥当性	プロジェクトを実施する必要性	ジャマイカのニーズに合致しているか。	水・住宅省 (Ministry of Water and Housing) が策定した1999年の水セクター政策 (Water Sector Policy) を受けて、2004年に「戦略と行動計画」が策定された。その後、ジャマイカにおいて新しい水セクター政策立案はされていない。戦略と行動計画の中では、給水システム整備の推進、給水施設の維持管理の改善、エネルギー効率の向上、顧客サービスの強化、人材育成、情報システムの開発の柱と位置づけられている。本プロジェクトは、この中でも、給水施設の維持管理の改善、エネルギー効率の向上、人材育成、情報システムの開発に資する案件であり、ジャマイカ水セクターの計画との整合性は高いといえる。
		プロジェクトグループのニーズに合致しているか。	ジャマイカ (2007年の人口267万人) の水道事業はジャマイカ国家水委員会 (NWC) によって運営されており、飲料水の9割以上がNWCによって給配水されている。NWCの職員数は2,096名 (2009年6月現在) で全国を東西に分け、それぞれに統括事業部を設け運営されている。東西の統括事業部ではそれぞれの管轄を更に4地区に分け、4600に上る給水施設を運営している。浄水施設の運転維持管理、水質管理能力の強化を目的としたプロジェクトは、国民全員に對し2010年までに安全な水の供給をめざすジャマイカにおいて飲料水の9割を提供するNWCの職員をターゲットグループとしており、そのニーズに合致しているといえる。
	優先度	ジャマイカの開発政策との整合性はあるか。 日本の開発援助政策との整合性はあるか。	水・住宅省 (Ministry of Water and Housing) が策定した1999年の水セクター政策 (Water Sector Policy) を受けて、2004年に「戦略と行動計画」が策定された。その後、ジャマイカにおいて新しい水セクター政策立案はされていない。戦略と行動計画の中では、給水システム整備の推進、給水施設の維持管理の改善、エネルギー効率の向上、顧客サービスの強化、人材育成、情報システムの開発の柱と位置づけられている。本プロジェクトは、この中でも、給水施設の維持管理の改善、エネルギー効率の向上、人材育成、情報システムの開発に資する案件であり、ジャマイカ水セクターとの整合性は高いといえる。 国民1人当たりの国民総所得が3,710米ドル (2008年世界銀行) と中所得国の高い水準にあることから、ODAの対ジャマイカの基本方針としては、草の根・人間の安全保険無償資金協力、技術協力及び円借款を中心とした援助の実施である。重点分野は①治安改善、②保健・衛生、④環境・災害予防、である。ジャマイカに対し、JICAは国別事業実施計画・ローリングプランを策定していないため、これら開発政策との整合性は本中間レビューでは確認できなかった。
手段としての適切性		プロジェクト目標・アウトプット目標・ターゲットの選択・ターゲットグループの選定は妥当であったか。	課題に対しての計画 (プロ目・アウトプット1と2) の実施根拠はおおむね適切であった。ただし、アウトプット3の水運用計画の計画・実施については、水道事業体として必要な技術であるものの、NWC内に水運用計画を管掌業務とする部署や担当官が不在のなかで開始され、C/Pを無収水課職員として日本側のイニシアティブで始まったことから、妥当性は低かったといわざるを得ない。
		日本の技術の比較優位性はあったか? (日本のノウハウ・経験を生かした協力内容だったか?)	本プロジェクトは、JICAが技術協力機関として人づくりを通じて、ジャマイカの上水道維持管理、配水の改善を行うことを支援するものであり、ジャマイカの水道事業の7割を管轄する国家水道委員会 (NWC) の人材育成への需要に応えるものであるため、妥当性は高かったといえる。
その他		外部条件の変化の有無: 特になし	浄水場などの上水道施設の維持管理能力の高い日本の技術力の比較優位性が十分発揮される分野であり、日本の技術の優位性は非常に高いといえる。
		大きな政策・周辺環境の変化はあったか。	外部条件の変化の有無: 特になし その他プロジェクトの周辺環境の変化とその影響: 過去2年ほどの世界的な石油の高騰の影響を受け、NWCの中で、費用削減、効率化への関心が非常に高まった。この結果アウトプット3の水運用計画を通じて2つのパイロリット浄水場において10%以上の電気代の削減を達成した本案件への関心も高まり、プロジェクト実施のタイムラインが良かったことが確認された。

評価項目	評価設問		調査結果
	大項目	小項目	
4. 有効性	プロジェクト目標の達成予測	達成見込みはあるか。	指標①～③については、これまで研修を実施し、それぞれの指標に直接結びつく活動が展開され始められはいるものの、その結果としてのアウトカムを測る指標の達成度を判断することは難しい。④については、当初からパイロット浄水場の4つのうち2つが対象となり、既に水運用計画が作成されていることから、指標の半分については達成していることが確認されている。しかし、プロジェクト終了までに他の2つのパイロット浄水場配水区での水運用計画の策定は、他の援助機関が実施を予定していることから、当プロジェクトでは実施しないことが決められている。従って、指標の50%の達成という状況は、プロジェクト終了時まで変わらない見込みである。
	因果関係	アウトプットはプロジェクト目標達成のために十分であったか。	必要かつ十分なものであった。
		アウトプットからプロジェクトに至るまでの外部条件は現在においても正しいか・またその影響はあったか。	プロジェクト目標を達成するまでの外部条件の影響は特に認められなかった。
	アウトプットの産出	アウトプットの産出度合いは適切か。	すべての「アウトプット」はプロジェクト終了までに達成される見込みである。
		プロジェクト目標の達成に特に貢献している要因はあったか。	①NWC本部のプロジェクト責任者による合意形成型のプロジェクト実施管理体制、②専門家とC/Pの間に強い信頼関係が醸成されていること、③④日本の給水・水質管理・運営維持管理技術への信頼感、⑤水運用計画の実施を受けて実際に電気代の削減が行われたことで、NWC関係者からの関心が高まったこと、⑥水質検査機器をはじめ、必要な機材が供与されたこと。
5. 効率性	因果関係	アウトプットの産出を阻害した要因はあるか。	①NWC職員が通常業務や緊急対応で多忙を極めており、研修や活動に十分に時間を割けないことがあること、②NWC予算不足による機材不備、③配水網をはじめとする諸々の情報の不足と過去のデータの信頼性が低いこと。
		アウトプットを産出するために十分な活動であったか。	アウトプットを産出するために十分な活動が計画・実施され、活動・投入量は十分であった。
	因果関係	アウトプットを産出するために十分な投入であったか。	投入量は十分であった。
		活動からアウトプットにいたるまでの外部条件の影響はあったか。	特になし
			専門家派遣（人数、タイミン、分野）：専門家の人数、分野、タイミンについてはおおむね適切であった。ただし、部品在庫台帳見直しや予算管理及び資産管理のセミナー開催といった2つの活動に係る運営管理については、上水道技術専門家が対応することができなかったため、専任の運営管理専門家の派遣を考えるなどの工夫が必要であった。
		本案件では、パイロット浄水場の選定を含むプロジェクトの枠組みの具体化を図るステージ1（2007年4月～10月）と、ステージ2で作成されたプロジェクト計画に基づく技術移転・活動を実施するステージ2（2008年1月～2010年10月）に分けて実施が計画された。しかし、結果としてNJSが2つのステージを受注し、実施に携わっているが、ステージ1とステージ2の専門家陣容が異なるため、ステージ1で作成されたPDMの共通認識や意図が共有されていない。本プロジェクトの教訓として、今後のステージ1、ステージ2のコンサルタント調達時の注意事項として、ステージ1と2をまとめた形式での契約、あるいは専門家の陣容が同一となるようにJICA本部が取り計らう、といった方策が必要とされよう。	
	タイミン・質・量	活動を実施するために過不足なく量・質の投入がタイミンよく実施されたか。	供与機材（種類、機種、数、タイミン）：おおむね適切であった。ただし、水圧計については、アナログのものが調達されたため、ジャマイカ側より改善が求められた。 研修員受入（タイミン、人数、研修内容）：おおむね適切であるといえる。今後は浄水施設オペレーターに対してしても機会を与えてほしいとの要請が挙げられた。

評価項目	評価設問		調査結果
	大項目	小項目	
			プロジェクト運営費（量、タイミン）：おおむね適切であるといえる。ジャマイカ側の運営費投入については、その規模が適切とはいえないが、NWCの財政事情を考慮すると努力している日本側専門家が多い。 活用されなかった投入の有無：アナログ式の水圧計が供与されたが、ジャマイカ側はこれまで電子水圧計を使用してきたおり、アナログ式を使いたいという職員がいなかったため、使用されていない。 C/Pの配置（人数、タイミン、分野）：おおむね適切であるといえる。ただし、水運用計画については、NWC内に水運用計画を管掌業務とする部署、職員がいらないため、無取水部を核として活動が展開された。 提供された施設設備の適正度（規模、タイミン、質）：NWC東地区事務所及び西地区事務所内に2カ所プロジェクト用のオフィス・作業スペースが確保されており、十分であることが確認された。
	上位目標達成の見込み	上位目標の達成は見込めるか。	「NWC所轄の浄水場において効率的な運転・維持管理、水質管理が実施され、NWCの給水区域における水運用計画が策定される。」という上位目標の達成を図る指標としては、「給水サービスに満足している顧客数（水量、水質、給水サービス等）」が定められていた。公共事業庁では顧客の満足度調査の実施（不定期）や水道事業のKPI=Key Performance Indicator（経営重要指標）を収集しているが、プロジェクトでは現時点まで具体的な指標の選定を行わなかった。結果、現時点では、上位目標達成の見込みを判断することはできない（ただし、パイロット浄水場を核に他の浄水場への展開が、すべてのアウトプットに係る活動を通じ期待できるところから、NWC所轄すべての浄水場とはいわないまでも、パイロット浄水場以外にも効率的な運転・維持管理、水質管理が実施され、幾つかの給水区域における水運用計画が継続的に策定される方向であることは確認された）。
	上位目標達成の見込み	上位目標の達成を阻害する要因はあるか。	必要な機材購入に係る財源不足、水運用計画を管掌業務とする職員・部署が規定されていないこと
		プロジェクト目標から上位目標に至るまでの外部条件の影響は想定されるか。	現時点では想定できない。 プロジェクト目標から上位目標に至るまでのその他外部条件の有無とその影響：特になし
6. インパクト	因果関係	想定されなかったブラの影響はあるか。	プロジェクト目標「研修を受けたNWC職員によってパイロット浄水場の効率的な運転・維持管理、水質管理が実施され、パイロット浄水場の給水区域における水運用計画が策定される」は、あくまでも4つのパイロット浄水場を対象と限定していた。一方で、アウトプット1及びアウトプット2については、①東西事務所の維持管理課、水生産課、水質検査室の主要職員からなるタスクフォースに対して、日本人専門家による研修実施、②日本人専門家及び①で研修を受けたタスクフォースのうち研修指導者候補として選定された職員が4つの浄水場職員に対し研修を実施、③他の浄水場への水平展開を目的として、研修指導者及び③で研修を受けた4つのパイロット浄水場職員が他の浄水場職員に対する研修を実施、という方針の下、活動の計画・実施が行われている。アウトプット3については、①日本人専門家が東西事務所の無取水課職員を指導して、をパイロット浄水場2つ（ホープ浄水場、ログウツ浄水場）の給水区域における水運用計画の策定、②①で策定された水運用計画・水理解析モデルを利用して、水生産課やパイロット浄水場関連職員の研修を実施、③①と②で研修を受けた職員により、他配水区（どの浄水場という既定はない）の水運用計画が策定される、という水平展開が計画されている。実施が展開されている。今後とだけの数以外の浄水場への展開が図られるのか、具体的な数値目標や計画がないもの、2009年度及び2010年度に水平展開の計画・実施が行われれば、当プロジェクトのアウトカムは、パイロット浄水場の4つにとどまらず、更に拡大することが見込まれる。 現時点ではマイナスのインパクトは確認されていない。 政策・法律・制度・基準等の整備、ジェンダー・人権・貧富など社会・文化的側面、技術面での変革、対象社会・プロジェクト関係者・受益者などへの経済的影響など：特になし

評価項目	評価設問		調査結果
	大項目	小項目	
7. 自立発展性	政策・制度面	水セクターに関するジャマICA政府の政策支援は協力終了後も継続するか？	2010年までに全国民に水道供給を図ろうとするジャマイカにとって、安全で安定した給水事業は重要国策であり、今後も政府支援が継続される見込みが高い。
		本プロジェクトのアウトプット（技術、マニュアル、データベース、研修事業）が、プロジェクト終了後も継続して活用されるような仕組みはできているか？	水質管理、運営維持管理についてのデータベース、研修事業、技術については、更にある程度修得がなされ定着が図られれば、教材やマニュアルも継続的に広く利用される可能性が高い。ただし、水運用計画については、NWCに担当部署がなく、これまで研修を受けた中核人材が活動を継続・拡張するには、仕組みづくりが今後必要となる。
	組織・財政面	NWCは運転維持管理、水質検査・管理、水運用計画の立案・実施を担う組織としていく組織体制は整備されているか？	C/Pそれぞれの技能の強化は果たされており、また運転維持管理、水質検査・管理については、NWC組織として財政的な理由から十分ではないものの、実施・全国展開していく組織体制は整備されているとされていると評価できる。ただし、水運用計画については、それを管掌業務とする部署、担当官が既定されておらず、組織体制が整備されているとはいえない。
		予算の確保は行われているか。予算が増える可能性はどの程度あるか。	水道料金が歳入の66%（2006年）を占めるNWCにとっても、6割近くの上る非常に高い無収水準の減少は、依然として優先課題となっている。水道料金を安全な水の供給に必要な費用を適正に補うレベルにまで値上げをする必要があることから、2008年に23%の料金値上げが認められた。この料金値上げにより、2006年には6億690万ジャマイカドルに上った経常赤字がどの程度軽減されたかを検証することはできなかつた。NWCによる上下水道事業の運営に係る開発予算は、国内外からの融資と技術支援に依存する状態が続くものと推定される。NWCにとっても安全で安定した水の供給は大命題であり、予算措置が、金額は不明ながら今後とも継続することが見込まれ、プロジェクトの効果を維持・拡大するための活動予算をある程度確保できる可能性は高いと想定されるものの、今後の予算配分の見込みを現時点で検証することは困難である。
	技術面	プロジェクトが開発した技術・マニュアル等は、実地で活用されているか？ある場合はその見込みがあるか？	運転維持管理、水質管理、水運用計画に係るそれぞれの技術、マニュアルなどについては、東西の維持管理課、水生産課、水質検査室などにおいて、研修指導者となれる中核人材が育成されつつあり、当初のハイロット浄水場以外の場所に対しても技術移転が行われ、活動が展開され始めていることから、十分に活用されていく可能性が高いといえる。
		資機材の維持管理をNWCが独自に行えるか。	活動に必要な機材などは、これまで供与されたものを維持管理し、適正に使用している。しかし、老朽化が進み、新しい技術を利用した機材への必要性も高くなっており、新規に購入が必要であるが、NWC側で十分な予算措置はできていない。NWCの限定的な財政的措置（備品が買えない）、国内に修理できる人がいない、NWCの調達システム（時間がかかる、入札の際に値段の安いものを購入する傾向、資機材の仕入れをNWCが買えないエンジニアと読みきれないため）に必要な機材を購入できない、調達部という悪循環）など、供与された機材を維持管理し、継続的に稼働させるようになるには、改善が必要である。
		NWC職員の技術・能力は、プロジェクト終了後も自力で活動を継続できる水準に向上したか？	水質管理と運営維持管理を担当する職員、部署がC/Pとして、それぞれのアウトプットに配備され、研修を受けた、またこれから受けるC/Pが継続的に担当業務を続けられ、自力で活動を続けることは可能である。ただし、水運用計画については、当初2つの浄水場のモデルづくりの際に無収水担当者5名のみが参加し、研修を受けた職員はその後データ収集やデータの整合性の確認といった実践に関与しなかつたため、依然として専門家からの技術指導が継続的に必要であるといえる。同時に、研修を受けた職員が技能は身に付けつつあるものの、その技術を活用していく職位にいないため、継続的に活動を続け、技術力を維持することはかなり困難になることが予想される。
社会・文化・環境面	社会的弱者、環境への配慮不足により持続的効果を妨げる可能性は、	特になし	
その他	自立発展性を阻害するその他の理由は、	特になし	

4. 評価グリッド (英)

PERFORMANCE		Findings/Results	
Topics	Questions	Information/data to be collected	Findings/Results
Input	Was the input from the Jamaican side provided as planned? (Counterparts, offices and equipment, project cost, etc.)	Input record	Atotal of 27 staff members of NWC were appointed as C/P. (see Annex for the list of C/P). The NWC provided office space at the Eastern and Western Divisional Offices for Japanese experts. The NWC provided the operational expenses of 5,140 thousand Jamaican dollars for the Project
	Was the input from the Japanese side provided as planned? (experts, counterpart training, equipment, project cost, etc.)	Input record	A total of 9 short-term experts have been assigned since the inception of the Stage 1 of the Project (see Annex for the list of experts). Under the Counterpart Training Scheme in Japan, a total of 16 NWC staff members were trained in Japan (see Annex for the list of trainees). Machinery and equipment valued at 35 million yen in total were allocated for the Project activities. (see Annex for the list of equipment and its current condition) A total of 8.9 million yen was allocated for the Project activities by the Japanese side. (see Annex for the detail) Achieved at the end of Stage 1.
Achievement of the Outputs	Has the Output 0 been achieved? "The project framework, pilot areas and activities are specifically identified."	Indicator 1: Prepared PDM1 and Plan of Operation (PO) 1 (Target: Achieved)	
	Has the Output 1 been achieved? "Efficiency of O&M is strengthened."	Indicator 1 Operation of the 4 pilot treatment plants is conducted in accordance with developed manual and standard operation procedures. Indicator 2 Plant down time specific to 'breakdown maintenance' is shortened for each 4 pilot treatment plants. Indicator 3 Daily and regular inspections/maintenance are conducted and reported in standardized template both in Eastern and Western Divisions.	At all four WTPs operation manuals for "chemical dosing" and "filter washing" were prepared, while training for operators for "treatment process", "chemical dosing" and "water quality" were carried out. Actually, there have been no full "plant down time" at 4WTPs therefore the targets were not set. However, The records of 'service orders' which are reporting format of the outsourcing of maintenance services, there were significant decrease in both Eastern and Western Divisions in 2009, compared with 2007, in the number of services, indicating improvement of preventive maintenance in general. On the other hand no improvement was observed in the incidences of burnet motors. Daily inspections by plant operators will be introduced shortly in XX 2010. Regular maintenance is being conducted by maintenance sections in both Divisions. The template for maintenance proposed by JICA Expert Team were examined and finalized by NWC maintenance sections.
Achievement of the Outputs	Has the Output 2 been achieved? "Water quality management is strengthened."	Indicator 1 Optimum chemical dosage is specified and applied at four pilot plants. Indicator 2 Water quality data is timely collected and recorded in the database.	Jar and chlorine demand tests were conducted at the four pilot plants. Based on the results, a correlation between raw water turbidity and alum dose was determined. The Chemical Dosing Manual was created and installed at each plant. Training for chemical dosing was conducted in 2008 at the four pilot plants; 27 staff members were trained. The results of the chemical and microbiological tests carried out by the laboratories were recorded both in the "LabMIS" Database System and in existing spreadsheets. In the Eastern Division samples were collected according to the "Chemical Short Analysis Sample Schedule" until 2007. After installation of the ion chromatographs, samples will be collected according to the new sampling plan. In the Western Division chemical samples had been collected according to the sampling plan until the new plan was adopted in June 2010. In order to strengthen monitoring capacity, the outsourcing of heavy metals and agrochemical residues has been suggested in the sampling plan. Water quality data from the pilot plants was recorded both in the log sheets and in the GIS System (Spanish Town, Great River and Logwood WTPs). Training for Water quality testing and management was conducted, and 21 laboratory staff members, 28 operators and 40 mobile operators were trained. Throughout the training, the importance of recording data and record keeping were highlighted.

	<p>Indicator 3 Operators at other training plants and mobile operators are trained to manage water quality (Target: 50 operators and mobile operators).</p>	<p>The following materials were prepared for the training: a. Water Quality Testing Procedures for Mobile Operators b. Chlorination Training (for both operators and mobile operators) c. Treatment plant operation (for both operators and mobile operators) d. Sampling Procedures (for both operators and mobile operators) e. Water Quality Testing Procedures for WTP.</p> <p>40 mobile operators were trained in both the Eastern and Western Divisions. The training for operators at the other water treatment plants are scheduled to take place for the rest of the Project period and will be conducted by the NWC Training Department.</p>
<p>Has the Output 3 been achieved? "Efficiency of water supply is enhanced through applications of water supply management planning."</p>	<p>Indicator 1 Water supply is improved with designed water supply management plan in the service areas of Hope WTP and Logwood WTP.</p>	<p>With the plan, water supply was improved as follows: 1) Water Supply Management Plan for the Hope System A) The number of pumps in use at the Hope High Level pumps was reduced from 4 to 3, saving about 16% of pump running time. B) Operating time of the Beverly Hills pump was reduced from approximately 10 hours to 8 hours per day/all pumps, saving 20% of its daily energy use. C) It was recommended that the Hope Pastures tank be cleaned and used efficiently by operating two pumps at the Hope Pastures pump station.. 2) Water Supply Management Plan for the Logwood System A) Operating time of the Logwood pumps was reduced from 66 hours to 60 hours per day/all pumps, saving 9% of the daily energy use. B) It was recommended that the deficiency in the outlet pipeline of the Red Ground Tank be investigated. C) It was recommended that the Jinger Hills Tank be investigated to find out the reason why it was empty. D) It was recommended that the tank be installed in the Nonpareil, Salt Spring and Saxham areas to ensure the</p>
<p>Indicator 2 Water supply management plan at additional two service areas are developed by trained NWC staffs.</p>	<p>Indicator 1. Percentage of water loss in water production is reduced at pilot WTPs. Indicator 2. Frequency of water samples being tested below a desirable water quality (<NTU1 for turbidity and above 1.5 mg/l for residual chlorine) for treated water will be increased over 80 percent for turbidity and 100 for residual chlorine of all the test samples taken at pilot WTPs in one year.</p>	<p>Water supply management plans for the Hellshire system and the Minard system were completed in March 2010. Hydraulic models and water supply management plans were developed for the both system. The taskforce team found some deficiencies in the systems and sought to formulate a more effective pump operation schedule. After the analysis of models and field tests, suggestions were made for energy reduction in a couple of pumps and cut down on overflows at the tanks. All the process was proceeded with the NWC staff's initiative.</p>
<p>Indicator 3. Energy consumption is reduced at pilot WTPs.</p>	<p>By extending filtration time and minimizing water loss by filter washing, for Great River (new) and Logwood pilot WTPs, water loss was reduced by 35% and 39% respectively after December 2009, compared with the data in 2007. The indicator has been achieved. Further, as a result of water supply management program, overflow at Beverly Hills and Hope High Level reservoirs were tremendously improved. As for turbidity, the target was achieved in 2009 at Hope and Spanish Town WTPs with frequency of 93.1% and 99.2% respectively, while at Great River and Logwood WTRs the frequencies were 54.0% and 73.1% respectively. As for residual chlorine, the target was not achieved in 2009 at all 4 pilot WTRs. The frequencies were 68.3% at Hope, 97.9% at Spanish Town, 80.1% at Great River and 63.4% at Logwood. Thus, the degree of achievement of the indicator is rather low. The turbidity of treated water from the Hope and Spanish Town WTPs has greatly improved. At the Hope WTP sand washing was restarted in 2008. Although the added sand depth is about 8 cm, it could help to improve the water quality, because the sand depth before sand washing was less than 20 or 15 cm. Renovations were completed in 2008 at the Spanish Town WTP; new settling tanks have been constructed and the filter sand has been changed. The renovation has greatly contributed to the improvement in water quality. Changes in chemical dosage resulted in improvements in settled water turbidity. To further improve the turbidity of treated water, certain measures are needed, e.g. the addition of filter sand.</p>	<p>Electricity consumption per water production (KWh/m³) decreased at Hope and Logwood WTPs (two pilot WTPs for WSM) by 6.4% and 0.5% respectively. As energy efficiency was improved, it is interpreted that the indicator has been achieved.</p>

<p>Achievement of the Project Purpose</p>	<p>By the end of the Project, will the Project Purpose be achieved? "Capacities of NWC to provide quality and quantity of water supply is enhanced through piloting at four water treatment plants."</p>	<p>Indicator 4. Training courses on operation and maintenance, water quality, and water supply management are planned and conducted with developed textbooks.</p>	<p>Since October 2008, the JICA Expert Team has prepared training courses in the areas of operation and maintenance, water quality and water supply management in conjunction with NWC C/P. Training materials were prepared by JICA Experts and C/P. So far, in a total of 17 training courses (8 for O&M, 7 for water quality and 2 for water supply management) around 400 trainees attended; O&M Pump Maintenance 63 Pump Operation 21 Daily Inspection by Operators 35 Electrical Equipment Maintenance 22 Electrical Installation 16 Water Treatment Process Advanced 15 Water Treatment Process for Specialists 10 Water Treatment Process for Operators 28 WQM Chemical Dosing for Operators 35 Water Sampling for Operators 20 Water Quality Management for WTP Operators 16 Water Quality Management for Laboratory Staff 6 Water Quality Testing for Laboratory Staff 21 Water Quality Testing for Mobile Operators 32 Water Quality Testing for WTP 29 W/SM Hydraulic Analysis for Specialists 18 Hydraulic Analysis for General Water Supply 4</p>
<p>Achievement of the Overall Goal</p>	<p>Within 5 years after the completion of the Project, is the Overall Goal likely to be achieved? "Reliability of NWC's water supply is enhanced both in terms of quality and quantity."</p>	<p>Indicator 5. Numbers of registered master trainers on Operation and Maintenance, Water Quality and Water Supply Management</p>	<p>For 8 training courses, 40 master trainers have been registered so far: O&M Pump Operation & Maintenance 5 Daily Inspection 3 Water Treatment Process 6 WQM Chemical Dosing for Operators 7 Water Sampling for Operators 7 Water Quality Testing for Laboratory Staff 5 Water Quality Testing for WTP 4 W/SM Water Supply Management 3 Although the specific target was not set previously, the number of registered master trainers seems to be large enough to conduct training courses.</p>
<p>Achievement of the Overall Goal</p>	<p>Performance indicators (i.e. staff costs as % of revenue, operating costs as revenue, compliance with MOH standards, all the learning and growth targets submitted from NWC to OUR are improved.</p>	<p>It is not an easy task to achieve Overall goal by expanding the effects of the Project because there are as many as 40 WTPs nationwide, although it depends on further efforts by NWC. As for performance indicators, the data is available only for 2007 therefore the trend is unknown. It is required that more suitable indicators which denote reliability of NWC and closely relevant to the effects of the Project be identified and added.</p>	<p>Although the specific target was not set previously, the number of registered master trainers seems to be large enough to conduct training courses.</p>

IMPLEMENTATION PROCESS

Topics	Questions	Information/data to be collected	Findings/Results
Activities	Have the "Activities" of the Project been implemented as planned throughout the Project period? Was there any problem in the process of transfer of technology from the Japanese experts?	Progress of the "Activities" How the transfer of technology has been carried out.	All activities described in PDM2 and PO2 have been implemented mostly as scheduled, with a few exceptions. It is ensured that delayed activities will be completed before the end of the Project period. Most of CP show satisfaction about transfer of technology from Japanese Experts in general. Especially, "Back to Basic" approach where importance and reasoning of the data collection are emphasized was appreciated. Further, in many cases solutions to problems were not simply given by Experts but sought by CP themselves, which strengthened C/P's motivation and ownership.
Transfer of technology	How has the Project been monitored? Was the result of monitoring utilized in the Project activities?	System of monitoring. How the result of monitoring is used?	With the Project, the monitoring is conducted as 1) meetings between Project Manager and Japanese Experts, 2) meetings among three output task force teams. Four Progress Repots and an Interim Report were prepared by Japanese Experts. Annual JCC meetings were held three times in accordance with R/D. JICA dispatched a monitoring mission in September 2007 and Mid-term Evaluation Team in June 2009.
Monitoring	Did the Japanese experts and Jamaican Counterparts communicate well?	How and How often the Project members communicate each other. How they reacted to the change of the plan. How they coordinate themselves to solve problems. How trust has been built between the Project members. How the Counterparts participated in the Project and took initiative.	Good communications and working relations between Japanese Experts and Jamaican C/P have been established throughout the Project. Although sometimes language problems arose, that were minor ones and did not affect the Project activities adversely. Enhanced communications were made possible through various media including: 1) Steering Committee Meetings with Team Leaders of Task Force Members, 2) Task Force Meetings with Team Leaders and Task Force Members, 3) One to one weekly meeting with JICA Expert Leader and NWC Project Manager, and 4) via E-mail and telephone as and when necessary.
Communication	Did the Japanese partner organizations (JICA Jamaican Office and Headquarters) support the project well? Was the communication good?	Frequency, style and content of communication. How they reacted to the change of the plan.	No problems were observed
Ownership	Do the Jamaican project leaders actively participate in the project management? Do the Jamaican project members take proactive participation in the Project activities?	Ownership and participation of the Jamaican staff members level of participation in project activities, frequency, style and contents of participation	Involvement of senior management was increased after the Mid-term Review. Now key senior executives are kept abreast of the progress of the Project via minutes of meetings, etc. and by attending Joint Steering Committee meetings and Task Force Team meetings. Ownership of Jamaican C/P has increased with their enthusiasm and changing awareness as observed by Japanese experts. Especially participants of training course in Japan express improvement of awareness.
Others	Is there any challenge in the process of project implementation?	Issues that came up in the process of Project implementation. Causes and solutions.	Some of equipment, including testing equipment at the laboratory, were not adequate at pilot WTPs. Arrangement of new equipment is now underway.

5 Evaluation Criteria

1. RELEVANCE

Topics	Questions	Information/data to be collected	Findings/Results
Needs	<p>Are the Project Purpose and the Overall Goal relevant to the needs of Jamaica?</p> <p>Are the Project Purpose and the Overall Goal relevant to the needs of the target groups?</p> <p>Is the Project relevant with the development policy of Jamaica?</p>	<p>Problems and challenges identified for the water sector in Jamaica</p> <p>Needs of the NWC</p> <p>National development policy in Jamaica</p>	<p>Project Purpose and the Overall Goal are completely relevant to the needs of Jamaica as efficiency and equality in water supply remain to be the most critical agenda in the water sector.</p> <p>Project Purpose and the Overall Goal are completely relevant to the needs of the NWC, which supplies 90% of potable water in Jamaica, as the NWC needs to enhance capacity of its engineers and technicians.</p> <p>Under the Vision 2030 Jamaica, the country's long-term National Development Plan, strong economic infrastructure, such as development of world-class transport, telecommunications, water supply and sanitation is ensured. The Project contributes to the Plan by complementing the NWC's capital works in developing infrastructure in the water sector.</p>
Priority	<p>Is the Project relevant to the Japan's country assistance policy for Jamaica?</p> <p>Has the Project taken up a good strategy to tackle challenges identified for the water sector in Jamaica? (i.e. approach, selection of the target areas)</p>	<p>Japan's development assistance policy (ODA charter, etc.), JICA's assistance policy for Jamaica and priority areas.</p> <p>How the accumulated know-how in Jamaica and Japan has been utilized.</p> <p>Whether the Project applied methods and techniques that were relevant to the situation of Jamaica.</p>	<p>Japan's basic ODA policy for Jamaica sets 4 priority areas; 1) job creation and human resources development, 2) health and sanitation, 3) environment protection and disaster prevention, and 4) agriculture and fishier, tourism, etc. The Project is relevant to 1) and 3).</p> <p>Project has generally had a good strategy in capacity building of the NWC. However, a s pointed out in the Mid-term review, more careful consideration should have been made as to how to transfer technologies to the NWC where no designated section to work on water supply management plan.</p>
Appropriateness	<p>Does Japan has comparative advantage in this technical area?</p> <p>Was there any change in the environment of the Project (political, economic</p>	<p>History and achievement of JICA's assistance in similar areas.</p> <p>Information on change of political, economic and social conditions.</p>	<p>Japan has high level of skills and technologies in the field of operation and maintenance of water supply/ treatment facilities. JICA has abundant experiences in assistance in water management area.</p> <p>There is no major change in policy direction.</p>
Others			

2. EFFECTIVENESS

Topics	Questions	Information/data to be collected	Findings/Results
Achievement of the Project Purpose	Will the Project Purpose be achieved by the end of the Project based on the inputs, outputs and the progress of the activities? Were the four "Outputs" only prerequisites for the achievement of the "Project Purposes"?	Project performance. Degree of achievement of the Project Purposes	Project Purpose has been mostly achieved as shown in the results of 5 indicators above. However, the level of achievement indicator on water quality management is rather low, requiring further efforts.
	Are there any other activities that would have been necessary for achievement of the "Project Purposes"?	Consequences between the Output and the Project Purposes	Four outputs, including Stage 1, have contributed to the high level of achievement of Project Purpose.
	Are there any factors that particularly contributed to achievement of the Project	Contributing factors	Training course in Japan increased motivation and awareness of C/P, contributing to achievement of the Project Purpose.
	Are there any factors that particularly impeded achievement of the Project	Impeding factors	No major factors to impeded achievement of the Project Purpose, though several problems slowed down the smooth implementation of the activities, such as inadequate equipment at pilot WTPs, and no existence of the NWC section to solely responsible to formulate water supply management plan.
Causality	Are the 6 important assumptions from Outputs to Project Purpose secured? If not, how did the Project approach the issues? "Personnel related to the project will not be transferred or retired frequently", "No replacement of Task Force members", "Mandate of each department and section is to be revised if necessary", "Duplication between other donors is avoided by NWC", "Cooperation of the Department of Human Resource Development and Administration is ensured", and "Budgetary and human resource allocation for rolling out training in the NWC is ensured"	Effect of the Important Assumptions and other factors	All the 6 assumptions have been more or less ensured. As for the sixth assumption "Budgetary and human resource allocation for rolling out training in the NWC is ensured", the NWC demonstrated strong commitment though specific budget plan was not available for the Evaluation Team.

3.EFFICIENCY

Topics	Questions	Information/data to be collected	Findings/Results
Input	<p>Were the Jamaican and Japanese inputs appropriate in terms of quality, quantity and timing?</p> <p>Are the equipment actively utilized?</p>	<p>Record of Input</p> <p>Condition and state of utilization of equipment (record of experiments etc.)</p>	<p>1) Jamaican Side Allocation of C/P was generally appropriate and effective. However, it might have been more efficient, as expressed by Japanese Experts, if small numbers of C/P would have concentrated more on Project activities, not much occupied with "a daily job." The NWC appropriately provided office space at the Eastern and Western Divisional Offices for Japanese Experts. Some of operators at WTPs are of sub-standards in capability and qualification, as operators differ much in their educational background. For those operators with low capability, basic or entry level training would be necessary.</p> <p>2) Japanese Side Allocation of Experts was mostly appropriate and effective. However, it might have been better if assignments of Experts would have been continued for a longer period at one batch, which could have enabled to adjust the schedule of Project activities with C/P more efficiently. Also short dispatch of short term experts on specific areas from manufactures and water suppliers should have been effective. Machinery and equipment provide for the Project activities were appropriate and effective. All the equipment, with some Most of the equipment provided by the Project are fully utilized and well maintained. A few exceptions include: analog hydrometers, which are being replaced with digital ones</p>
Achievement of Outputs	<p>Were the four Outputs achieved?</p>	<p>Achievement of Outputs</p>	<p>As described in PERFORMANCE section above.</p>
Causality	<p>Were the "Activities" sufficient for the achievement the "Outputs"?</p>	<p>Record of Activities and achievement of the Outputs</p>	<p>The degree of achievement of the Outputs shows that activities specified in PDM2 have appropriately contributed to the Project Outputs.</p>
	<p>Are the 3 important assumptions from Activities to Outputs secured? If not, how did the Project approach the issues? "Budgetary allocation for procurement of necessary equipment is ensured", "Relatively reliable information on water supply such as on network is available" and "Sufficient time of counterparts is allocated".</p>	<p>Record of Activities, Record of Input</p>	<p>All 3 assumptions were fulfilled at the satisfactory level.</p>

4. IMPACT

Topics	Questions	Information/data to be collected	Findings/Results
Achievement of the Overall Goal	<p>Will the Overall Goal be achieved within five years after the end of the Project based on the result of inputs, outputs and activities, and achievement of the Project?</p> <p>Are there any factors that would impede achievement of the Overall Goal?</p>	<p>Achievement, Effect of Important Assumptions, contributing and impeding factors</p> <p>Achievement, Effect of Important Assumptions, contributing and impeding factors</p>	<p>As described in PERFORMANCE section.</p> <p>Major changes in policy directions in the water sector would affect the possibility to achieve Overall Goal, but that is not likely.</p>
Causality	<p>Is the consequence from the Project Purposes to the Overall Goal logically designed?</p> <p>Are the 3 important assumptions likely to be secured:</p> <p>"NRW reduction is tackled and accelerated by NWC",</p> <p>"No significant changes of the Government's policy on NWC" and "Budgetary and human resources allocation for equipment and training is secured"?</p>	<p>Structure of the Project, Effect of Important Assumptions, contributing and impeding factors</p>	<p>The second and third assumptions are almost the same as conditions to ensure sustainability. Refer to 5. SUSTAINABILITY.</p> <p>As for the first assumption, the NWC has been making an effort to reduce NRW through various projects financed by international/foreign donors, including North-Western Parishes Project and Kingston Water and Sanitation Project.</p>
Impact	<p>Are there any positive impacts on political, social, cultural, economical, environmental or institutional aspects?</p> <p>Are there any negative impacts on political, social, cultural, economical, environmental or institutional aspects?</p>	<p>Examples</p> <p>Examples</p>	<p>Communications and relations between Eastern and Western Divisions of NWC have become better and frequent through the Project activities, accelerating sharing information and standardization of work formats.</p> <p>The findings of the Project were one of the reasons for the establishment of an Energy Steering Committee in the NWC. The Project revealed reduction in electricity consumption and savings in water losses at some of the Pilot Water Treatment Plants. The work methodology/approach and findings of the Water Supply Management component of the project is being used to advise and inform the Committee on how to achieve electricity reduction and reduction in water losses.</p> <p>No negative impact have been observed.</p>

5. SUSTAINABILITY

Topics	Questions	Information/data to be collected	Findings/Results
Policy aspects	<p>Will the policy directions of the water sector be maintained by the Jamaican government after the end of the Project?</p> <p>Is there any institutional mechanism in the NWC to continue improvement in O&M of WTPs, water quality management and water supply management planning?</p>	<p>Policy and strategy of the Jamaican government</p> <p>Institutionalization of the Project</p>	<p>Because improvement in water supply remains high priority in Jamaica, it is unlikely there will be major changes in policy directions of the water sector.</p> <p>Since the Mid-term review of the Project, the NWC has recognized the need for a Centralized Unit/Department for a Water Supply Management from which a 'structured' WSM Plan can be developed for the NWC. To this end, the NWC has commenced arrangement to strengthen related departments/sections. As for training system for all three areas, the Training Unit of the HRDA Department of the NWC is responsible for implementation of training activities. The training schedule is under preparation, which will utilize outputs of the Project such as operation manuals and training manuals.</p>
Institutional and financial aspects	<p>Has the NWC secured necessary budget for full operation of O&M, water quality management and water supply management planning?</p> <p>Does the NWC have technical capacities to fully maintain effects of the Project by continuing and enhance activities after the Project?</p>	<p>Financial condition of the NWC, policy and strategy of the Jamaican government</p> <p>operation and management system, utilization mechanism, staffing and budget, level of skills/technologies</p>	<p>For the past several years the NWC has been making operational loss. Even after an increase of the water charge in 2008, the operational revenue has not exceeded operational expenditure. In this sense the financial condition of the NWC is not fully secure in the future, although the NWC demonstrates strong commitment to the Project activities after the termination. However, a number of major Development Project, financed by international and/or foreign financial institutions, will support continuity of the Project activities by huge investment in facilities.</p> <p>Overall, the NWC has now technical capacities at the satisfactory level, to secure O&M of the facilities, to operate water quality management and to formulate water supply management plan, as well as training on these activities, with its enhanced capacity acquired through the Project. All the skills of O&M and WQM which have been applied at Project sites are highly likely to be utilized further as daily work. For WSM, applications have been extended to other service areas.</p>
Technical aspects	<p>Are the equipment provided by the Project actively utilized and maintained?</p> <p>Will they be they utilized after the end of the Project with proper planning and budget?</p> <p>Are the techniques and methodologies of skill transfer used by the Project being accepted? (i.e. Level of skills, social and cultural appropriateness)</p>	<p>How the equipment is utilized and maintained.</p> <p>How the manuals developed by the Project are utilized by the engineers and technicians.</p>	<p>With a very few exceptions, equipment and machinery provided by the Project are being actively utilized and well maintained. However, it will depend on budget allocation whether the maintenance of the equipment will be properly made in the future.</p> <p>Transfer of technology/skills/knowledge has been duly accepted by Jamaican side. A large numbers of manuals have been developed by Japanese Experts and Jamaican C/P jointly.</p>

Response to Recommendations of Mid-term Review?

Topics	Questions	Information/data to be collected	Findings/Results
	<p>Have any reactions been taken to "1. Strengthen Public Relations"?</p> <p>Have any reactions been taken to "2. Take measures to Ensure Technical sustainability"?</p>	<p>Reactions taken</p> <p>Reactions taken</p>	<p>Information on the Project has been communicated via various media including: 1) NWC's newsletter (print), 2) News releases by radio, and 3) NWC's web site. In addition a number of sessions were held with Senior Executives of the NWC to let them know the Project activities.</p> <p>The Training Unit of the HRDA Department, NWC is responsible for the implementation of the training activities. A Master Training schedule has been prepared as well as training materials and literatures.</p> <p>Once training activities are advanced, the NWC will be implementing a mechanism to measure and monitor the effectiveness and impact of the training activities.</p>
	<p>Have any reactions been taken to "3. Strengthen involvement of the Senior Management"?</p>	<p>Reactions taken</p>	<p>Involvement of senior management was increased after the Mid-term Review. Now key senior executives are kept abreast of the progress of the Project via minutes of meetings, etc. and by attending Joint Steering Committee meetings and Task Force Team meetings.</p>
	<p>Have any reactions been taken to "4. Ensure Financial Allocations for Necessary Equipment"?</p>	<p>Reactions taken</p>	<p>The NWC has two means to finance equipment to sustain the Project activities.</p> <p>1) Arrangements are in place to have the procurement of these be undertaken through the NWC's Major Capital Development Projects (i.e. JWSIP – BNPP/VINCI, KWSP- IADB) which are now underway.</p> <p>2) An allocation in each year's budget will be made for the future roll out of the project activities.</p>
<p>Reactions to the recommendations of Mid-term Review Report?</p>	<p>Have any reactions been taken to "5. Develop Information Framework on Water Supply Management Plan"?</p>	<p>Reactions taken</p>	<p>The NWC has recognized the need for a Centralized Unit/Department for a Water Supply Management from which a 'structured' WSM Plan can be developed for the NWC. To this end, the NWC has commenced the strengthening of the Divisional Units by:</p> <ul style="list-style-type: none"> - Changing of the names of the two Divisional NRW Managers to Water Supply Management. - Commence the process of employment of a Water Distribution Engineer with specific expertise and responsibility in Hydraulic Modeling and Analysis. This person will be employed to the WSM Department and report to the Department Manager for Water Supply Management Department. - Procurement of water GEMS hydraulic Model software for two Divisional Water Supply Management Units. - The intention is to have an organic link/synergy between the Engineering Department and the eight Operational Areas via the two Divisional Water Supply Management Units.
	<p>Have any reactions been taken to "6. Institutionalize Training"?</p>	<p>The second and third assumptions are almost the same as conditions to ensure sustainability. Refer to 5. SUSTAINABILITY.</p>	<p>The same as response to Recommendation 2</p>
	<p>Have any reactions been taken to "7. Revise the Project Framework and Scope"?</p>	<p>As for the first assumption, the NWC has been making an effort to reduce NRW through various projects financed by international/foreign donors, including North-Western Parishes Project and Kingston Water and Sanitation Project.</p>	<p>The Project framework has been modified as PDM2, which was proposed by the Mid-Term review Team in June 2009.</p>

5. インタビュー対象者リスト

Mr. Fern Hamilton Vice President, Human Resource Development and Administration
Mr. Lewis Lakeman Assistant Vice President, Systems Development and Planning
Mr. Billy Meikle Manager, Technical Services, Eastern Division
Mr. Patrick Hunter Manager, Maintenance, Eastern Division
Mr. Colin Roach Manager, Non-Revenue Water, Eastern Division
Mr. Jermaine Jackson Manager, Water Production, St. Catherine
Mr. Eaton Lindsay Manager, Water Production, Kingston and St. Andrews
Mr. Marvin Hamilton Team Leader, Production, Eastern Division
Mr. Erron Reid Team Leader, Maintenance, Eastern Division
Mr. Calvert Selby Senior Technical Officer, Water Quality, Eastern Division
Ms. Wendy Harrison Laboratory Analyst, Eastern Division
Ms. Dawn Bryan Training Coordinator, Eastern Division
Mr. O'niel Shand Manager, Technical Services, Western Division
Mr. Curtis Thomas Manager, Maintenance, Western Division
Ms. Nadine Patterson Manager, Water Quality, Western Division
Mr. Kevin Kerr Manager, Water Supply Management, Western division
Ms. Dionne Sampson Manager, Water Production, St. James/Trewany
Mr. Anthony Fairclough Manager, Water Production, Hanover/Westmoreland
Mr. Dwain Wright Team Leader, Mechanical Engineer, Western Division
Mr. Gregory Wilson Senior Technical Officer, Water Quality, Western Division
Mr. Michael Hyde Senior Technical Officer, Water Quality, Western Division
Mr. Carlton Green Engineer, Western Division

(下線付きは個別 C/P 用調査票も回収)

6. 質問票回答

質問表回答リスト

プロマネ用質問票 1 票

Lewis Lakeman Assistant Vice President, Systems Development and Planning

C/P 個人用質問票 15 票

1. Billy Meikle Manager, Technical Services, Eastern Division
2. Patrick Hunter Manager, Maintenance, Eastern Division
3. Colin Roach Manager, Non-Revenue Water, Eastern Division
4. Eaton Lindsay Manager, Water Production, Kingston and St. Andrews
5. Erron Reid Team Leader, Maintenance, Eastern Division
6. Aubrey Williams Team Leader, Mechanical Engineer, Eastern Division
7. Dwayne Francis Team Leader, Non-Revenue Water, Eastern Division
8. Dawn Bryan Training Coordinator, Eastern Division
9. O'niel Shand Manager, Technical Services, Western Division
10. Curtis Thomas Manager, Maintenance, Western Division
11. Nadine Patterson Manager, Water Quality, Western Division
12. Kevin Kerr Manager, Water Supply Management, Western division
13. Dionne Sampson Manager, Water Production, St. James/Trewany
14. Anthony Fairclough Manager, Water Production, Hanover/Westmoreland
15. Dwain Wright Team Leader, Mechanical Engineer, Western Division

日本人専門家用質問票 3 票

1. 大坂専門家
2. 小川専門家
3. 藤川専門家

Respondent: Lewis Lakeman

**The Terminal Evaluation of the Project for Capacity Building of Water Maintenance in
Jamaica**

Questionnaire for the Project Manager

Dear Sir,

This is a questionnaire for the terminal evaluation of "Project for Capacity Building of Water Maintenance in Jamaica" by NWC/JICA, which started in March 2007. With less than five months remaining before the termination of the Project in November 2010, we are now conducting evaluation of the various aspects of the Project implementation, based on JICA Evaluation Guideline.

This questionnaire is expected to be responded by the representative of the Project who is totally responsible for implementation of the Project, as official views, so please provide answers carefully in consultation with responsible persons for each item and Japanese Experts, if appropriate.

Thank you for your cooperation.

JICA Evaluation Team

1. Questions about Relevance

- 1) Provide the outline of the latest Water Sector Plan under the framework of Vision 2030 Jamaica, if available. How relevant is the Project to the plan?**

Jamaica Water Sector Policy : The function of the NWC and its interaction with other water sector participants are governed by the Jamaica Water Sector Policy.

Vision 2030 Jamaica is our country's first long-term National Development Plan which aims to put Jamaica in a position to achieve developed country status by 2030. It is based on a comprehensive vision: "Jamaica, the place of choice to live, work, raise families, and do business".

Vision 2030 Jamaica aims at enabling Jamaica to achieve developed country status by 2030. It is based on seven Guiding Principles which put people at the centre of Jamaica's development.

These are: transformational leadership; partnership; transparency and accountability; social cohesion; equity; sustainability; and urban and rural development. They give priority attention to elements that are essential to delivering a world-class quality of life for all Jamaicans and reflect the key pillars of change needed to realize the Vision for our Nation.

Operationally, the four National Goals of the Plan are mapped into 15 National Outcomes, which in turn will be pursued through National Strategies. The National Outcomes reflect the desired changes in development conditions and, when accomplished, lead to the achievement of the National Goals. Each outcome is aligned to a specific goal, and collectively they provide the roadmap for achievement and success under Vision 2030 Jamaica. The role of NWC falls under National Outcome No. 9.

National Outcome # 9: Strong Economic Infrastructure

National Outcome # 9 states that high-quality infrastructure facilitates the efficient movement of persons, goods, services and information, increases the productivity of economic processes and contributes to balanced and sustainable spatial development. Vision 2030 Jamaica will ensure the development of world-class transport, telecommunications, water supply and sanitation infrastructure that contributes to the competitiveness of our producers and improved quality of life for our people.

The JICA Technical cooperation Project - Capacity Building for Water Maintenance at the NWC is relevant to the Plan as the National Water Commission has been making substantial and major investments to upgrade and modernize its physical infrastructure and operation. This is being done through its Major Capital Development Programme which includes the Jamaica Water Supply Improvement Project (US\$200.00M), Kingston Water & Sanitation Project (US\$ 40.0M.) and the Kingston Metropolitan Area Project (US\$85.0M). Also, the NWC has number of plans in place to enhance its facilities which it is currently in dialogue with Multi and Bilateral Agencies to secure loan and grant financing.

It is anticipated that an improvement in the Commission's service delivery will be seen based on these level of investment. To complement these capital works, the training of NWC's staff under the JICA programme is considered extremely important to the NWC as it addresses the soft component (capacity strengthening and institutionalization) of the Plan. The training of NWC's staff in the disciplines of Water Supply Management, Water Quality Control and Assurance, Water Treatment Plant and Operation will go a far way to enhance the skill sets and competence levels of the NWC staff to efficiently and effectively manage and operate its facilities.

2) If any other important government policies on water sector, which may affect the Project, have been recently announced, provide the outline of them.

There are no recently announced policies which would have impacted or affected the project.

2. Questions about Effectiveness

1) If there are any factors which have been hindering or slowing down the Project implementation, explain about them with actions which have been taken.

One the activities which has been affecting the implementation of the project is inadequate Equipment at the water treatment plants. Arrangements are in place to have the procurement of these be undertaken through the NWC's Major Capital Development Projects (i.e. JWSIP –

BNPP/VINCI , KWSP- IADB) which are now underway.

2) Likewise, if there are any factors which may hinder or slow down the Project implementation in the future, explain about them with possible actions to be taken.

One of the main findings from the project is that current organization structure and reporting relationship for some areas may impact on the progress of project implementation. The Human Resources Department is aware of the matter and we have been working closely with the Divisional Vice Presidents on how best to resolve the matter.

The NWC will also have to consult with its various stakeholders (i.e. the Labour and Trade Unions) prior to effecting these changes.

In addition, the NWC is in the process of undertaking an evaluation of Request for Proposals for the engagement of the services of a Management Consultant to undertake the re-job reclassification exercise.

Under the JICA Project for Water Supply Management, NWC staff was trained using the watercadd software for hydraulic modeling. However, the NWC currently uses and upgraded hydraulic model called waterGEMS. Training of these personnel under the JICA Project will have to be retrained by NWC on the application of the waterGEM.

In this regard, the NWC has been planning workshop/seminars with the Agent of the software to held in July /August 2010 in Jamaica.

3. Questions about Efficiency

1) PDM was revised after the Mid-term review of the Project in June 2009. How has the revision of PDM affected the Project so far?

The targets are now clearly outlined and defined. The set of targets/ verifiable indicators and means of verification were identifiable and are achievable with in the available resources of the NWC.

2) In general, is communication between Japanese Experts and Jamaican Counterpart Personnel (C/P) good and frequent enough?

Communication and working relationship between the NWC counterparts and Japanese Experts has been good. This enhanced and done via by the following media:

- Steering Committee Meetings with Team Leader of Task Force Teams
- Task Force Group Meetings with Team Leaders and Task Force Members
- One-one Meeting Weekly meeting with JICA Expert & NWC Project Manager
- Email

3) **Is equipment provided by the Japanese side for the Project activities properly installed and fully utilized?**

The installation of equipment are in general in good working conditions with the exception of the two Ion Chromatograph Instruments. The NWC is in direct contact with the DIONEX's Service Department. The Service Team is scheduled to be in Jamaica shortly to effect the repairs to the instruments. The NWC await Dionex schedule for there arrival.

4) **Has Joint Coordinating Committee (JCC) been functioning properly? Elaborate the effects of JCC's function (advices, direction, etc.) on the Project.**

The JCC has been functioning properly and has been effective in advising/recommending to the NWC, strategies to ensure the sustainability and institutionalization of the project activities with in the NWC. These strategies/advice can be obtained from the Minutes of Meetings (four meetings) which has been held to date.

4. Questions about Impact

- 1) Have there been any impacts/side effects of the Project, either positive or negative, which were not directly expected at the planning stage of Project? Those impacts could be institutional, social, environmental, economical or technological.
 - The findings of the JICA Project were one of the reasons for the establishment of an Energy Steering Committee in the NWC. The Project revealed reduction in electricity consumption and savings in water losses at some of the Pilot Water Treatment Plants. The work methodology/approach and findings of the Water Supply Management component of the project is being used to advised and inform the Committee on how to achieve electricity reduction and reduction in water losses.
 - The recommendation of the project has influenced the NWC's decision to re-structure the NRW Department to Water Supply Management Department wherein, the Department's functions will be expanded to address the overall operation and efficiency of water treatment supply schemes.
 - Adequate allocation of time is required for the planning and implementation of the project activities
 - Many internal consultation and meetings were held with
 - Ensure task force leaders and members were aware and fully informed of there role and function.
 - Key Management staff were aware of the project objectives deliverables and including key project milestone targets of the Project Design Matrix.
 - The need for an on-going structured training programme for the sustainability and

institutionalization of the project activities.

5. Questions about Sustainability

1) **Please provide budget planning and expenditures of NWC since 2007, and budget planning for the near future, if available.**

2) **If there is a plan to modify organizational structure of NWC in the near future, provide the outline.**

The NWC is scheduled to undertake a job re-classification exercise. To this end, the evaluation of Request for Proposals for the engagement of the services of a Management Consultant to undertake the job reclassification exercise is currently underway.

In addition, the NWC under the directive and auspices of the Transformation Programme of the Office of the Prime Minister has established a Transformation Team within the NWC where in, the Commission's organization structure, reporting processes /relationships, staff performance etc. will be assessed, of which the findings will be implemented.

3) **Please illustrate the situation of job turnover (leaving job) of NWC staff, with data of recent years.** Historically, the job turn over at the NWC has been in general low. Information/data on this is being correlated.

6. On Recommendations of Mid-term Review

Has the Project so far taken any measures to respond to recommendations of Mid-term Review in June 2009? Explain the measures for each of seven recommendations (please refer to the Mid-term Review Report).

(1) Strengthen Public Relations

Information on the project has been communicate via the following media:

Print i.e. NWC's Newsletter including East and West, Radio - News releases, NWC 's Intranet etc.

In addition, a number of sessions were held with Senior Executives of the NWC including the Divisional Personnel Managers and Training Coordinator to sensitize them of the current and future project activities. Specific/ functional tasks which will have direct impact on the a particular Department (NRW) was held with key senior personnel.

A number of initiatives have been undertaken; Meetings where held with the Senior Executives of the NWC on the seven point recommendations, in addition, they have

been kept abreast of the progress of the project activities via Minutes meeting etc. These Senior Executives are as follows:

- Vice President Project Implementation
- Vice President Human Resources Management & Administration
- Vice President Corporate & Strategic Planning
- Vice President Operations ,Eastern Division

Presentation was made at each year of the NWC 's Budget Presentation Meeting where all NWC Senior and Middle Managers are in attendance.

(2) Take measures to Ensure Technical sustainability

The Training Unit through the HRDA Department has been spearheading the 'roll out' of the training activities. A Master Training Schedule is prepared. Training materials and literatures have been prepared and are in the possession of the Training Unit. The Training Unit has been working with the Master Trainers on the roll out of these training activities.

Once training activities are advanced, the NWC will be implementing a mechanism to measure and monitor the effectiveness and impact of the training activities on the Commission.

(3) Strengthen involvement of the Senior Management

A number of sessions/meetings have been held with some of the key Senior Executives of the NWC on the seven point recommendations, in addition, they have been kept abreast of the progress of the project activities via Minutes meeting etc. These Senior Executives are as follows:

- Vice President Project Implementation
- Vice President Human Resources Management & Administration
- Vice President Corporate & Strategic Planning
- Vice President Operations ,Eastern Division

Some of these senior manager attend the Joint Steering Committee Meetings and have been attending the Task Force Team meetings.

(4) Ensure Financial Allocations for Necessary Equipment

Arrangements are in place to have the procurement of these be undertaken through the NWC's Major Capital Development Projects (i.e. JWSIP – BNPP/VINCI , KWSP- IADB) which are now underway.

An allocation in each year's budget will be made for the future roll out of the project activities.

(5) Develop Information Framework on Water Supply Management Plan

The NWC has recognized the need for a Centralized Unit/Department for a Water Supply Management from which a 'structured' WSM Plan can be developed for the NWC. To this end, the NWC has commenced the strengthening of the Divisional Units by:

- Changing of the names of the two Divisional NRW Managers to Water Supply Management.
- Commence the process of employment of a Water Distribution Engineer with specific expertise and responsibility in Hydraulic Modeling and Analysis. This person will be employed to the WSM Department and report to the Department Manager for Water Supply Management Department.
- Procurement of waterGEMS hydraulic Model software for two Divisional Water Supply Management Units.
- The intention is to have an organic link/synergy between the Engineering Department and the eight Operational Areas via the two Divisional Water Supply Management Units.

(6) Institutionalize Training

Please see Item No. (2)

(7) Revise the Project Framework and Scope

The NWC has been working towards fulfilling and satisfying the targets which were established in the PDM by the JICA Monitoring Mission Team in June 2009. The results of PDM are presented in Progress Report No.4.

Billy Meikle
 Technical Services Manager

Task/Job Assignment in the Project:

0. IMPLEMENTATION PROCESS		Very much	To a fair extent	Not so much	Not at all
0.1. Activities	0.1.1 For the last one year (after Mid-term review), did your "Activities" of the Project show progress as planned? 0.1.2 If your activities were not implemented as planned, what was the reason?				
0.2. Relation with Japanese experts (Transfer of technology, communication, etc	0.2.1 Have you found the methods/approaches of technology transfer (transfer of knowledge/knowhow/skills) from the Japanese experts appropriate? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all
	0.2.2 Do you think that your communication with Japanese Experts has been good enough through the Project? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all

The knowledge transfer was good, however the Technicians complained of problems with the accent of the Japanese Experts
 I had no problems communicating with the Japanese experts that I came in contact with.

5-criteria Evaluation Questions

1. RELEVANCE- Is the Project relevant as a solution of the issue?

1.1 Needs	1.1.1 Do you think that the Project has been consistent with the needs of the direct beneficiaries, i.e. NWC staff? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all
-----------	--	-----------	------------------	-------------	------------

The project fulfilled the technical needs of the NWC. Technicians were exposed to new ways of carrying out maintenance activities

2. EFFECTIVENESS— Did the Project lead to the anticipated result?

2.1. Achievement of the Project Purpose	2.1.1 Do you think that the Project Purpose will be achieved by the end of the Project? (Project purpose: "Capacities of NWC to provide quality and quantity of water supply is enhanced through piloting at four water treatment plants.") Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	
	2.1.2 Do you think that your own activities/capability contributed to the achievement of the Project Purpose?	Very much	To a fair extent	Not so much	Not at all	
	2.1.3 Are there any factors that particularly contributed to achievement of the Project Purpose?	The local training programme and equipment.				
	2.1.4 Are there any factors that particularly impeded achievement of the Project Purpose?	The enthusiasm and participation of the Technicians in the knowledge transfer				

Quality and quantity of water produced will be enhanced at the end of the project. The required training and equipment are in place to achieve the objectives

Training in Japan and my experience/knowledge in maintenance contributed to the design of aspects of the local training programme and equipment.

Questionnaire for Counterpart Personnel

3. EFFICIENCY — Was the Project implemented efficiently?

		Very much	To a fair extent	Not so much	Not at all
3.1 Japanese experts	3.1.1 Do you think that the Japanese experts met the needs of the Project in terms of expertise, experience, duration of service, timing, etc?				
	3.1.2 Do you have any suggestion for improvement?				
3.2 Counterpart training	3.2.1 Did you participate in a counterpart training course in Japan?	No	Yes		
	3.2.2 (If you answered YES), did you find that the training course was appropriate in upgrading your capability?	Very much	To a fair extent	Not so much	Not at all
	3.2.3 (If you answered YES), do you apply the skills and knowledge that you learned in the training course to the Project activities (or your work)?	Very much	To a fair extent	Not so much	Not at all
	3.2.4 (If you answered YES), do you disseminate the skills and knowledge that you learned in the training course to your colleagues of NWC?	Very much	To a fair extent	Not so much	Not at all
	3.2.5 Do you have any suggestion for improvement of the counterpart training?	A local Engineer should be present at all training sessions conducted by Japanese Experts to assist with the language barrier and to provide technical interpretation with local expatriates.			
3.3 Provision of equipment	3.3.1 Was the selection of the equipment appropriate in terms of specifications, numbers and types, etc?	Very much	To a fair extent	Not so much	Not at all
	3.3.2 Is the equipment fully utilized? If not, why? (specify the name of equipment)	No	Yes	Some of the required maintenance check lists and data forms are being revised for computerization. Data is currently being captured on paper.	

4. IMPACT — Will the Overall Goal be achieved? Are there any impacts?

		Very much	To a fair extent	Not so much	Not at all
4.1 Achievement of the Overall Goal	4.1.1 Do you think that the Overall Goal will be achieved within 5 years after the completion of the Project? (Overall Goal: "Reliability of NWC's water supply is enhanced both in terms of quality and quantity.")	Very much	To a fair extent	Not so much	Not at all
	4.2.1 Is there any positive impact/side effect of the Project that was not fully anticipated?	No			
4.2 Impacts	4.2.2 Is there any negative impact/side effect of the Project that was not fully anticipated?	No			

5. SUSTAINABILITY — Is the achievement of the Project sustainable after the end of the Project?

		Very much	To a fair extent	Not so much	Not at all
5.1 Sustainability of Project	5.1.1 Do you think that the NWC will be able to continue and expand Project outcomes/activities without Japan's further cooperation, after the completion of the Project?	Very much	To a fair extent	Not so much	Not at all
	5.1.2 Do you think that you have now enough knowledge/skills in your task/assignment, so that the activities will be properly conducted without Japanese Experts, after the completion of the Project?	Very much	To a fair extent	Not so much	Not at all

Questionnaire for Counterpart Personnel

6. Measures Taken Responding to the Recommendations of Mid-term Review

	Measures Taken	Comments
6.1 Measures taken in response to the recommendations of Mid-Term Review	<p>In previous Mid-term Review Report in June 2009, several recommendations were presented to the Project. What kinds of counter-measures have been taken by the Project, to respond to the following 5 issues (recommendations)? Please write freely about measures taken and future prospects of the issues, but only about the issues for which your assignment is concerned and the issues to which you are eligible to refer.</p> <p>Strengthen Involvement of Senior Management Is there any improvement? What are impeding factors, if any?</p> <p>Utilization of Technical Materials, such as Manuals and SOP, Prepared under the Project How and to what extent have they been utilized? Do you have any ideas of full-utilization after the completion of the Project?</p> <p>Enhance Services beyond Pilot WTPs and Pilot Service Areas Are enhancement plans being made? Are there any impeding factors for enhancement?</p> <p>Changes in NWC Organizational Structure Is it likely that NWC will establish a section specialized on water supply management plan? What about other major changes in organizational structure?</p> <p>Institutionalize Training System of NWC Has training system been improved? How do you find it?</p>	<p>There is greater awareness and involvement of Senior Management. The President and a VP was also exposed to training plant visits in Japa.</p> <p>Measures</p> <p>The training obtained by the Technicians and the results of the water supply and energy related aspects of the project are currently being adopted at other facilities outside the pilot areas.</p> <p>This is possible and is being done with the appointment of a Distribution Engineer in the Eastern Division</p> <p>There has been some improvement in the training system. There however needs to be more technical/hands-on type training. There is the need for a facility to carry out technical training for Plumbers, Electricians, Mechanics and Leak Detection technicians.</p>

Thank you for your cooperation.
If you have comments on this Project, please write here.

Name: Patrick Hunter
 Title: Maintenance Manager

Task/Job Assignment in the Project:

0. IMPLEMENTATION PROCESS

QUESTIONS	Very much	To a fair extent	Not so much	Not at all	REMARKS
0.1.1 For the last one year (after Mid-term review), did your 'Activities' of the Project show progress as planned? If your activities were not implemented as planned, what was the reason?	Very much Lack of funds	To a fair extent	Not so much	Not at all	
0.1.2					
0.2.1 Have you found the methods/approaches of technology transfer (transfer of knowledge/knowhow/skills) from the Japanese experts appropriate? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	Why? Training sessions have been well received
0.2.2 Do you think that your communication with Japanese Experts has been good enough through the Project? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	Why? All requests have been fulfilled

5-criteria Evaluation Questions

1. RELEVANCE- Is the Project relevant as a solution of the issue?

QUESTIONS	Very much	To a fair extent	Not so much	Not at all	REMARKS
1.1 Needs	Very much	To a fair extent	Not so much	Not at all	Why? Deficiencies identified in some members of staff were addressed in training programs

2. EFFECTIVENESS— Did the Project lead to the anticipated result?

QUESTIONS	Very much	To a fair extent	Not so much	Not at all	REMARKS
2.1.1 Do you think that the Project Purpose will be achieved by the end of the Project? (Project purpose: "Capacities of NWC to provide quality and quantity of water supply is enhanced through piloting at four water treatment plants.") Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	Why? Increased number of staff members have shown improvements
2.1.2 Do you think that your own activities/capability contributed to the achievement of the Project Purpose?	Very much	To a fair extent	Not so much	Not at all	Why? Equipment recommended were procured, meetings to determine important decisions were done
2.1.3 Are there any factors that particularly contributed to achievement of the Project Purpose?					
2.1.4 Are there any factors that particularly impeded achievement of the Project Purpose?					

Questionnaire for Counterpart Personnel

3. EFFICIENCY — Was the Project implemented efficiently?

		Very much	To a fair extent	Not so much	Not at all	
3.1 Japanese experts	3.1.1 Do you think that the Japanese experts met the needs of the Project in terms of expertise, experience, duration of service, timing, etc?					
	3.1.2 Do you have any suggestion for improvement?					
3.2 Counterpart training	3.2.1 Did you participate in a counterpart training course in Japan?	No	Yes			
	3.2.2 (If you answered YES), did you find that the training course was appropriate in upgrading your capability?	Very much	To a fair extent	Not so much	Not at all	Why? Several facilities were similar to those at NWC
	3.2.3 (If you answered YES), do you apply the skills and knowledge that you learned in the training course to the Project activities (or your work)?	Very much	To a fair extent	Not so much	Not at all	How? Overall view of Water systems help to determine direction NWC need to go
	3.2.4 (If you answered YES), do you disseminate the skills and knowledge that you learned in the training course to your colleagues of NWC?	Very much	To a fair extent	Not so much	Not at all	How/why? Procurement of Spares Equipment
	3.2.5 Do you have any suggestion for improvement of the counterpart training?	Not at all				
3.3 Provision of equipment	3.3.1 Was the selection of the equipment appropriate in terms of specifications, numbers and types, etc?	Very much	To a fair extent	Not so much	Not at all	Measures taken
	3.3.2 If not, how did you solve the problem? Is the equipment fully utilized? If not, why? (specify the name of equipment)	No	Yes	Used on preventative maintenance programs		

4. IMPACT — Will the Overall Goal be achieved? Are there any impacts?

		Very much	To a fair extent	Not so much	Not at all	
4.1 Achievement of the Overall Goal	4.1.1 Do you think that the Overall Goal will be achieved within 5 years after the completion of the Project? (Overall Goal: "Reliability of NWC's water supply is enhanced both in terms of quality and quantity.")	Very much	To a fair extent	Not so much	Not at all	Why? If the NWC continues on this path then we can apply this methodology to other areas
	4.2 Impacts					
	4.2.1 Is there any positive impact/side effect of the Project that was not fully anticipated?					
	4.2.2 Is there any negative impact/side effect of the Project that was not fully anticipated?					

5. SUSTAINABILITY — Is the achievement of the Project sustainable after the end of the Project?

		Very much	To a fair extent	Not so much	Not at all	
5.1 Sustainability of Project	5.1.1 Do you think that the NWC will be able to continue and expand Project outcomes/activities without Japan's further cooperation, after the completion of the Project?	Very much	To a fair extent	Not so much	Not at all	Why? It will be beneficial
	5.1.2 Do you think that you have now enough knowledge/skills in your task/assignment, so that the activities will be properly conducted without Japanese Experts, after the completion of the Project?	Very much	To a fair extent	Not so much	Not at all	Why? Training material from the JICA training program available for future use

Questionnaire for Counterpart Personnel

6. Measures Taken Responding to the Recommendations of Mid-term Review

	<p>In previous Mid-term Review Report in June 2009, several recommendations were presented to the Project. What kinds of counter-measures have been taken by the Project, to respond to the following 5 issues (recommendations)? Please write freely about measures taken and future prospects of the issues, but only about the issues for which your assignment is concerned and the issues to which you are eligible to refer.</p>
6.1.1	<p>Strengthen Involvement of Senior Management Is there any improvement? What are impeding factors, if any?</p>
6.1.2	<p>Utilization of Technical Materials, such as Manuals and SOP, Prepared under the Project How and to what extent have they been utilized? Do you have any ideas of full-utilization after the completion of the Project?</p>
6.1.3	<p>Enhance Services beyond Pilot WTPs and Pilot Service Areas Are enhancement plans being made? Are there any impeding factors for enhancement?</p>
6.1.4	<p>Changes in NWC Organizational Structure Is it likely that NWC will establish a section specialized on water supply management plan? What about other major changes in organizational structure?</p>
6.1.5	<p>Institutionalize Training System of NWC Has training system been improved? How do you find it?</p>
	<p>Senior management is now fully aware of various issues and provide support NWC need to extend this program internally and externally to other parts of the organization Additional funding for equipment; training programs will be required, if this is achieved then it can be extended easily Not sure if a staff structure can be easily changed at this point but each organization need to continuously assess its performance and adjust to efficiently survive Training will significantly improve staff capability</p>

Thank you for your cooperation.
If you have comments on this Project, please write here.

Name: Colin Roach
 Title : Non Revenue Water Manager
 Task/Job Assignment in the Project : Team Leader

Patrick McLeod

0. IMPLEMENTATION PROCESS

Topics	Question	Very much	To a fair extent	Not so much	Not at all	Reasons/Comments
0.1. Activities	0.1.1 For the last one year (after Mid-term review), did your "Activities" of the Project show progress as planned?	Very much	To a fair extent	Not so much	Not at all	A hydraulic model for the Helshire DIMA was completed and the recommendations for improvement submitted.
	0.1.2 If your activities were not implemented as planned, what was the reason?	Reason				
0.2. Relation with Japanese experts (Transfer of technology, communication, etc	0.2.1 Have you found the methods/approaches of technology transfer (transfer of knowledge/knowhow/skills) from the Japanese experts appropriate? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	The approach was fully hands on, giving the technicians a fair knowledge of the approach to the construction development and analysis of a hydraulic model
	0.2.2 Do you think that your communication with Japanese Experts has been good enough through the Project? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	There were regular meetings to discuss progress of the project.

5-criteria Evaluation Questions

1. RELEVANCE- Is the Project relevant as a solution of the issue?

Topics	Question	Very much	To a fair extent	Not so much	Not at all	Reasons/Comments
1.1 Needs	1.1.1 Do you think that the Project has been consistent with the needs of the direct beneficiaries, i.e. NWC staff? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	There is a great appreciation among the trainees for hydraulic modelling as a solution to the efficiency of our distribution system

2. EFFECTIVENESS— Did the Project lead to the anticipated result?

Topics	Question	Very much	To a fair extent	Not so much	Not at all	Reasons/Comments
2.1. Achievement of the Project Purpose	2.1.1 Do you think that the Project Purpose will be achieved by the end of the Project? (Project purpose: "Capacities of NWC to provide quality and quantity of water supply is enhanced through piloting at four water treatment plants.") Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	There is no doubt that the project purpose can be achieved but this will require changes in the organizational structure of the NWC. The organization is seeking to further implement recommendations such as employing a Distribution Engineer who will be solely responsible for analysing sub-systems within the water distribution network through hydraulic modelling and making recommendations for improvement. Motivation of the trainees through assisting in helping them to understand the process of building a model. Providing relevant data. Coordinating the trainees in their data collection
	2.1.2 Do you think that your own activities/capability contributed to the achievement of the Project Purpose?	Very much	To a fair extent	Not so much	Not at all	The close contact and good relationship between the JICA consultant and the trainees
	2.1.3 Are there any factors that particularly contributed to achievement of the Project Purpose?	Sometimes the level of emergencies dealt with on a daily basis hinders training process which leads to persons being absent.				
	2.1.4 Are there any factors that particularly impeded achievement of the Project Purpose?					

3. EFFICIENCY - Was the Project implemented efficiently?

Topics	Questions	Reasons/Comments
3.1 Japanese experts	3.1.1 Do you think that the Japanese experts met the needs of the Project in terms of expertise, experience, duration of service, timing, etc?	Very much To a fair extent Not so much Not at all
	3.1.2 Do you have any suggestion for improvement?	
3.2 Counterpart training	3.2.1 Did you participate in a counterpart training course in Japan?	No Yes
	3.2.2 (If you answered YES), did you find that the training course was appropriate in upgrading your capability?	Very much To a fair extent Not so much Not at all
	3.2.3 (If you answered YES), do you apply the skills and knowledge that you learned in the training course to the Project activities (or your work)?	Very much To a fair extent Not so much Not at all
	3.2.4 (If you answered YES), do you disseminate the skills and knowledge that you learned in the training course to your colleagues of NWC?	Very much To a fair extent Not so much Not at all
	3.2.5 Do you have any suggestion for improvement of the counterpart training?	Very much To a fair extent Not so much Not at all
3.3 Provision of equipment	3.3.1 Was the selection of the equipment appropriate in terms of specifications, numbers and types, etc?	Very much To a fair extent Not so much Not at all
	3.3.2 Is the equipment fully utilized? If not, why? (specify the name of equipment)	No Yes The ultrasonic flow meters are highly utilized in flow data collection. The valve locator is also highly utilized in location buried valves, which is a common problem in NWC

4. IMPACT - Will the Overall Goal be achieved? Are there any impacts?

Topics	Questions	Reasons/Comments
4.1 Achievement of the Overall Goal	4.1.1 Do you think that the Overall Goal will be achieved within 5 years after the completion of the Project? (Overall Goal: "Reliability of NWC's water supply is enhanced both in terms of quality and quantity.")	Very much To a fair extent Not so much Not at all
	4.2 Impacts	No None

5. SUSTAINABILITY - Is the achievement of the Project sustainable after the end of the Project?

Topics	Questions	Reasons/Comments
5.1 Sustainability of Project	5.1.1 Do you think that the NWC will be able to continue and expand Project outcomes/activities without Japan's further cooperation, after the completion of the Project?	Very much To a fair extent Not so much Not at all
	5.1.2 Do you think that you have now enough knowledge/skills in your task/assignment so that the activities will be properly conducted without Japanese Experts, after the completion of the Project?	Very much To a fair extent Not so much Not at all

Questionnaire for Counterpart Personnel

Japan Report to be recommended.

6. Measures Taken Responding to the Recommendations of Mid-term Review

Topic	Questions	Reasons/Comments
6.1 Measures taken in response to the recommendations of Mid-Term Review	In previous Mid-term Review Report in June 2009, several recommendations were presented to the Project. What kinds of counter-measures have been taken by the Project, to respond to the following 5 issues (recommendations)? Please write freely about measures taken and future prospects of the issues, but only about the issues for which your assignment is concerned and the issues to which you are eligible to refer.	One of the main recommendations in the Hellshire DMA is to increase the size of the booster pump to deliver water more efficiently to higher elevations. This however is on hold until we can significantly reduce the level of system loss. Also the recommendations to Rehabilitate the Marley Hill #2 Tank is one for further consideration since this tank is in a state of disrepair.
	6.1.1 Strengthen Involvement of Senior Management Is there any improvement? What are impeding factors, if any?	Measures
	6.1.2 Utilization of Technical Materials, such as Manuals and SOP, Prepared under the Project How and to what extent have they been utilized? Do you have any ideas of full-utilization after the completion of the Project?	The hydraulic manual is very useful in the development of hydraulic models. Also these will be utilized in future training of NWC employees.
	6.1.3 Enhance Services beyond Pilot WTPs and Pilot Service Areas Are enhancement plans being made? Are there any impeding factors for	Yes. Through the employment of a Distribution Engineer. <i>Mr. A. P. ...</i>
	6.1.4 Changes in NWC Organizational Structure Is it likely that NWC will establish a section specialized on water supply management plan? What about other major changes in organizational structure?	Yes. The process of forming this unit has already begun by creating a Distribution Engineer post
6.1.5 Institutionalize Training System of NWC Has training system been improved? How do you find it?	The development of a training process is in progress	

Thank you for your cooperation.
If you have comments on this Project, please write here. The objective of the project is a very good one. The analysis of Heliothe DMA through hydraulic modelling is a small example of what can be applied to the major facilities throughout the island.

Name: EATON LINDSAY

Title: WATER PRODUCTION MANAGER

Task/Job Assignment in the Project: WATER SUPPLY MANAGEMENT : HOPE FILTER PLANT

0. IMPLEMENTATION PROCESS

Topic	Question	Very much	To a fair extent	Not so much	Not at all	Reason
0.1. Activities	0.1.1 For the last one year (after Mid-term review), did your "Activities" of the Project show progress as planned? 0.1.2 If your activities were not implemented as planned, what was the reason?					
0.2. Relation with Japanese experts (Transfer of technology, communication, etc	0.2.1 Have you found the methods/approaches of technology transfer (transfer of knowledge/knowhow/skills) from the Japanese experts appropriate? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	Why? Always operate from first principles
	0.2.2 Do you think that your communication with Japanese Experts has been good enough through the Project? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	Why?

5-criteria Evaluation Questions

1. RELEVANCE- Is the Project relevant as a solution of the issue?

Topic	Question	Very much	To a fair extent	Not so much	Not at all	Why?
1.1 Needs	1.1.1 Do you think that the Project has been consistent with the needs of the direct beneficiaries, i.e. NWC staff? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	Why? Training component was excellent

2. EFFECTIVENESS— Did the Project lead to the anticipated result?

Topic	Question	Very much	To a fair extent	Not so much	Not at all	Why?
2.1. Achievement of the Project Purpose	2.1.1 Do you think that the Project Purpose will be achieved by the end of the Project? (Project purpose: "Capacities of NWC to provide quality and quantity of water supply is enhanced through piloting at four water treatment plants.") Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	Why? There is significant input/cooperation from Operations Staff
	2.1.2 Do you think that your own activities/capability contributed to the achievement of the Project Purpose?	Very much	To a fair extent	Not so much	Not at all	Why? Ensured that staff was always readily available.
	2.1.3 Are there any factors that particularly contributed to achievement of the Project Purpose?	Enthusiasm of staff				
	2.1.4 Are there any factors that particularly impeded achievement of the Project Purpose?	Lack of computers/madequacy of equipment				

Questionnaire for Counterpart Personnel

3. EFFICIENCY — Was the Project implemented efficiently?

		Very much			To a fair extent			Not so much			Not at all		
3.1 Japanese experts	3.1.1 Do you think that the Japanese experts met the needs of the Project in terms of expertise, experience, duration of service, timing, etc?	Very much	To a fair extent	Not so much									
	3.1.2 Do you have any suggestion for improvement?	Expand Training Component											
3.2 Counterpart training	3.2.1 Did you participate in a counterpart training course in Japan?	No	Yes										
	3.2.2 (If you answered YES), did you find that the training course was appropriate in upgrading your capability?	Very much	To a fair extent	Not so much							Why?		
	3.2.3 (If you answered YES), do you apply the skills and knowledge that you learned in the training course to the Project activities (or your work)?	Very much	To a fair extent	Not so much							How? Importance of data collection		
	3.2.4 (If you answered YES), do you disseminate the skills and knowledge that you learned in the training course to your colleagues of NWC?	Very much	To a fair extent	Not so much							How/why?		
	3.2.5 Do you have any suggestion for improvement of the counterpart training?	Make the training longer than 3 weeks											
3.3 Provision of equipment	3.3.1 Was the selection of the equipment appropriate in terms of specifications, numbers and types, etc?	Very much	To a fair extent	Not so much							Measures taken		
	3.3.2 Is the equipment fully utilized?	No	Yes							Details			

4. IMPACT — Will the Overall Goal be achieved? Are there any impacts?

		Very much			To a fair extent			Not so much			Not at all		
4.1 Achievement of the Overall Goal	4.1.1 Do you think that the Overall Goal will be achieved within 5 years after the completion of the Project? (Overall Goal: "Reliability of NWC's water supply is enhanced both in terms of quality and quantity.")	Very much	To a fair extent	Not so much							Why? Through continuous enforcement/training		
	4.2 Impacts	The levels of energy reduction achieved											
		No negative impact											

5. SUSTAINABILITY — Is the achievement of the Project sustainable after the end of the Project?

		Very much			To a fair extent			Not so much			Not at all		
5.1 Sustainability of Project	5.1.1 Do you think that the NWC will be able to continue and expand Project outcomes/activities without Japan's further cooperation, after the completion of the Project?	Very much	To a fair extent	Not so much							Why? Because of training component.		
	5.1.2 Do you think that you have now enough knowledge/skills in your task/assignment, so that the activities will be properly conducted without Japanese Experts, after the completion of the Project?	Very much	To a fair extent	Not so much							Why? Training was good.		

Questionnaire for Counterpart Personnel

5. Measures Taken Responding to the Recommendations of Mid-term Review

	<p>In previous Mid-term Review Report in June 2009, several recommendations were presented to the Project. What kinds of counter-measures have been taken by the Project, to respond to the following 5 issues (recommendations)? Please write freely about measures taken and future prospects of the issues, but only about the issues for which your assignment is concerned and the issues to which you are eligible to refer.</p>	
6.1.1	<p>Strengthen Involvement of Senior Management Is there any improvement? What are impeding factors, if any?</p>	<p>Measures – As a result of energy reduction/efficiencies achieved. There has been more attention/focus from senior management.</p>
6.1.2	<p>Utilization of Technical Materials, such as Manuals and SOP, Prepared under the Project How and to what extent have they been utilized? Do you have any ideas of full-utilization after the completion of the Project?</p>	<p>Measures – Need computers on the treatment plants which makes it easier to analyze/input data</p>
6.1.3	<p>Enhance Services beyond Pilot WTPs and Pilot Service Areas Are enhancement plans being made? Are there any impeding factors for enhancement?</p>	<p>Measures – Plans are being made (there may be funding issues)</p>
6.1.4	<p>Changes in NWC Organizational Structure Is it likely that NWC will establish a section specialized on water supply management plan? What about other major changes in organizational structure?</p>	<p>Measures – Unsure if the management will implement</p>
6.1.5	<p>Institutionalize Training System of NWC Has training system been improved? How do you find it?</p>	<p>Measures – There has been improvement</p>

Thank you for your cooperation.

If you have comments on this Project, please write here.

Particularly encouraged by Training component

Questionnaire for Counterpart Personnel

Name: Erron Reid
 Title: Maintenance Team Leader
 Task/Job Assignment in the Project: Member Competency Team

0. IMPLEMENTATION PROCESS

		Very much	To a fair extent	Not so much	Not at all	Why?
0.1. Activities	0.1.1 For the last one year (after Mid-term review), did your "Activities" of the Project show progress as planned? 0.1.2 If your activities were not implemented as planned, what was the reason?					
0.2. Relation with Japanese experts (Transfer of technology, communication, etc	0.2.1 Have you found the methods/approaches of technology transfer (transfer of knowledge/knowhow/skills) from the Japanese experts appropriate? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	Why?
	0.2.2 Do you think that your communication with Japanese Experts has been good enough through the Project? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	Why?

5-criteria Evaluation Questions

1. RELEVANCE- Is the Project relevant as a solution of the issue?

		Very much	To a fair extent	Not so much	Not at all	Improvement in equipment condition monitoring, as it relates to maintenance
1.1 Needs	1.1.1 Do you think that the Project has been consistent with the needs of the direct beneficiaries, i.e. NWC staff? Please give the reason of your answer.					

2. EFFECTIVENESS— Did the Project lead to the anticipated result?

		Very much	To a fair extent	Not so much	Not at all	Some maintenance activities not fully implemented.	
2.1. Achievement of the Project Purpose	2.1.1 Do you think that the Project Purpose will be achieved by the end of the Project? (Project purpose: "Capacities of NWC to provide quality and quantity of water supply is enhanced through piloting at four water treatment plants.") Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all		
	2.1.2 Do you think that your own activities/capability contributed to the achievement of the Project Purpose?	Very much	To a fair extent	Not so much	Not at all	Items requested of me were submitted and in most cases implemented for use.	
	2.1.3 Are there any factors that particularly contributed to achievement of the Project Purpose?	Timely provision of condition monitoring equipment					
	2.1.4 Are there any factors that particularly impeded achievement of the Project Purpose?	Ability of staff to be trained in use of equipment.					

Questionnaire for Counterpart Personnel

3. EFFICIENCY — Was the Project implemented efficiently?

Question	Very much	To a fair extent	Not so much	Not at all	Comments
3.1 Japanese experts					Some were more proficient than others.
3.1.1 Do you think that the Japanese experts met the needs of the Project in terms of expertise, experience, duration of service, timing, etc?					
3.1.2 Do you have any suggestion for improvement?					
3.2 Counterpart training					
3.2.1 Did you participate in a counterpart training course in Japan?	No	Yes			
3.2.2 (If you answered YES), did you find that the training course was appropriate in upgrading your capability?	Very much	To a fair extent	Not so much	Not at all	N/A
3.2.3 (If you answered YES), do you apply the skills and knowledge that you learned in the training course to the Project activities (or your work)?	Very much	To a fair extent	Not so much	Not at all	N/A
3.2.4 (If you answered YES), do you disseminate the skills and knowledge that you learned in the training course to your colleagues of NWC?	Very much	To a fair extent	Not so much	Not at all	N/A
3.2.5 Do you have any suggestion for improvement of the counterpart training?	N/A				
3.3 Provision of equipment					
3.3.1 Was the selection of the equipment appropriate in terms of specifications, numbers and types, etc?	Very much	To a fair extent	Not so much	Not at all	N/A
3.3.2 Is the equipment fully utilized? If not, why? (specify the name of equipment)	No	Yes	Details		

4. IMPACT — Will the Overall Goal be achieved? Are there any impacts?

Question	Very much	To a fair extent	Not so much	Not at all	Comments
4.1 Achievement of the Overall Goal					Only if training programs are effective
4.1.1 Do you think that the Overall Goal will be achieved within 5 years after the completion of the Project? (Overall Goal: "Reliability of NWC's water supply is enhanced both in terms of quality and quantity.")	Very much	To a fair extent	Not so much	Not at all	
4.2 Impacts					
4.2.1 Is there any positive impact/side effect of the Project that was not fully anticipated?					
4.2.2 Is there any negative impact/side effect of the Project that was not fully anticipated?	Not to my knowledge				

5. SUSTAINABILITY — Is the achievement of the Project sustainable after the end of the Project?

Question	Very much	To a fair extent	Not so much	Not at all	Comments
5.1 Sustainability of Project					Key people are in place to drive project
5.1.1 Do you think that the NWC will be able to continue and expand Project outcomes/activities without Japan's further cooperation, after the completion of the Project?	Very much	To a fair extent	Not so much	Not at all	
5.1.2 Do you think that you have now enough knowledge/skills in your task/assignment, so that the activities will be properly conducted without Japanese Experts, after the completion of the Project?	Very much	To a fair extent	Not so much	Not at all	

Questionnaire for Counterpart Personnel

6. Measures Taken Responding to the Recommendations of Mid-term Review

Project	Country	Person's Assignment
6.1.1	<p>In previous Mid-term Review Report in June 2009, several recommendations were presented to the Project. What kinds of counter-measures have been taken by the Project to respond to the following 5 issues (recommendations)? Please write freely about measures taken and future prospects of the issues, but only about the issues for which your assignment is concerned and the issues to which you are eligible to refer.</p> <p>Strengthen Involvement of Senior Management Is there any improvement? What are impeding factors, if any?</p>	Not in a position to comment.
6.1.2	<p>Utilization of Technical Materials, such as Manuals and SOP, Prepared under the Project How and to what extent have they been utilized? Do you have any ideas of full-utilization after the completion of the Project?</p>	Access to manuals is very limited.
6.1.3	<p>Enhance Services beyond Pilot WTPs and Pilot Service Areas Are enhancement plans being made? Are there any impeding factors for enhancement?</p>	Yes plans are being made, availability of basic resources.
6.1.4	<p>Changes in NWC Organizational Structure Is it likely that NWC will establish a section specialized on water supply management plan? What about other major changes in organizational structure?</p>	Changes to hiring standards and qualifications for operators and mechanics
6.1.5	<p>Institutionalize Training System of NWC Has training system been improved? How do you find it?</p>	For training programs to be effective staff must be willing to accept training.

Thank you for your cooperation.
If you have comments on this Project, please write here.

Aubrey M. Williams
 Maintenance Engineer, Eastern Division
 Task/Job Assignment in the Project : Team Member

0. IMPLEMENTATION PROCESS

Topic	Questions	Very much Reason	To a fair extent	Not so much	Not at all	Response/Comments
0.1. Activities	0.1.1 For the last one year (after Mid-term review), did your "Activities" of the Project show progress as planned? 0.1.2 If your activities were not implemented as planned, what was the reason?					
0.2. Relation with Japanese experts (Transfer of technology, communication, etc)	0.2.1 Have you found the methods/approaches of technology transfer (transfer of knowledge/knowhow/skills) from the Japanese experts appropriate? Please give the reason of your answer. 0.2.2 Do you think that your communication with Japanese Experts has been good enough through the Project? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	Why? They are very clear in their delivery and has a very good know-ledge base. Why? Most of the Expert mastery of the english language is very good, however they all deliver.

5-criteria Evaluation Questions

1. RELEVANCE- Is the Project relevant as a solution of the issue?

Topic	Questions	Very much	To a fair extent	Not so much	Not at all	Response/Comments
1.1 Needs	1.1.1 Do you think that the Project has been consistent with the needs of the direct beneficiaries, (i.e. NWC staff? Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	Why? Yes the training received is very helpful and will be used to the benefit of the NYC.

2. EFFECTIVENESS-- Did the Project lead to the anticipated result?

Topic	Questions	Very much	To a fair extent	Not so much	Not at all	Response/Comments
2.1. Achievement of the Project Purpose	2.1.1 Do you think that the Project Purpose will be achieved by the end of the Project? (Project purpose: "Capacity of NWC to provide quality and quantity of water supply is enhanced through piloting at four water treatment plants.") Please give the reason of your answer.	Very much	To a fair extent	Not so much	Not at all	Why? Most if not all of the project purpose will be met if proper managed and supported.
	2.1.2 Do you think that your own activities/competency contributed to the achievement of the Project Purpose?	Very much	To a fair extent	Not so much	Not at all	Why? Yes I made my contribution which I think helped in the project development.
	2.1.3 Are there any factors that particularly contributed to achievement of the Project Purpose?					
	2.1.4 Are there any factors that particularly impeded achievement of the Project Purpose?					

Questionnaire for Counterpart Personnel

3. EFFICIENCY - Was the Project Implemented efficiently?					
Topics	Questions	1	2	Reasons/Comments	
3.1 Japanese experts	3.1.1 Do you think that the Japanese experts met the needs of the Project in terms of expertise, experience, duration of service, timing, etc?	Very much	To a fair extent	Not at all	They all have a very strong Knowledge base
	3.1.2 Do you have any suggestion for improvement?		Not so much		
3.2 Counterpart training	3.2.1 Did you participate in a counterpart training course in Japan?	No	Yes	Not at all	Why? It was very informative How? I have used some but not all, our facilities are not exactly the same. How/Why? It is always good to share knowledge, and improve ones co-workers knowledge.
	3.2.2 (If you answered YES), did you find that the training course was appropriate in upgrading your capability?	Very much	To a fair extent	Not so much	
	3.2.3 (If you answered YES), do you apply the skills and knowledge that you learned in the training course to the Project activities (or your work)?	Very much	To a fair extent	Not so much	
	3.2.4 (If you answered YES), do you disseminate the skills and knowledge that you learned in the training course to your colleagues of NWC?	Very much	To a fair extent	Not so much	
	3.2.5 Do you have any suggestion for improvement of the counterpart training?		Not so much		
3.3 Provision of equipment	3.3.1 Was the selection of the equipment appropriate in terms of specifications, numbers and types, etc?	Very much	To a fair extent	Not so much	Measures taken
	3.3.2 If not, how did you solve the problem? Is the equipment fully utilized? If not, why? (specify the name of equipment)	No	Yes	Details They are presently being used by various departments.	

4. IMPACT - Will the Overall Goal be achieved? Are there any impacts?					
Topics	Questions	1	2	Reasons/Comments	
4.1 Achievement of the Overall Goal	4.1.1 Do you think that the Overall Goal will be achieved within 5 years after the completion of the Project? (Overall Goal: "Reliability of NWC's water supply is enhanced both in terms of quality and quantity.")	Very much	To a fair extent	Not so much	Why? That may be possible, but someone have to be dedicated to the project and the goals, and thus act as the driver.
	4.2.1 Is there any positive impact/side effect of the Project that was not fully anticipated?	Not sure			
4.2 Impacts	4.2.2 Is there any negative impact/side effect of the Project that was not fully anticipated?	Not sure			

5. SUSTAINABILITY - Is the achievement of the Project sustainable after the end of the Project?					
Topics	Questions	1	2	Reasons/Comments	
6.1 Sustainability of Project	5.1.1 Do you think that the NWC will be able to continue and expand Project outcomes/activities without Japan's further cooperation, after the completion of the Project?	Very much	To a fair extent	Not so much	Why? Financially it may be challenging, plus they would need to have human resources directly committed. Why? Financially it may be challenging, plus they would need to have human resources directly committed.
	5.1.2 Do you think that you have now enough knowledge/skills in your task/assignment, so that the activities will be properly conducted without Japanese Experts, after the completion of the Project?	Very much	To a fair extent	Not so much	

Questionnaire for Counterpart Personnel

6. Measures Taken Responding to the Recommendations of Mid-term Review

Topic	Questions	Respondent Comments
6.1 Measures taken in response to the recommendations of Mid-Term Review	<p>In previous Mid-term Review Report in June 2008, several recommendations were presented to the Project. What kinds of counter-measures have been taken by the Project to respond to the following 5 issues (recommendations)? Please write freely about measures taken and future prospects of the issues, but only about the issues for which your assessment is completed and the issues to which you are eligible to refer.</p> <p>Strengthen involvement of Senior Management 6.1.1 Is there any impediment? What are impending factors, if any? 6.1.2 Utilization of Technical Materials, such as Manuals and SOP, Prepared under the Project How and to what extent have they been utilized? Do you have any ideas of full-utilization after the completion of the Project? 6.1.3 Enhance Services beyond First WTPs and First Service Areas Are enhancement plans being made? Are there any impending factors for enhancement? 6.1.4 Changes in NWC Organizational Structure Is it likely that NWC will establish a section specialized on water supply management plan? What about other major changes in organizational structure? 6.1.5 Institutionalize Training System of NWC Has training system been improved? How do you find it?</p>	<p>Measures Measures These are being used, to the fullest I cannot say</p> <p>Measures Measures I cannot address this, I would study/recommend this path.</p> <p>Measures Measures More organized, Experts very dedicated.</p>

Thank you for your cooperation.
 If you have comments on this Project, please write here.