APPENDICES

Appendix – 1

Member List of the Study Team

Basic Design Study

Name	Role	Organization
Mr. OMURA Yoshiki	Leader	Senior Advisor, JICA
Mr. MURAKAMI Jun	Program Officer (Planning Management)	Water Resources Development and Environmental Management Team Project Management Group Ⅲ, JICA
Mr. TAKEUCHI Masahiro	Chief Consultant/Water Supply Planning/ Operation & Maintenance Planning	Yachiyo Engineering Co., Ltd.
Mr. SENO Masatoshi	Water Supply Planning 1	Yachiyo Engineering Co., Ltd.
Mr. ONOZATO Tsuyoshi	Water Supply Planning 2	Yachiyo Engineering Co., Ltd.
Mr. IIJIMA Nobuyuki	Hydrogeology/Physical Prospecting	Yachiyo Engineering Co., Ltd.
Mr. KATO Itsuro	Construction Plan/Procurement Plan	Yachiyo Engineering Co., Ltd.
Mr. TAKEUCHI Ko	Environmental and Social Considerations	Yachiyo Engineering Co., Ltd.
Mr. SHIOMI Fumiaki	Cost Estimate	Yachiyo Engineering Co., Ltd.
Mr. KIMURA Keizo	Coordinator/Mechanical Facility Plan	Yachiyo Engineering Co., Ltd.

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Name	Role	Organization
Mr. OMURA Yoshiki	Leader	Senior Advisor, JICA
Mr.Takeshi Saheki	Program Officer (Planning Management)	Project Management Division Ⅲ, Grant Aid and Loan Support Development, JICA
Mr. TAKEUCHI Masahiro	Chief Consultant/Water Supply Planning/ Operation & Maintenance Planning	Yachiyo Engineering Co., Ltd.
Mr. ONOZATO Tsuyoshi	Water Supply Planning 2	Yachiyo Engineering Co., Ltd.

Appendix – 2

Study Schedule

[Basic Design Study]

No.	Date		Place	JICA Officials	Chief Consultant /Water Supply Planning /Operation &Maintenance Planning	Water Supply Planning	Water Supply Planning	Hydrogeology /Physical Prospecting	Construction Plan /Procurement Plan	Environment and Social Considerations	Cost Estimation	Coordinator /Mechanical Facility Plan
				Mr.Ohmura /Mr.Muraka	M. Takeuchi	Seno	Onozato	Iijima	Kato	K. Takeuchi	Shiomi	Kimura
1	12-Mar	Wed		Departure from Narita Arriving at Honiara			Departure from Narita Arriving at Honiara					
2	13-Mar	Thu	Honiara									
3	14-Mar	Fri	Honiara	Meeting at JICA,Courtesy call to Embassy of Japan, Ministry of Mines, Energy and Rural Electrification (MMERE) and SIWA			Meeting at JICA,Courtesy call to Embassy of Japan, Ministry of Mines, Energy and Rural Electrification (MMERE) and SIWA					
4	15-Mar	Sat	Auki	Field Survey in Auki			Field Survey in Auki					
5	16-Mar	Sun	Honiara									
6	17-Mar	Mon	Honiara	Meeting with SIWA/Discussion on M/D			Discussion with SIWA -Project site -Water quality management -Inspection of existing facility -intake, pipes,water lab -Preparation for contract survey -Topology, soil investigation	Discussion with SIWA Discharge Measurement 1st				
7	18-Mar	Tue	Honiara									
8	19-Mar	Wed	Honiara	Signing M/D Report to JICA and Embassy of Japan								
9	20-Mar	Thu	Honiara	Departure from Honiara Arriving in Japan								
10	21-Mar	Fri	Honiara		Discussion with SIWA	Departure from Narita Arriving at Honiara						
11	22-Mar	Sat	Honiara									
12	23-Mar	Sun	Honiara		Analysis of collected data							
13	24-Mar	Mon	Honiara		Discussion with SIWA -latest data -ADB project	Preparation for contract survey: -topography -soil investigation	Request for water analysis to SIWA Survey for project site	Physical prospecting				Departure from Narita Arriving at Honiara
14	25-Mar	Tue	Honiara									
15	26-Mar	Wed	Honiara									Inspection of existing facility
16	27-Mar	Thu	Honiara									
17	28-Mar	Fri	Auki		Inspection of existing facility, investigation of water quality in Auki							Inspection of existing facility
18	29-Mar	Sat	Honiara									

No.	Date		Place	JICA Officials	Chief Consultant /Water Supply Planning /Operation&Maintenance Planning	Water Supply Planning	Water Supply Planning	Hydrogeology /Physical Prospecting	Construction Plan /Procurement Plan	Environment and Social Considerations	Cost Estimation	Coordinator /Mechanical Facility Plan
				Mr.Ohmura /Mr.Muraka	M. Takeuchi	Seno	Onozato	Iijima	Kato	K. Takeuchi	Shiomi	Kimura
19	30-Mar	Sun	Honiara		Analysis of collected data							Analysis of collected data
20	31-Mar	Mon	Honiara		Discussion with SIWA Acquisition of latest date for basic planning	Report to JICA※1	Water treatment test on SIWA's Lab.	Physical prospecting				Inspection of existing facility Survey for project site -Well -Water treatment
21	1-Apr	Tue	Honiara/Auki			Field survey -Topography -Soil investigate		Physical prospecting				
22	2-Apr	Wed	Honiara						Departure from Narita Arriving at Honiara			
23	3-Apr	Thu	Honiara					Physical prospecting				
24	4-Apr	Fri	Honiara						Collection of informations,Discussion with SIWA			
25	5-Apr	Sat	Honiara									
26	6-Apr	Sun	Honiara		Analysis of collected data							
27	7-Apr	Mon	Honiara		Study for requested facility Collection of O&M data	Study for requested facility Acquisition of field survey data	Study for requested facility Water treatment test on SIWA's Lab.	Physical prospecting	Survey for project site	Field survey on project site	Collection of design standard,law, local execution circumstance	Study for requested facility
28	8-Apr	Tue	Honiara									
29	9-Apr	Wed	Honiara									
30	10-Apr	Thu	Honiara									
31	11-Apr	Fri	Honiara/Auki					Physical prospecting	Survey for construction	Field survey on project site	Survey for construction cost	
32	12-Apr	Sat	Honiara									
33	13-Apr	Sun	Honiara		Analysis of collected data							
34	14-Apr	Mon	Honiara		Preparation for field report Discussion with SIWA	Preparation for field report Discussion with SIWA	Preparation for field report Discussion with SIWA	Physical prospecting	Survey for procurement and construction conditions	Preparation for field report Discussion with SIWA	Collection of unit price for local materials	Preparation for field report Discussion with SIWA
35	15-Apr	Tue	Honiara									
36	16-Apr	Wed	Honiara									
37	17-Apr	Thu	Honiara									
38	18-Apr	Fri	Honiara		Signing the field report, Repot to JICA and Embassy of Japan		Supplementary survey			Supplementary survey		Supplementary survey
39	19-Apr	Sat	Honiara		Departure from Honiara Arriving in Japan	Supplementary survey						
40	20-Apr	Sun	Honiara			Analysis of collected data						

No.	Date		Place	JICA Officials	Chief Consultant /Water Supply Planning /Operation&Maintenance Planning	Water Supply Planning	Water Supply Planning	Hydrogeology /Physical Prospecting	Construction Plan /Procurement Plan	Environment and Social Considerations	Cost Estimation	Coordinator /Mechanical Facility Plan
				Mr.Ohmura /Mr.Muraka	M. Takeuchi	Seno	Onozato	Iijima	Kato	K. Takeuchi	Shiomi	Kimura
41	21-Apr	Mon	Honiara			Supplementary survey		Discharge Measurement 2nd	Survey for procurement and construction conditions	Study for countermeasures Discussion with SIWA	Collection of unit price for local materials	Supplementary survey
42	22-Apr	Tue	Honiara									Departure from Honiara Arriving in Japan
43	23-Apr	Wed	Honiara									
44	24-Apr	Thu	Honiara			Confirmation of contract survey progress	Departure from Honiara Arriving in Japan					
45	25-Apr	Fri	Honiara									
46	26-Apr	Sat	Honiara									
47	27-Apr	Sun	Honiara			Analysis of collected data		Analysis of collected data	Departure from Honiara Arriving in Japan			
48	28-Apr	Mon	Honiara			Departure from Honiara Arriving in Japan		Supplementary survey				
49	29-Apr	Tue	Honiara									
50	30-Apr	Wed	Honiara									
51	1-May	Thu	Honiara									
52	2-May	Fri	Honiara									
53	3-May	Sat	Honiara									
54	4-May	Sun	Honiara					Departure from Honiara Arriving in Japan				
55	5-May	Mon										

※1: Report to JICA concerning contract survey on topographic survey and soil investigation.

Activity in Auki.

[Draft Final Explanation]

Date		JICA officials (Omura, Saheki)	Consultant team (Takeuchi, Onozato)
4 Oct	Sat	Leave Japan	
5 Oct	Sun	Arrive in Honiara	
6 Oct	Mon	Meeting at JICA Courtesy Call to Embassy of Japan, Courtesy Call to Ministry of Mine & Energy, Courtesy Call to Solomon Islands Water Authority (SIWA)	
7 Oct	Tue	Meeting with MMERE and SIWA	
8 Oct	Wed	Meeting with MMERE and SIWA Site Visit	
9 Oct	Thu	Sign MM Report to JICA, Embassy of Japan	
10 Oct	Fri	Leave Honara	Additional Study
11 Oct	Sat	Arrive in Japan	Additional Study
12 Oct	Sun		Leave Honara
13 Oct	Mon		Arrive in Japan

Appendix – 3

List of Parties Concerned in the Recipient Country

List of Parties Concerned in the Recipient Country

Organization	Name
Ministry of Mines, Energy and Rural Electrification (MMERE)	
Permanent Secretary	Mr. Tione Bugotu
Ministry of Development Planning and Aid Coordination	
Permanent Secretary	Mrs. Jane Waetara
JICA Aid Advisor, Aid Coordination Unit	波方　望(Ms)
Solomon Islands Water Authority (SIWA)	
General Manager	Mr. John Waki
Manager, Engineering Services Division	Mr. Ray Andersen
Manager, Finance & Sales Division	Mr. Roger Townshend
Manager, Support Services Division	Mr. Reuben Tovutovu
Senior Officer, Sales & Customer Service Department	Mrs. Freda Unusi
Senior Officer, Accountant Department	Mrs. Hazel Hamutagi
Manager, Province Department	Mr. Silas Talosui
Manager, Water Supply Department	Mr. Chris Meriko
Manager, Wastewater Department	Mr. Eric Unga
Manager, Environmental Department	Mr. Jacob Houtarau
Manager, Planning & Design Department	Mr. Allan Lilia
Supervisor, Auki Branch Office	Mr. Benjamin Billy
Works Officer, Auki Branch Office	Mr. Charles Fox Salo
Ministry of Housing, Land and Survey	
Commissioner of Lands	Mr. Joseph Pinita
Assistant Commissioner of Lands	Ms. Agnes
Director of Physical Planning Unit	Mr. Harry
Manager of National Geographic Information Centre	Mr. Jimmy Ikina
Director of Nothern Region National Land Centre	Mr. Bob Waitara
Land Valuer (Valuer General)	Mr. Stanley Waleanisia
Ministry of Environment, Conservation and Meterology	
Director	Mr. Joe Horokou
Flecher Kwaimani Joint Venture	
Manager	Mr. John Mulholland
Hocking Construction & Joinery Ltd.	
Managing Director	Mr. Peter Hocking
Nawae Construction Ltd.	
Managing Director	Mr. Jukius Violaris

List of Parties Concerned in the Recipient Country

Organization	Name
Islanders Road Works Ltd.	
Manager	Mr. Jack Temaua
Energy Services Company	
Manager	Mr. Eddie Gaza
Embassy of Japan in Egypt	
Charge d'Affaires a.i.	Mr. Akira Iwanade
First Secretary	Mr. Hiroaki Fujiwara
Resercher/Advisor	Ms. Izumi IWAOKA
JICA Solomon Islands Office	
Resident Representative	Mr. Tokuro Watanabe
Project Formulation Advisor	Mr. Yoshihiko Nishimura

Appendix – 4

Minutes of Discussions

MINUTES OF DISCUSSIONS
ON THE BASIC DESIGN STUDY
ON THE PROJECT FOR IMPROVEMENT OF WATER SUPPLY SYSTEM
IN HONIARA AND PROVINCIAL CENTERS
IN THE SOLOMON ISLANDS

Based on the results of the Preliminary Study, the Government of Japan decided to conduct a Basic Design Study on the Project for Improvement of Water Supply System in Honiara and Provincial Centers (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Solomon Islands the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Omura, Senior Advisor, Institute for International Cooperation, JICA, and is scheduled to stay in the country from 13th March to 4th May.

The Team held a series of discussions with the officials concerned of the Government of Solomon Islands and conducted a field survey at the study area.

In the course of discussions and field survey, both parties confirmed the major items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Honiara, 19th March 2008

Mr. Omura Yoshiki
Leader
Basic Design Study Team
Japan International Cooperation Agency

Mr. Tione Bugotu
Permanent Secretary
Ministry of Mines, Energy
and Rural Electrification

Mr. John Waki
General Manager
Solomon Islands Water Authority

SOLOMON ISLAND WATER AUTHORITY THE COMMON SEAL OF

ATTACHMENT

1. Objectives of the Project

The objectives of the Project are as follows:

-To realize stable and safe water supply by upgrading water supply systems in the Project sites and improve living standards of the residents,

-To expand the water distribution networks and water supply to the unserved area, and

-To reduce water leakage by replacing distribution mains.

2. Project Sites

The Project sites are located in Honiara and Auki cities.

3. Responsible and Implementing Agency

3-1 The responsible agency is the Ministry of Mines, Energy and Rural Electrification (MMERE).

3-2 The implementing agency is the Solomon Islands Water Authority (SIWA).

4 Items requested by the Government of Solomon Islands

After discussions with the Team, the construction of the water supply facilities described in Annex-1 were finally requested by the Solomon Islands.

The Solomon Islands side indicated that the Honiara component is prioritized.

JICA will assess the appropriateness of the request and will report the findings to the Government of Japan.

5 Japan's Grant Aid Scheme

The Solomon Islands side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Solomon Islands as explained by the Team and described in Annex-2 and Annex-3 of the Minutes of Discussions signed by both parties on 2nd August 2007.

6 Schedule of the Study

6-1 The consultants will proceed to further studies in the Solomon Islands until 4th May 2008.

6-2 JICA will prepare the draft report in English and dispatch a mission in order to explain its contents around September 2008.

6-3 In case that the content of the report is accepted in principle by the Government of Solomon Islands, JICA will finalize the report and send it to the Government of Solomon Islands by December 2008.

7 Other relevant issues

7-1 Land acquisition for construction sites

The Solomon Islands side expressed its commitment to secure all the required land for the Project in its letter addressed to JICA Solomon Islands Office dated 14th December 2007 as attached in Annex-4.

The Team explained that exact location of facilities of the Project will be identified by the Team and informed the Solomon Islands side by the end of March 2008. The Solomon Islands side assured that land acquisition would be pursued with the Ministry of Lands, on being informed by the Team of exact locations of the project sites, including right of way for pipelines. The Solomon Islands side also agreed to inform the Team necessary procedures and time schedule for relocating a current occupant(s), either legal or unauthorized, in the project sites and/or contracting with a land owner(s) whose premises is leased in part or all for the project site.

7-2 Environmental and social considerations

The Solomon Islands side had provided JICA with a copy of the "DEVELOPEMENT CONSENT" issued by Environment and Conservation Division dated 6th November 2007, which is attached in Annex-5, stating that the implementation of the Project does not require any other environmental study.

The Solomon Islands side explained about stakeholder meetings of the Project as follows:

- Stakeholder meetings were held four times in Honiara, including once in Kongulai Spring area and once in Auki.
- There was no negative opinion presented in all of the stakeholder meetings.
- SIWA assured to submit the minutes of discussions and participants lists of stakeholder meetings to the Team.

The Team requested SIWA to hold another stakeholder meeting in case the Team finds the necessity of another stakeholder meeting after analysis on minutes of discussions and participants lists. The Solomon Islands side agreed it.

The Team expressed its concern about necessary relocation of a kiosk(s), in the project site, which the preliminary study team found.

The Solomon Islands side explained that they will amicably solve the issue with a kiosk owner(s).

Both sides agreed to discuss on the procedures for evacuation of the shop owners and countermeasures such as evasion and mitigation against negative impacts after their evacuation.

7-3 Unit water consumption

Both sides confirmed that per capita per day consumption for the Project is 164 liters/cap/day for Honiara and 160 liters/cap/day for Auki, which have been obtained from the survey results of JICA development study conducted in 2006, and considered as appropriate parameters for the Project.

The Team stated that the consumptions are almost the same or lower than those of major South Pacific countries.

However, both sides agreed that those per capita per day consumptions should be reviewed and finalized after the further study in the basic design study.

7-4 ADB Project in Auki

The Solomon Islands side explained that the ADB project (Post Conflict Emergency Rehabilitation Project) in Auki is in progress:

-200mm dia. pipeline (remaining 300m to install)

-450m^3 steel tank to be erected (half of RC basement complete)

The ADB project is scheduled to complete by the end of April 2008.

The Team emphasized that completion of ADB project in Auki is a prerequisite for implementation of the Project components in Auki. The Solomon Islands side understood that the Project components of Auki might be excluded from the Project if the ADB project failed to complete by the end of July 2008. SIWA will inform JICA Solomon Islands Office of the completion of the ADB project in writing.

7-5 Items to be executed by the Solomon Islands side

The Team explained that the items to be executed by the Solomon Islands side are as follows:

1) To implement necessary works for supplying electricity to the facilities to be constructed in the Project such as borehole pumps, booster pumps, water treatment facilities, etc.,
2) To execute removal of the existing facilities such as replacing service reservoirs and Kongulai raw water pump house for construction of the proposed facilities,
3) To make a proper access road to a well drilling site(s) in Auki prior to the commencement of the Project,
4) To execute installation of tertiary water distribution pipelines and house connections in case that the Japanese side implements construction of water distribution mains for the unserved areas, and
5) To practice regular monitoring of water level and water quality of groundwater at all the borehole pump stations.

7-6 National plan and position of the Project

The Solomon Islands side explained the national plan is as follows:

-Ministry of Mines and Energy (present "MMERE") had requested the Project for Japan's Grant Aid in line with the "National Economic Recovery, Reform and Development Plan (NERRDP) 2003-2006", which says "Improving urban water supply and sewerage disposal systems and the capacity of SIWA to deliver",

-Although NERRDP expired at the end of 2006, with the formation of a new government in December 2007, a new national plan under the "Coalition for National Unity and Rural Advancement" (CNURA) was developed and to be implemented in the period 2008 to 2010.

-The water sector remains the same as one of the prioritized national policies to realize stable supply of safe drinking water to all nationals.

7-7 Project title

Both sides agreed that the Project title will be modified on the basis of the components of the Project in the next study scheduled for September 2008.

7-8 Overlap with other projects

The Solomon Islands side explained that the Project would not overlap in part or whole of any other project(s) extended by other donor agencies, NGO and the Government of Solomon Islands.

Items requested by the Government of Solomon

No.	Component	Description
A. Honiara		
1	Water Source Development	
	(1) borehole drilling works	16 boreholes, 100m deep x 200mm dia. casing
	(2) procurement of submersible-motor well pumps	20 units, 800m3/day x 45m head
	(3) water conveyance pipeline	150mm dia. PVC x 6.2 km
	(4) borefield collector tank	4 tanks (3 x 100m3, 1 x 150m3)
	(5) stand-by power generators	4 units
2	Water Treatment Facilities	
	(1) disinfection plants	7 places, 2,400 to 4,400 m3/day each
	(2) intermediate water treatment facilities	3 places, 2,000 to 4,300 m3/day each
3	Booster Pumping Stations	
	(1) Tasahe borefield	3 units, 1,600m3/day x 80m head
	(2) Titinge borefield	3 units, 1,600m3/day x 80m head
	(3) Skyline borefield	3 units, 1,600m3/day x 60m head
	(4) Naha/Vura borefield	3 units, 1,600m3/day x 40m head
4	Water Distribution Reservoirs	
	(1) Upper Tasahe reservoir	1,600m3 (additional)
	(2) Titinge reservoir	1,400m3 (replacement)
	(3) Skyline reservoir	1,550m3 (additional)
	(4) Lower West Kolaa reservoir	455m3 (replacement)
	(5) Panatina reservoir	2,000m3 (additional)
5	Water Transmission and Distribution Mains	50 to 300mm dia. aprox. 28.2km
B. Auki		
1	Water Source Development	
	(1) borehole drilling works	2 boreholes, 100m deep x 200mm dia. casing
	(2) procurement of submersible-motor well pumps	3 units, 800m3/day x 120m head
	(3) water conveyance pipeline	150mm dia. PVC x approx. 300m
	(4) stand-by power generator	1 unit

JAPAN'S GRANT AID

Japan's Grant Aid Scheme

The Grant Aid scheme provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

(1) Grant Aid Procedures

Japan's Grant Aid Program is executed through the following procedures:

• Application	(Request made by a recipient county)
• Study	(Basic Design Study conducted by JICA)
• Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
• Determination of Implementation	(The Notes exchanged between the Governments of Japan and the recipient country)

Firstly, the application or a request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for the Grand Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Scheme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes (E/N) signed by the Governments of Japan and the recipient country.

Finally, for the smooth implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

(2) Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereafter referred to as "the Study") conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

i) Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country

necessary for the Project's implementation.

ii) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.

iii) Confirmation of items agreed upon by both parties concerning the basic concept of the Project.

iv) Preparation of a Basic Design of the Project,

v) Estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure it's self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA.

The consulting firm(s) used for the Study is (are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

(3) Japan's Grant Aid Scheme

1) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

2) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consulting .firm(s) and (a) contractor(s) and final payment to them must be completed.

However in case of delays in delivery, installation or construction due to unforeseen factors such as natural disaster, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

3) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However the prime contractors, namely, consulting, constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

4) Necessity of the "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

5) Undertakings required to the Government of the Recipient Country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

i) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.
ii) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.
iii) To secure buildings prior to the procurement in case the installation of the equipment.
iv) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
v) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
vi) To accord Japanese nationals, whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

6) "Proper Use"

The recipient country is required to operate and maintain the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

7) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

8) Banking Arrangement (B/A)

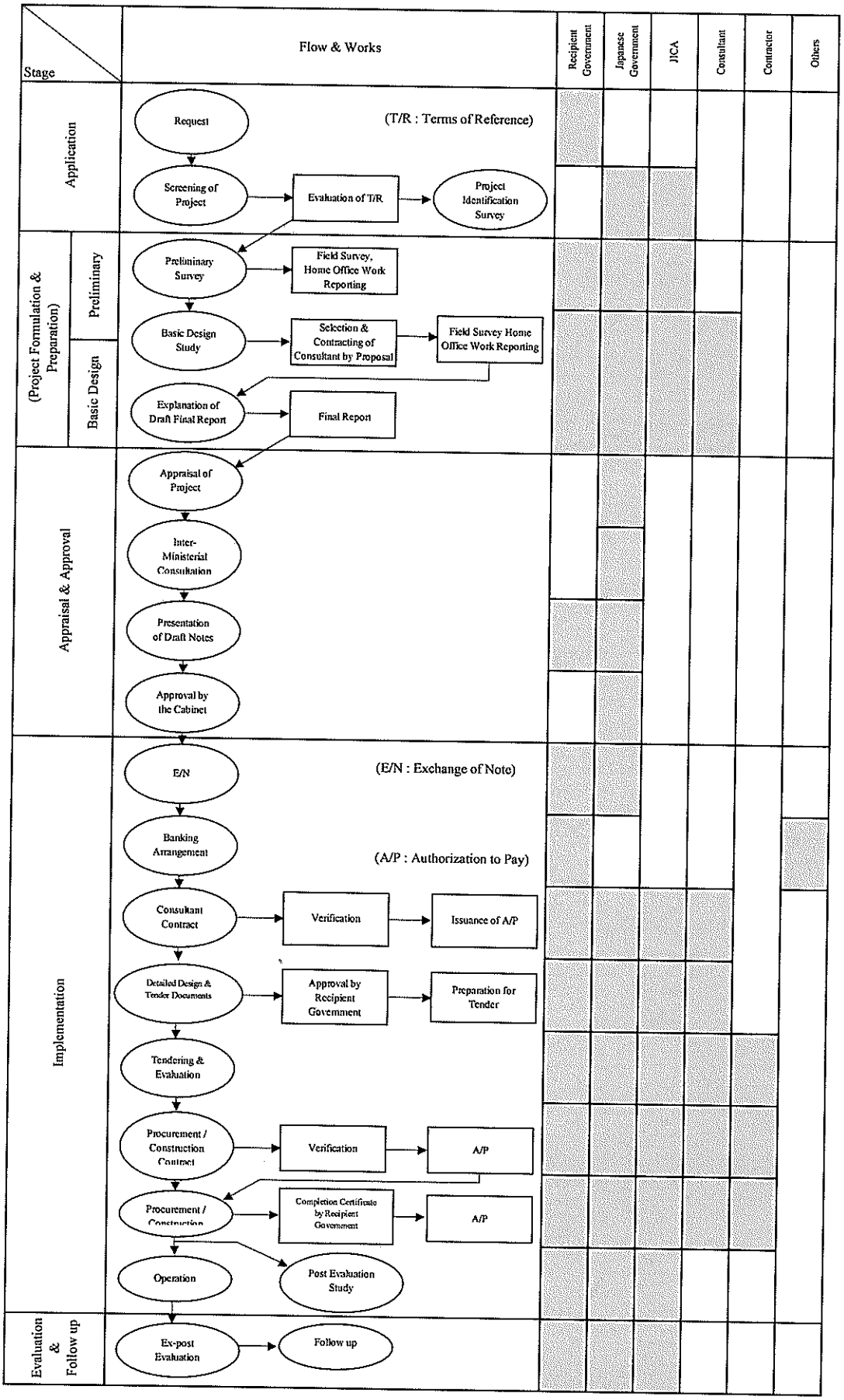
a) The Government of the recipient country or it's designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of the recipient country or it's designated authority.

9) Authorization to Pay (A/P)

The Government of the recipient country shall bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

Figure Flowchart of Japan's Grant Aid Procedures



Major Undertakings to be taken by Each Governments

No	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure land		●
2	To clear, level and reclaim the site when needed		●
3	To construct gates and fences in and around the site		●
4	To bear the following commissions to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
5	To ensure unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and customs clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	(●)	(●)
6	To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
7	To exempt Japanese nationals from customs duties, internal taxes/excise and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts		●
8	To maintain and use properly and effectively the facilities constructed and/or equipment provided under the Grant		●
9	To bear all the expenses, other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●

B/A : Banking Arrangement
A/P : Authorization to Pay

SOLOMON ISLANDS WATER AUTHORITY
PO Box 1407
Honiara
Telephone 23985 Facsimile 20723

Our ref.: 18/03/07

December 14th, 2007

The Resident Representative
JICA Solomon Islands Office
P.O. Box
HONIARA

Attention: Mr. Yoshihiko Nishimura.

Project: **The Project for Improvement of Water Supply System in Honiara and Provincial Centres in the Solomon Islands.**

Subject: **Securing of all Land Sites for Construction of New facilities under the above proposed project.**

Dear Sir,

We hereby refer to the above proposed project for which our Government had made commitment under the Exchange of Notes signed with the Government of Japan for the securing of all land sites for the construction of proposed facilities to be provided under the project.

As this matter is fundamental towards the successful implementation and completion of the proposed project, we would like to further confirm our total support and cooperation towards ensuring that all the land sites required are fully acquired and secured in time for the project development.

We are fully committed in terms of all financial and technical resources possible within our means to acquire and secure all the required land sites, as well as entering into land lease agreement with any landlords concerned for the use of their sites for the fulfilment of the project development.

Office of the General Manager
jwaki@siwa.com.sb

We therefore trust that this confirmation of our commitment on this important matter provides assurance in progressing the planning of the proposed project a step closer to realisation.

Besides, please accept our apologies for the delays in promptly confirming our position regarding this matter. Should there be further information required, please do not hesitate to contact us.

We look forward to hearing from you again on the progress of this project.

Yours sincerely,
SOLOMON ISLANDS WATER AUTHORITY

John Waki
GENERAL MANAGER

Office of the General Manager
jwaki@siwa.com.sb

THE ENVIRONMENT ACT
No 8 of 1998

DEVELOPMENT CONSENT
(Section 24(3)(a)

This DEVELOPMENT CONSENT is issued to SOLOMON ISLANDS WATER AUTHORITY (SIWA) under the approved prescribed development in terms of section 24 of the Environment Act.

The approved prescribed development is FACILITY IMPROVEMENT PLAN FOR THE WATER SUPPLY AND SEWAGE SYSTEMS OF HONIARA AND AUKI and is located in Honiara City and Malaita Province.

The following conditions shall APPLY in addition to the conditions prescribed in these Regulations and in the Act.

1. This Development Consent is valid until such time as the abovementioned approved prescribed development is completed.
2. The holder of this Development Consent shall not undertake or cause to be undertaken any other development other than that.
3. This Development Consent is non-transferable.
4. The holder of this Development, its agent, servants or officers shall permit the Director or Inspectors unhindered entry to any premises or location in which the prescribed development is situated and shall provide any assistance as the Director or Inspector may require.
5. The Director may at any time, vary or remove any conditions or restriction to this consent by notice in writing served on the holder of this consent.

Issued in HONIARA this 6TH day of November 2007

Seal

Joe Horokou
Director
Environment and Conservation Division

MINUTES OF MEETINGS

ON

THE BASIC DESIGN STUDY

ON

THE PROJECT FOR IMPROVEMENT OF WATER SUPPLY SYSTEMS IN HONIARA AND AUKI IN SOLOMON ISLANDS

(EXPLANATION OF DRAFT BASIC DESIGN REPORT)

The Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on the Project for Improvement of Water Supply Systems in Honiara and Auki (hereinafter referred to as "the Project") to the Government of Solomon Islands in March 2008. Through a series of discussions and technical examination in Japan, JICA prepared a draft basic design report (hereinafter referred to as "the Report").

In order to explain the contents of the draft basic design to the authorities of the Government of Solomon Islands, JICA dispatched the Draft Report Explanation Team (hereinafter referred to as "the Team") to Solomon Islands from 5th to 12th October 2008.

As a result of discussions, the Team and the Ministry of Mines, Energy and Rural Electrification and Solomon Islands Water Authority (hereinafter referred to as "Authorities") agreed to the main components of the Project and the matters referred to in the documents as attached hereto.

Honiara, 9th October 2008

Mr. Omura Yoshiki
Leader
Draft Design Explanation Team
Japan International Cooperation Agency
Japan

Mr. Tione Bugotu
Permanent Secretary
Ministry of Mines, Energy and Rural Electrification
Solomon Islands

Mr. John Waki
General Manager
Solomon Islands Water Authority
Solomon Islands

ATTACHMENT

1. Project title

   The title of the Project is "the Project for Improvement of Water Supply Systems in Honiara and Auki".

2. Components of the Project

   The Authorities agreed in principle on the components of the Project as shown in Annex I as attached.

3. Budgetary Arrangement

   The Team recommended for the Solomon Islands Government through the Ministry of Mines, Energy and Rural Electrification to pursue so that the cost of undertakings of the Government of Solomon Islands as indicated and agreed to under the Project to be included in the Solomon Islands Government's Development Budget for fiscal year 2009. The Ministry of Mines, Energy and Rural Electrification agreed to take immediate action and to inform JICA Solomon Islands on the budgeting progress within the month of October 2008.

4. Undertakings by the Government of Solomon Islands

   The Government of Solomon Islands shall undertake the necessary measures as shown in Annex II as attached in accordance with the provisions of the Minutes of Discussions signed on 19th March 2008, excluding Section 7-5 item 2) the existing raw water pump house and the other structures of Kongulai Spring. SIWA agreed to execute its undertakings on time of such construction and/or improvement of access roads, leveling of construction sites, relocation of the existing pipelines and electricity power lines for the pumping facilities as indicated in the Report. And immediately after the construction of the distribution trunk mains, SIWA agreed to install secondary or branch distribution pipes from the trunk mains to new service areas and the related service pipes.

5. Environmental and social considerations

   1) Lease contract of Kongulai Spring

      Conversion of the main water source from Kongulai Spring to groundwater may decrease rent to be paid to the landowners in proportion to the water intake volume at Kongulai Spring. In this regard, the Ministry of Lands, lessee of the contract, has an intention to revise the rent term to the fixed-rent basis rather than on monthly consumption rate at the review scheduled for the end of December 2008. The landowners, lessor of the contract,

were made aware of the proposed revision. SIWA explained that further action has not been taken by either of them. The Team explained that the lease agreement should be revised before the end of February 2009, or else the Project cannot be commenced. Whenever the Ministry of Land and the landowners reached an agreement, the Ministy of Land will submit a copy hereof to the JICA Solomon Islands Office through SIWA.

2) Relocation/demolition of the structures in proposed project sites

Although efforts were made to avoid or minimize the relocation or demolition of the existing structure within project sites, some relocation and demolition might be required. Therefore, SIWA agreed to examine the current situation of the existing structures located within the project sites by referring to the drawings of the Report and to relocate or demolish the obstructing structures at their own cost prior to the implementation of the Project.

3) Land acquisition for proposed project sites

The Ministry of Lands confirmed that the Commissioner of Lands received a request from SIWA regarding the various sites for the Project and explained that the office had started process to acquire the lands concerned and the Ministry of Lands would inform SIWA of the result in writing within the 3rd week of October 2008. JICA requested the Ministry of Lands and SIWA to follow up for the acquisition of the lands concerned and the results as indicated.

6. Schedule of the Study

JICA will finalize the Report in line with the confirmed contents with the Authorities and will send it to the Government of Solomon Islands by the month of December 2008.

7. Operation and Maintenance of the Facility

SIWA will arrange necessary budget and personnel for operation and maintenance as attached ANNEX III.

8. Project Cost Estimate

Both sides agreed that the Project Cost Estimate, as attached in Annex IV should never be duplicated or released to any third party before the signing of all the Contract(s) for the Project.

9. Progress of the project in Auki funded by Asian Development Bank

SIWA explained that the project in Auki funded by Asian Development Bank has been completed and SIWA is currently operating the system.

ANNEX I COMPONENTS OF THE PROJECT

[Facility Construction]

Component	Contents
[Honiara City]	
1. Borehole facility	Borehole: 16nos.(4 borefields x 4 bores/borefield) Submersible pump: 20 units. (1unit/bore x 4 bore/borefield x 4 borefields, stand-by 1 unit/borefield) Pumping capacity: 800m^3/day/unit Pump head: 65m - 85m Conveyance pipeline: 5.4km, dia. 150mm, PVC
2. Turbidity reduction facility	2 places - Kongulai Spring: 4,100m^3/day, Kombito Spring: 1,600m^3/day
3. Disinfection facility	4 places - Treatment capacity: 3,200m^3/day for each place
4. Water transmission pump station	4 places - 1,600m^2/day x 2 unit (duty), 1 unit stand-by for each station
5. Distribution reservoir	5 reservoirs (Tasahe-1,700m^3, Titinge-1,300m^3, Lower West Kolaa-450m^3, Skyline-1,800m^3, Panatina-2,100m^3)
6. Water transmission & distribution pipeline	Water transmission pipe: 4.1km, dia. 250mm Water distribution pipe: 22.9km, dia. 50mm - 200mm
7. Power receiving equipment	Power receiving equipment, transformer
8. Emergency generator	Diesel engine generator
9. Associated civil & building works	Water transmission pump house, chlorination injection house
[Auki City]	
1. Borehole facility	Borehole: 2 nos. (1 borefields x 2 bores/borefield) Submersible pump: 3 units (1 stand-by) Pumping capacity: 400m^3/day/unit Pump head: 105m Conveyance pipeline: 0.4km, dia.150mm, PVC
2. Power receiving equipment	Power receiving equipment, transformer
3. Emergency generator	Diesel engine generator
4. Associated civil & building works	Electrical house

[Soft Component]

Item	Contents
Technical guidance on monitoring and controlling of flow, water pressure and water quality at water supply facilities	• Understanding monitoring and controlling method at water supply facilities • Acquiring knowledge for monitoring and controlling to conduct proper operation and maintenance of water supply facilities • Utilizing the acquired knowledge in routine work
Technical guidance on O&M method for water supply facilities by utilization of collected records and data	• Understanding records and data necessary for operation and maintenance of water supply facilities • Acquiring method for analyzing records and data obtained in the routine work • Utilizing the records and data in operation and maintenance work

ANNEX II UNDERTAKINGS BY THE GOVERNMENT OF SOLOMON ISLANDS

1. To explain about the Project to the residents living near the facility construction site and hold a stakeholder meeting;
2. To secure the land for construction site of the Project facilities through proper legal procedures;
3. To remove the existing facilities and materials from the planned construction sites and to level the land prior to the commencement of construction by the Japanese side;
4. To undertake fence and gates in and around borehole stations, transmission pump stations, distribution reservoir sites, etc.;
5. To supply power necessary for pumping equipment at such as boreholes (the voltage shall be 11kV in Honiara and the voltage for Auki city shall be 415V. Power receiving equipment shall be the scope of the Japanese side);
6. To execute construction and improvement of access roads to the construction sites for the Project facilities;
7. To secure quarry site for sand and gravel;
8. To secure temporary yard for construction materials in Honiara City and Auki City;
9. To secure sites for concrete batching plant and crusher plant in Honiara City;
10. To obtain permit from the authorities related to pipe laying work;
11. To lay distribution pipes in the new served areas where water distribution mains are to be constructed under the Project and service pipes necessary for new customers;
12. To supply chemicals disinfectant;
13. To assign engineers, staff and operators to receive OJT for improvement of O&M and water quality control and Soft Component (technical and/or managerial assistance) for the proper operation and maintenance for turbidity reduction facility to be constructed under the Project;
14. To use and maintain properly and effectively all the facilities constructed, and equipment and materials provided under the Japan's Grand Aid;
15. To take necessary procedures for issue of A/P required for payments to the Japanese Consultant and/or Contractor(s) and to bear the following commissions to a bank in Japan for the banking services based upon the Banking Arrangement;
    - Advising commission of A/P
    - Payment commission
16. To ensure prompt unloading and customs clearance of the goods for the Project at the port

of disembarkation in Solomon Islands;

17. To accord Japanese nationals whose services may be required in connection with the supply of products and services under the verified contract(s) such facilities as may be necessary for their entry into Solomon Islands and stay therein for the performance of their works;
18. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies, which may be imposed in Solomon Islands with respect to the supply for the products and services under the verified contract(s). And to take necessary measures for such tax exemption;
19. To bear all the expenses, other than to be borne by the Grant Aid, necessary for construction of the facilities as well as for the transportation and installation of the equipment;
20. To immediately remove and reinstall pumps and electrical equipment to the new Kongulai pump building to be constructed by the Japanese Side.

ANNEX III BUDGET AND PERSONNEL FOR OPERATION AND MAINTENANCE

1. Number of SIWA O&M Staff after Completion of the Project

Required additional number of staff for operation and maintenance (O&M) of the facilities to be constructed under the Project is estimated as follows:

Job Title	Facilities in Charge after Completion of the Project	Current Number of Staff	**Required Additional Number of Staff**	**Number of Staff after Completion of the Project**
Plumber	Piping work for turbidity reduction facility, borehole facility, water conveyance pipeline, water transmission pipeline and water distribution network	7	**2**	**9**
Ordinary labor	Not specified	6	--	**6**
Carpenter	Not specified	1	--	**1**
Electrician	18 nos. of borehole (16 in Honiara and 2 in Auki), 4 nos. of water transmission pump station, 6 nos. of disinfection facility, 2 nos. of turbidity reduction facility	2	**1**	**3**
Pump operator	16 nos. of borehole, 4 nos. of water transmission pump station, 6 nos. of disinfection facility, 2 nos. of turbidity reduction facility	2	**3**	**5**
Construction equipment operator	Not specified	2		**2**
Water quality analysis staff	18 nos. of borehole, 4 nos. of water transmission pump station, 2 nos. of turbidity reduction facility	1	**2**	**3**
Total		21	**8**	**29**

2. Additional Budget for O&M of Facilities to be constructed under the Project

Additional budget required for O&M of facilities to be constructed under the Project is estimated as follows:

Item	Expected Expenses							
1. Electricity Cost	Equipment	A	B	C	D (A x B x C)	E (D x 365/year)	F	G (E x F)
		Output (kW)	Number in duty (unit)	Operation hour (hr/day)	Daily power consumption (kWh/day)	Annual power consumption (kWh/year)	Electricity charges (SBD/kWh)	Annual Expenses (SBD)
	Borehole pumps	15	5	24	1,800	657,000	3.9866	2,619,196
		13	7	24	2,184	797,160	3.9866	3,177,958
		11	4	24	1,056	385,440	3.9866	1,536,595
		9.2	2	24	442	161,184	3.9866	642,576
	Transmission pumps							
	- Tasahe station	30	2	24	1,440	525,600	3.9866	2,095,357
	- Titinge station	30	2	24	1,440	525,600	3.9866	2,095,357
	- Skyline station	22	2	24	1,056	385,440	3.9866	1,536,595
	- Borderline station	11	2	24	528	192,720	3.9866	768,298
	Existing Konglai uplifting pump	55	3	24	-3,960	-1,445,400	3.9866	-5,762,232
	Other equipment	142	---	---	142	51,830	3.9866	206,625
	Total					2,236,574		8,916,326
2. Chlorination Cost	Item	A	B	C (A x B)	D (C x 365/year)	E		F (D x E)
		Injection (kg/hr)	Operation hour (hr/day)	Daily consumption (kg/day)	Annual consumption (Ton/year)	Unit price of chlorine (SBD/Ton)		Annual Expenses (SBD)
	Chlorine	---	---	46	16.8	14,175		237,998
3. Personnel Expenses	Item	A	B	C (A/B)	D			E
		Total salary (SBD/year)	Total number of employee (person)	Annual average (SBD/person·year)	Additional staff (person)			Annual Salary (SBD)
	Salary & wages	2,663,580	75	35,514	8			284,115
4. Spair Parts Cost	Item	A	B					C (A x B)
		Price of equipment (SBD)	Ratio for spair parts (%/year)					Annual Expenses (SBD)
	Spair Parts	18,318,750	0.03					549,563
	Sum of expenses to be increased after completion of the Project							**9,988,002**
Revenue Increase	Item	A	B	C	D			E
		Sold water (Year 2007) (m^3/year)	Sold water (Year 2010) (m^3/year)	Increase of sold water [B]−[A] (m^3/year)	Averaged water charge (SBD/m^3)			Increase of Water Revenue [C] x [D] (SBD/year)
	Honiara City	5,448,833	6,913,465	1,464,632	6.50			9,520,108
	Auki City	118,100	254,405	136,305	6.00			817,830
	Sum of revenue to be increased after completion of the Project							**10,337,938**
	Balance between revenue and expenses after completion of the Project							**349,936**

Appendix – 5

Soft Component (Technical Assistance) Plan

THE PROJECT FOR
IMPROVEMENT OF WATER SUPPLY SYSTEM
IN
HONIARA AND AUKI
IN
SOLOMON ISLANDS

PLAN FOR SOFT COMPONENT

DECEMBER 2008

JAPAN INTERNATIONAL COOPERATION AGENCY

Yachiyo Engineering Co., Ltd

Contents

PLAN FOR SOFT COMPONENT

1. Background for Planning Soft Component

The Project aims at securing safe and stable water supply through development of new water source (new groundwater wells), construction of settling tank for turbidity reduction for eliminating turbid water in the network during and after heavy rain, construction of new water reservoirs and establishment of block distribution system.

SIWA, management authority for conducting operation and maintenance of the facilities to be constructed in the Project, has been doing operation and maintenance of the existing water supply facilities. However, they are facing with the following issues:

(1) Establishment of Daily Control System for Water Quality

SIWA has basic skills for water quality analysis. However, they do not have water quality control system including daily water quality monitoring system and communication system when water quality exceeds its standard. They are required to establish water quality control system consisting of defining water quality items to be analyzed/frequency of analysis/sampling points, keeping and sorting-out of data, diagnosis for abnormal cases, procedures for taking actions in case of emergency, etc.

(2) Control of Water Distribution Volume and Water Pressure in Water Supply System

Since SIWA has not conducted water distribution control according to the water distribution volume and water pressure, a part of the distribution districts are suffering from extremely low pressure. For coping with this problem, block distribution system will be adopted for stabilizing water distribution volume and water pressure.

In order for SIWA to implement an appropriate control for water distribution volume and water pressure in the service areas, it is required for SIWA to do water distribution and water pressure control in each block of distribution districts.

(3) Economical Operation for Facilities

Since rising price of electric power is affecting financially for SIWA's management, economical operation of facilities based on water demand and water quality is required to minimize the cost for operating pump equipment and chlorine disinfection equipment.

Furthermore, SIWA has no experience with operation and maintenance for settling basin for turbidity reduction. Issues mentioned in items 1) to 3) above are related each other and they can be

summarized as three issues of “understanding of water supply system”, “learning method for operation and maintenance of water supply system” and “learning method for taking record, sorting out and utilizing of water quality and quantity data”.

Technical assistance to cope with the above-mentioned issues is required to SIWA for at least securing sustainability of outputs from the Project.

2. Objectives of the Soft Component

Among SIWA staff, 15 staff of water supply section of engineering service department shall achieve the following objectives:

- Understanding water supply system
- Conducting operation and maintenance for water supply system
- Taking record, sorting out and utilizing of water quality and quantity data

3. Outputs from the Soft Component

Outputs from the Soft Component are as follows:

(1) Understanding of water supply system

- ✓ Water supply system from borehole facilities to water transmission pump station and distribution reservoir is understood.
- ✓ Treatment process and functions for settling basin for turbidity reduction is learned.

(2) Learning method for operation and maintenance for water supply system

- ✓ Necessity for stopping water intake based on water quality of raw water can be judged.
- ✓ Monitoring and control based on water quality/quantity of raw water and water quality /water demand of distributed water can be conducted.
- ✓ Injection of disinfection agent can be done properly.
- ✓ Monitoring and control for water quality and quantity of distributed water can be conducted.

(3) Learning method for taking record, sorting-out and utilizing of water quality and quantity

- ✓ Taking record, sorting-out and utilizing of water quality and quantity of raw water into settling basin for turbidity reduction can be conducted.
- ✓ Taking record and sorting-out of data for water intake, water transmission and water distribution volumes can be conducted. Then, based on those data, demand projection of water distributed can be conducted and plans for required water transmission volume and operating control of water distribution can be formulated.
- ✓ Taking record, sorting-out and utilizing of data for water quality and water pressure of

distributed water can be done.

4. Methods for Confirming Achievement of Outputs

Achievement level of outputs from the Soft Component shall be examined by confirming acquirement level of knowledge and improvement level of routine works by utilizing acquired knowledge.

- Acquirement level of knowledge : Short tests will be done at the end of training.
- Improvement level of routine works : It will be evaluated by monitoring actual works.

Methods for examining achievement level of outputs from the Soft Components are described in Table 1.

Table 1 Methods for Confirming Achievement of Outputs

Item	Output	Method for Confirming Achievement
Understanding of water supply system	Understand water supply system from water source facilities to water distribution facilities ➢ Flow sheet of water supply system from water source facilities to water distribution facilities can be prepared.	Conducting short tests (80% mark or more)
	Understand functions of settling basin for turbidity reduction	Conducting short tests (80% mark or more)
Learning operation & maintenance method for water supply facilities	Learning water intake control from water source based on water quality of raw water ➢ Measuring turbidity of water source and stopping water intake in an emergency case can be done.	Achievement level shall be judged by the Japanese consultant.
	Learning monitoring and control for each facility ➢ Operation according to water quality/quantity of raw water and water demand of service areas can be done.	Conducting short tests (80% mark or more)
	Learning appropriate injection method for disinfection agent ➢ Proper dilution of sodium hypochlorite, calculation of its concentration and injection volume of its solution, and measurement of residual chlorine can be done.	Conducting short tests (80% mark or more)
	Learning monitoring and control method for water quality and water pressure of distributed water	Achievement level shall be judged by the Japanese consultant.
Learning record & control and utilization method for water quality and quantity data	Learning operation by taking data for water quality and quantity of raw water and utilization of the data ➢ Operation control sheet and conduct daily/weekly inspections can be done. ➢ Prepare monthly report compiling data obtained by inspections can be done.	Achievement level shall be judged by the Japanese consultant.
	Learning operation by taking data for volumes of water intake, water transmission and water distribution ➢ Operation control sheet and conduct daily/weekly inspections can be done. ➢ Prepare monthly report compiling data obtained by inspections can be done.	Achievement level shall be judged by the Japanese consultant.
	Learning operation by taking water quality and water pressure for distributed water ➢ Operation control sheet and conduct daily/weekly inspections can be done. ➢ Prepare monthly report compiling data obtained by inspections can be done.	Achievement level shall be judged by the Japanese consultant.

At the time of execution of soft component, the construction of the facilities would have been completed and operation of facilities would have started. Practical training using actual data is conducted during the training period, and the results of this training are used for confirmation of the achievement of outputs.

5. Soft Component Activities (Input Plan)

(1) Contents of the Soft Component

Trainings shown in Table 2 shall be conducted.

Table 2 Training Schedule (Draft)

	Contents for Training	Schedule(day)														
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th
Understanding of water supply system	Introduction of water supply system	▒														▒	▒
	Process on settling basin for turbidity reduction	▒														▒	▒
Operation and Mentenace of water supply system	Water quality management for water source	▒	■	■	■	■	■	■	■	■	■	■	■	■	■	▒	▒
	Operation and maintenance on intake, tranmisson	▒	■	■	■	■	■	■	■	■	■	■	■	■	■	▒	▒
	and distribution facilities																
	Management of disinfection	▒	■	■	■	■	■	■	■	■	■	■	■	■	■	▒	▒
	Management of water quality and pressure on tap	▒	■	■	■	■	■	■	■	■	■	■	■	■	■	▒	▒
Records, management and utirization of water quality and flow rate data	Arranging operation data on settling basin for turbidity reduction	▒	▒													▒	▒
	operation and maintenace using data			■	■	■	■	■	■	■	■	■	■	■	■		
	Arranging date on intake, transmission, distribution and service pipe	▒	▒													▒	▒
	operation and maintenace using data			■	■	■	■	■	■	■	■	■	■	■	■		
	Arranging data on water quality and pressure	▒	▒													▒	▒
	operation and maintenace using data			■	■	■	■	■	■	■	■	■	■	■	■		

▒ Lecture/Test
■ Practice

(2) Trainer for the Soft Component

As trainers for the Soft Component, two (2) engineers of Japanese consulting firm will be allocated. Working items by the Japanese consultants are as follows:

- ✓ Preparing training plan
- ✓ Preparing text books (several kinds of manuals) to be used during training
- ✓ Preparing tools for sorting out the data for water quality and quantity by MS-Excel
- ✓ Conducting lectures and on-site (or practical) training
- ✓ Evaluation of training outputs (preparing report)

(3) Targeted Trainee

Targeted trainees are the following staff and they will be the staff of water supply section of engineering service department of SIWA.

- ✓ Persons-in-charge who will work for operation and maintenance of the facilities to be constructed in the Project
- ✓ Staff who has received OJT for operation of the facilities to be constructed in the Project

6. Procurement of Execution Resources of the Soft Component

Most of the materials and equipment to be applied for the construction of settling tank for turbidity reduction, borehole facilities and water transmission pump station will be procured from Japan. Therefore, direct-assistant scheme by the Japanese consultant who is familiar with those materials and equipment shall be applied for the Soft Component.

7. Implementation Schedule of the Soft Component

Since the Soft Component is required to be conducted using the facilities constructed in the Project, it will be implemented at the time around handing-over of the facilities to the Solomon Islands side.

Tentative implementation schedule for the Soft Component for the Project is shown in Table 2-2-54. The implementation schedule shall be planned so as to minimize the involvement of the Japanese consultants and select the most reasonable period for the training.

1st Stage Understanding of water supply system / Learning method of operation and maintenance of water supply system

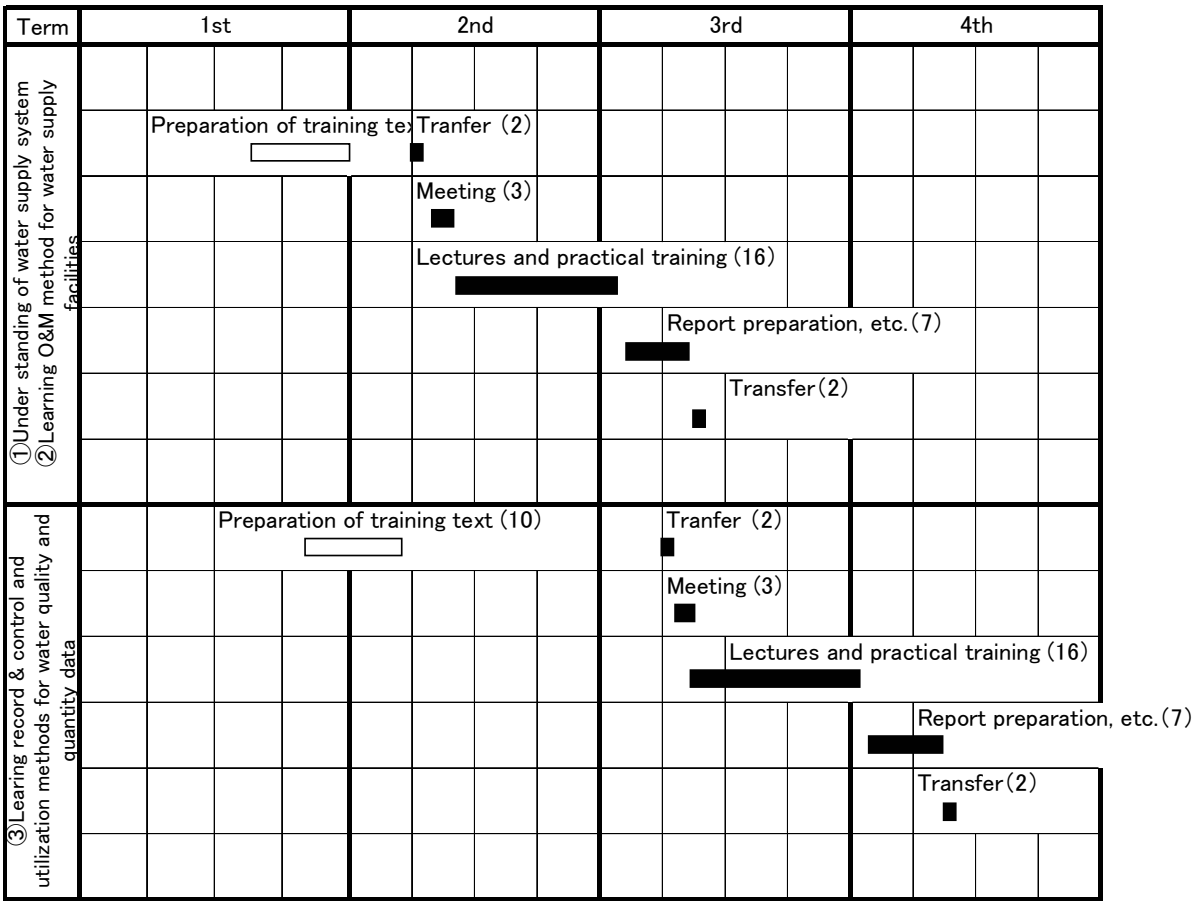
2nd Stage Learning method of taking record, sorting-out and utilizing of water quality and quantity data

Table 3　Soft Component Implementation Schedule (Draft)

Japanese consultant (Work in Japan)

Japansese consultant (Work in Sololmon Islands)

( ) means working days



8. Manual and Reports in the Soft Component

Manuals and reports to be prepared for the Soft Component for the Project are showed in Table 4.

Table 4 Manual and Reports in the Soft Component

Outputs	Remarks
Operation and maintenance manual for water supply facility	● Basic function and equipment component of water supply facility ● O&M records of water supply facility ● Judgment criteria required for O&M activity on water supply facility ● O&M plan for water supply facility ● Records and data management and keeping ● List of required data and data analysis way ● Utilizing way of analyzed data for O&M activity
Assessment report on understanding of trainees	Summary and assessment of the questionnaire forms and short tests given to the trainees
Soft Component completion report (English)	For submission to the implementing agency in the Solomon Islands (According to the JICA Soft Component Guideline: April 2004)
Soft Component completion report (Japanese)	For submission to JICA (ditto)

9. Responsibilities of the Implementing Agency in the Recipient Country

(1) Practicability for Implementation

Since SIWA has much desire for technical transfer of three (3) objectives in the Soft Component to SIWA staff, practicability for implementation is considered high.

However, in order to achieve those objectives of the Soft Component, institutional and financial conditions of SIWA have to be guaranteed.

Recently, SIWA have been recruiting new staff for operation and maintenance (O&M) and it is expected that organization for O&M should be strengthened by the completion of facility construction work for the Project. Also, financial situation is relatively in good condition with surplus in the balance in the fiscal year of 2007 and there are no problems in the financial aspect for implementation of the Soft Component. Therefore, it is considered that SIWA is capable of bearing necessary undertakings by the Solomon Islands side for implementation of the Soft Component.

(2) Impeding Factors and Required Actions by SIWA

Although no impeding factors in training items are expected, trainees for the Soft Component should satisfy with the following requirements. In order to meet these requirements, SIWA is required to make those trainees acquire the necessary skills for the training. Also, key personnel for O&M

should be trained for all the items of the Soft Component.

- ✓ Acquiring basic operation method of computer
- ✓ Acquiring operation method of operating system (MS-Excel and MS-Word)
- ✓ Securing enough time necessary for class-room training and practical training (4 hours a day)

SIWA is required to prepare the following for smooth implementation of the Soft Component:

- ✓ Personal computers (4 units), Software (1 set), Printers (1 unit)
- ✓ Training place and spare (one room in SIWA office)

In addition, in the training for "Leaning method for taking record, sorting out and utilizing of water quality and quantity data, SIWA is required to prepare hardware such as personal computers, etc. before commencement of the training. For this reason, SIWA is requested to prepare for the training, working closely with the Japanese consultant who will provide application software for data process.

For the above-mentioned hardware and software, it has been confirmed during the field survey of the basic design study that all the necessary items are ready in SIWA and will be utilized for the training of the Soft Component.

Appendix – 6

Draft of Monitoring Methods

Negative Impacts Related to the Project and Organizations, Measures/Monitoring Methods for their Mitigation

Negative Impacts Related to the Project	Issues to be Considered	Measures to Reduce and/or Mitigate Impacts	Monitoring	Organization
Involuntary Resettlement	➢ Relocation of illegal shops and houses at the project sites	- To relocate illegal shops and houses whose relocation could not be mitigated, at SIWA's cost	- To monitor project sites and construction areas to prevent further encroachments - To check for opposition against the project and impact on livelihood through stakeholder meetings and communication with residents	- SIWA staff/Commissioner of Lands/Inspector of Min. of Land, Housing & Survey
Local Economy Such as Employment and Livelihood	➢ Decrease of payment to Kongulai tribes who signed the lease contract, due to decrease of water intake from the Kongulai spring	- To continue discussing with tribal landowners for reaching mutual agreement to revise the contract - SIWA & Commissioner of Lands are considering of revising the land lease agreement from the current fixed-rate (25% of water sales) contract to fixed-amount land lease rent. Verbal agreement has been obtained from the leader of the tribal owners	- To check for opposition against the project and impact on livelihood through stakeholder meetings and communication with residents	- SIWA/Commissioner of Lands
Land Use and Utilization of Local Resources	➢ Land use restriction due to land lease from individual landowners ➢ Land lease of customary land	- Written agreements to lease the land for the project have been obtained from private landowners. However, explanation of actual construction schedule needs to be explained and agreements should be ensured by the owners. - To officially assign person in charge of land valuation to conduct transparent and fair negotiation - To conduct meetings with tribal landowners as necessary to obtain agreement to lease new customary land	- To regularly check changes in fixed-term estate holders and situation of sublease - To check changes in land use through communication with relevant residents as appropriate	- SIWA/ Min. of Land, Housing & Survey
Local Conflict of Interests	➢ Land lease payment distribution among tribe members for customary	- Sublease from individual landowners were not identified from meetings with present fixed-term estate holders during B/D study.	- To regularly check changes in fixed-term estate holders and situation of sublease	- SIWA/ Min. of Land, Housing & Survey

Negative Impacts Related to the Project	Issues to be Considered	Measures to Reduce and/or Mitigate Impacts	Monitoring	Organization
	land ➢ Land sublease from individual landowners	However, SIWA should ensure that owners do not sublease the land proposed for project sites. - Basic verbal agreement of leasing land was obtained from tribal leader during B/D study. Confirmed that lease payment will be distributed among the two tribes signing the contract in the same way as done in current lease payment distribution	- To discuss with concerned tribes and check if opposition against the project exists	
Geographical Features	➢ Soil outflow and turbid water during construction	- To have contractor apply appropriate construction methods and disposal for soil outflow and turbid water	- To communicate and exchange information with residents - To conduct regular meetings among SIWA, consultant and contractor to check and instruct as appropriate during construction	- SIWA/Consultant/Contractor
Soil Erosion	➢ Soil outflow and turbid water during construction	- To have contractor apply appropriate construction methods and disposal for soil outflow and turbid water	- To communicate and exchange information with residents - To conduct regular meetings among SIWA, consultant and contractor to check and instruct as appropriate during construction	- SIWA/Consultant/Contractor
Groundwater and Hydrology	➢ Groundwater drawdown due to water pumping		- To observe groundwater levels of existing boreholes around the project sites - To monitor and analyze groundwater levels of project boreholes after excavation	- Regular monitoring by 1-2 SIWA staff
Air Pollution	➢ Exhaust gas from heavy equipments, etc.	- To develop appropriate construction period/schedule - To regularly check and maintain construction apparatuses and equipments - To ensure appropriate construction method by contractor	- To communicate and exchange information with residents - To conduct regular meetings among SIWA, consultant and contractor to check and instruct as appropriate	- SIWA/Consultant/Contractor

Negative Impacts Related to the Project	Issues to be Considered	Measures to Reduce and/or Mitigate Impacts	Monitoring	Organization
Water Pollution	➢ Turbid water from excavation	- To have contractor apply appropriate construction and disposal methods to prevent turbid water from flowing to surrounding rivers	- To communicate and exchange information with residents - To conduct regular meetings among SIWA, consultant and contractor to check and instruct as appropriate	- SIWA/Consultant/Contractor
	➢ Impact on river water quality due to wastewater from sedimentation basin	- To set wastewater standards	- To regularly analyze wastewater according to set standards and water quality monitoring plan	- SIWA
Soil Pollution	➢ Boring mud water, oil leakage from heavy equipments and excavators, boring mud water, etc. during construction	- To regularly check and maintain construction apparatuses and equipments - To appropriately dispose to prevent flowing to surrounding areas - To ensure appropriate construction method by contractor	- To communicate and exchange information with residents - To conduct regular meetings among SIWA, consultant and contractor to check and instruct as appropriate	- SIWA/Consultant/Contractor
Waste	➢ Disposal of waste generated from construction	- To have contractor appropriately dispose to prevent scattering to surrounding areas	- To communicate and exchange information with residents - To conduct regular meetings among SIWA, consultant and contractor to check and instruct as appropriate	- SIWA/Consultant/Contractor
	➢ Disposal of excavated materials	- To dispose excavated materials in designated areas and to conduct appropriate land leveling	- To communicate and exchange information with residents - To conduct regular meetings among SIWA, consultant and contractor to check and instruct as appropriate	- SIWA/Consultant/Contractor
Noise and Vibration	➢ Noise and vibration during construction	- To apply appropriate construction period/schedule - To regularly check and maintain construction apparatuses and equipments - To conduct appropriate traffic management - To ensure appropriate construction method by contractor	- To communicate and exchange information with residents - To conduct regular meetings among SIWA, consultant and contractor to check and instruct as appropriate	- SIWA/Consultant/Contractor

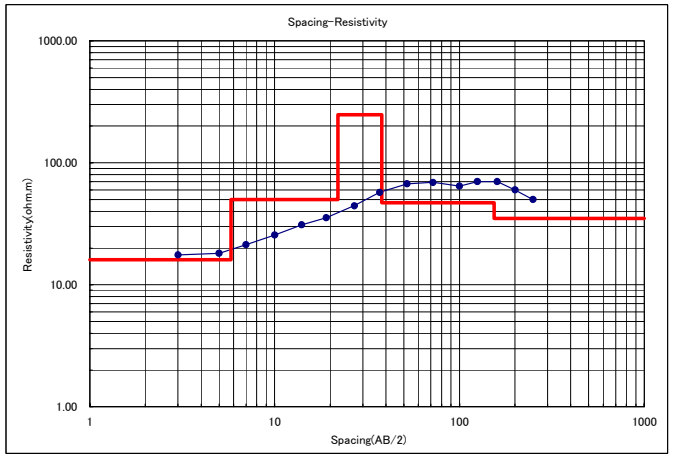
Appendix – 7

Result of Electric Resistivity Prospecting

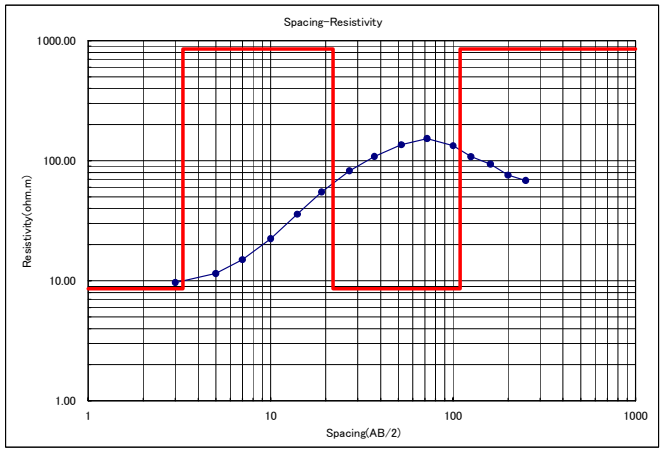
Result of Electric Resistivity on Borehole in Honiara（1／4）

Tasahe Borehole

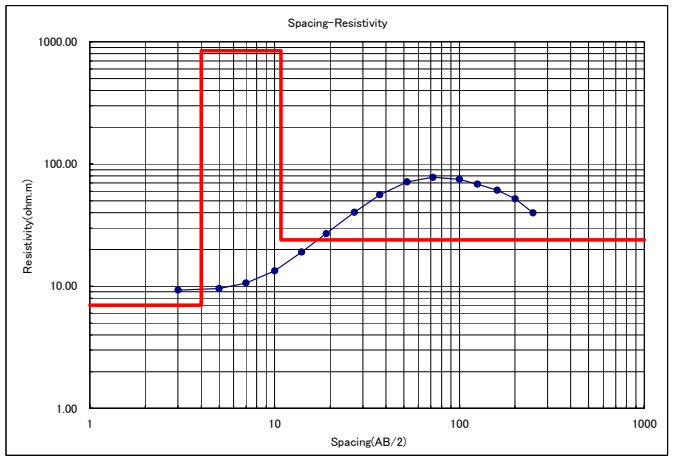
N－1

Specific resistivity curve	Result
	Aquifer level 40m～150m

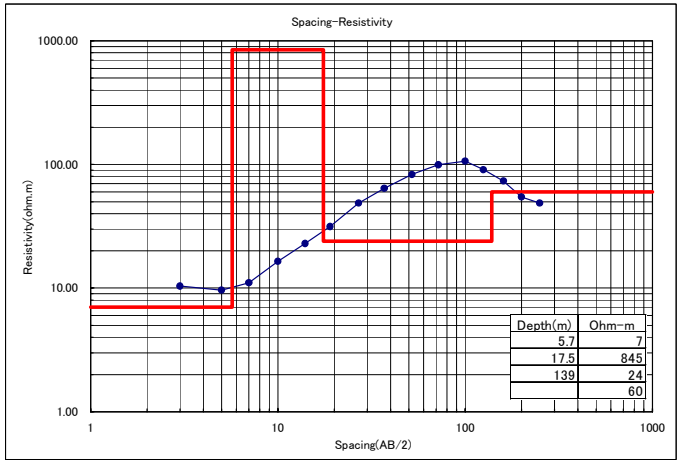
N－2

Specific resistivity curve	Result
	Aquifer level 20m～110m

N－3

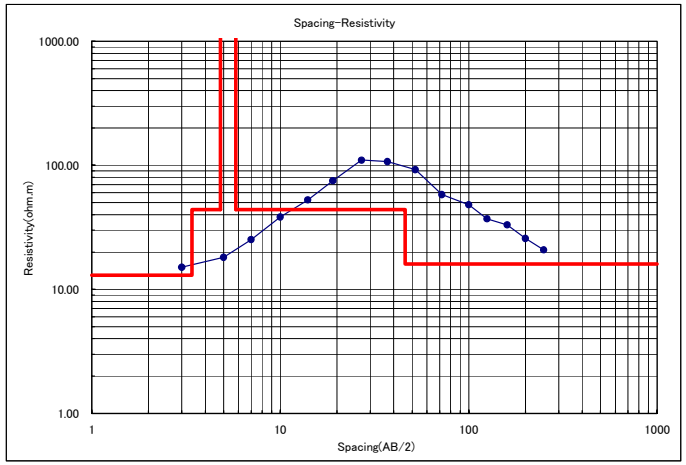
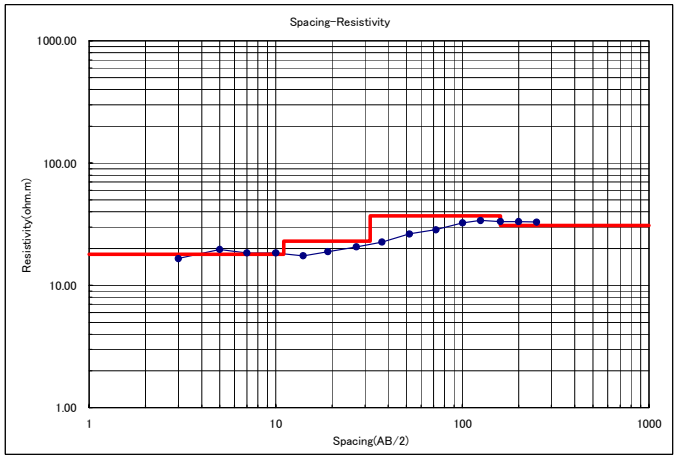
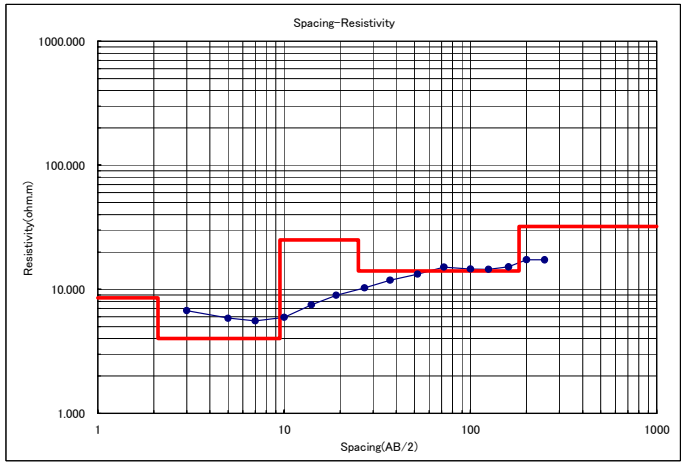
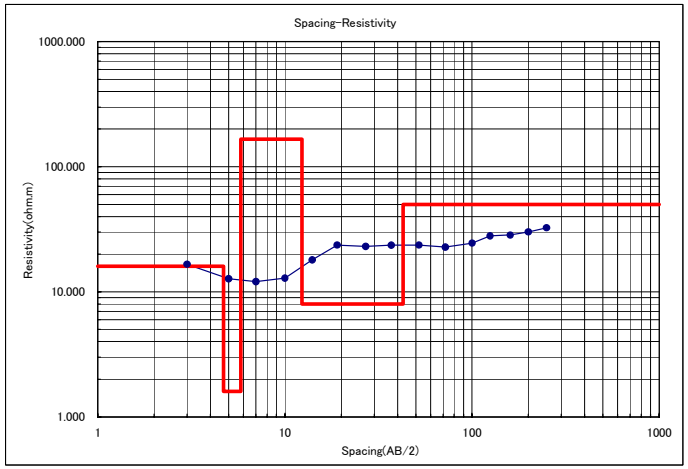
Specific resistivity curve	Result
	Aquifer level 20m～110m

N－4

Specific resistivity curve	Result
	Aquifer level 20m～140m

Result of Electric Resistivity on Borehole in Honiara（2／4）

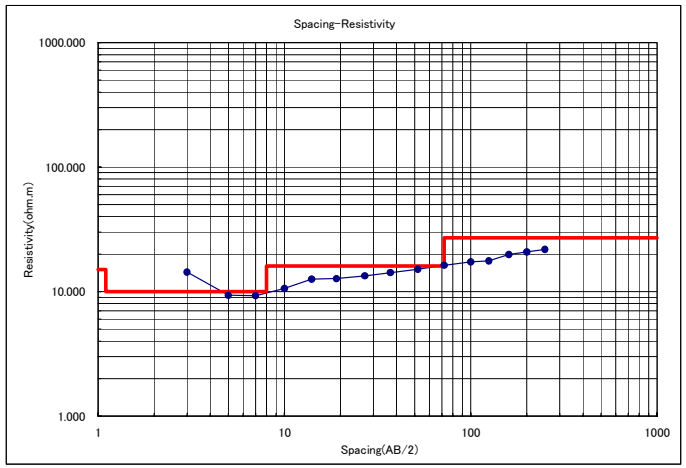
Titinge Borehole

M－1		M－2	
Specific resistivity curve	Result	Specific resistivity curve	Result
	Aquifer level 50m～140m		Aquifer level 30m～130m
M－3		**M－4**	
Specific resistivity curve	Result	Specific resistivity curve	Result
	Aquifer level 30m～180m		Aquifer level 40m～100m

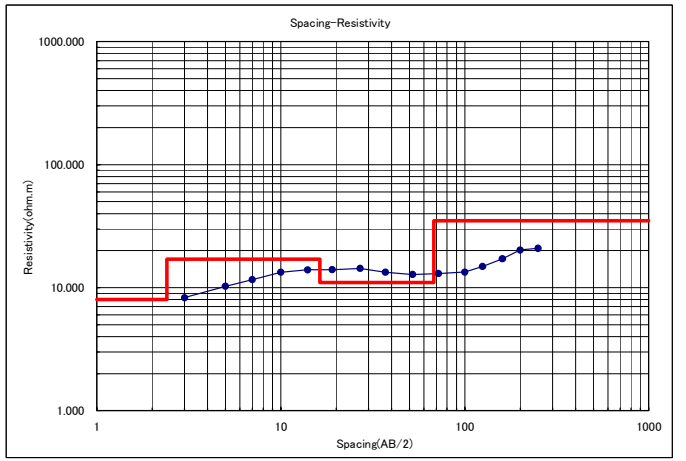
Result of Electric Resistivity on Borehole in Honiara（3／4）

Skyline Borehole

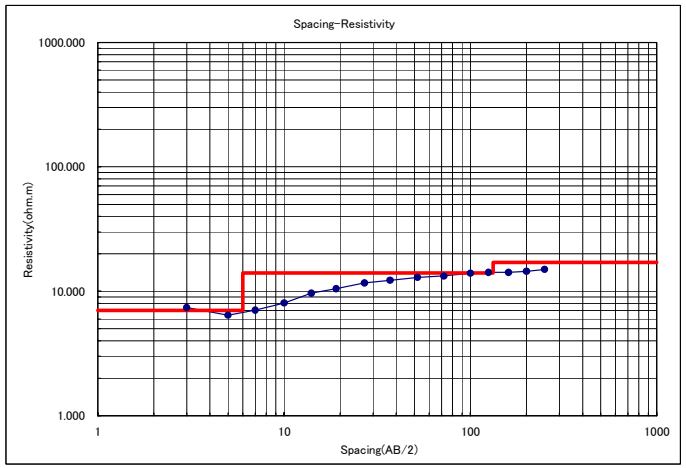
ＭＢ－１

Specific resistivity curve	Result
	Aquifer level 70m～120m

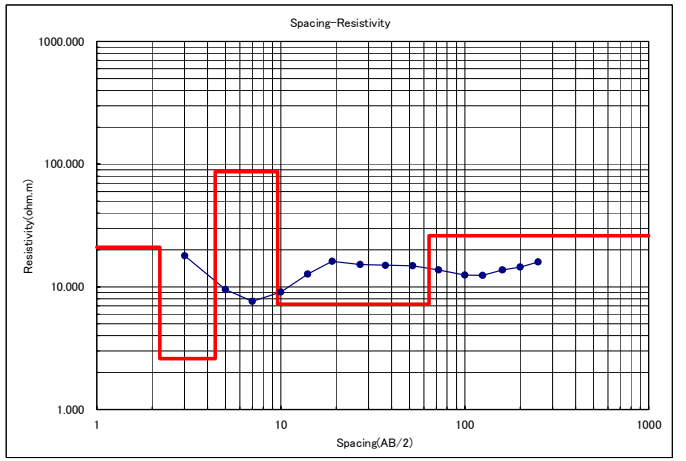
ＭＢ－２

Specific resistivity curve	Result
	Aquifer level 70m～120m

ＭＢ－３

Specific resistivity curve	Result
	Aquifer level 20m～130m

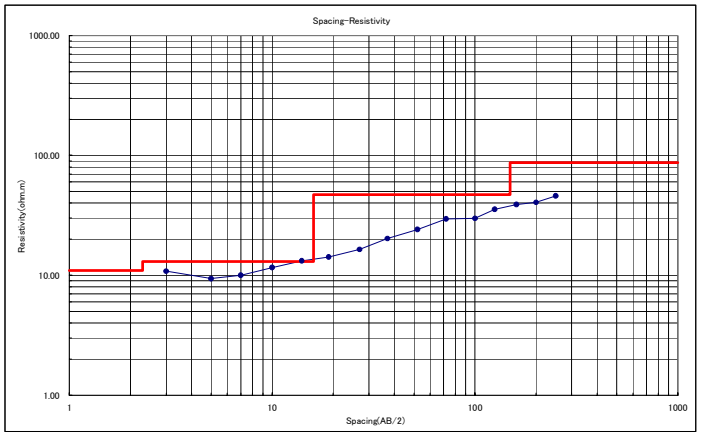
ＭＢ－４

Specific resistivity curve	Result
	Aquifer level 60m～120m

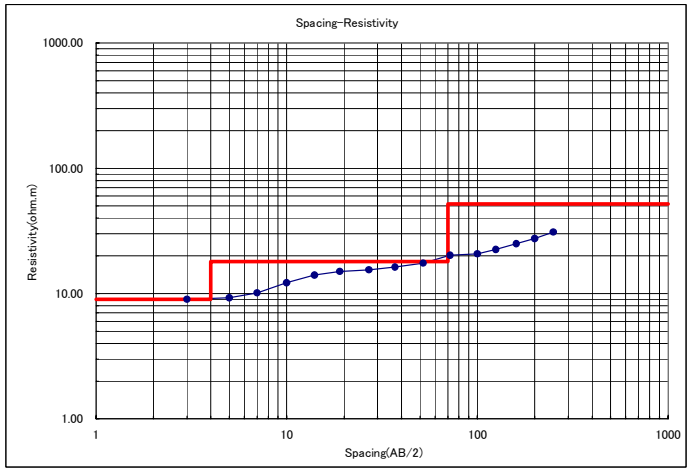
Result of Electric Resistivity on Borehole in Honiara（4／4）

Borderline Borehole

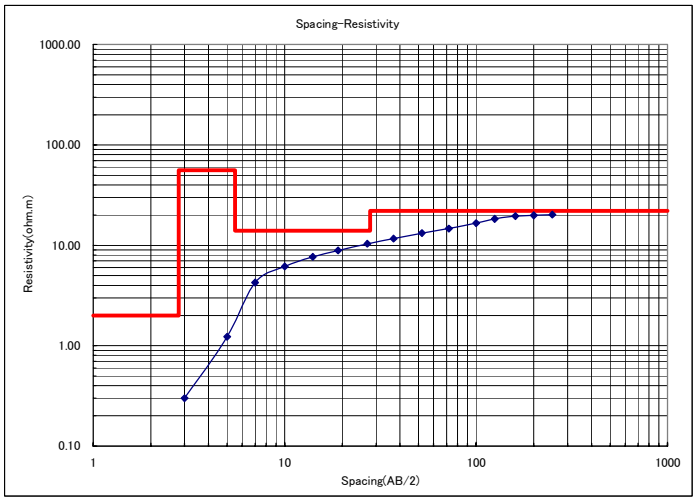
ＫＯ－１

Specific resistivity curve	Result
	Aquifer level 20m～150m

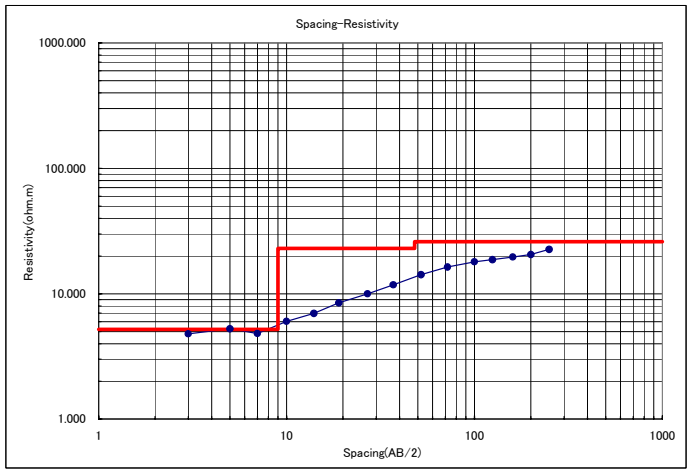
ＫＯ－２

Specific resistivity curve	Result
	Aquifer level 20m～100m

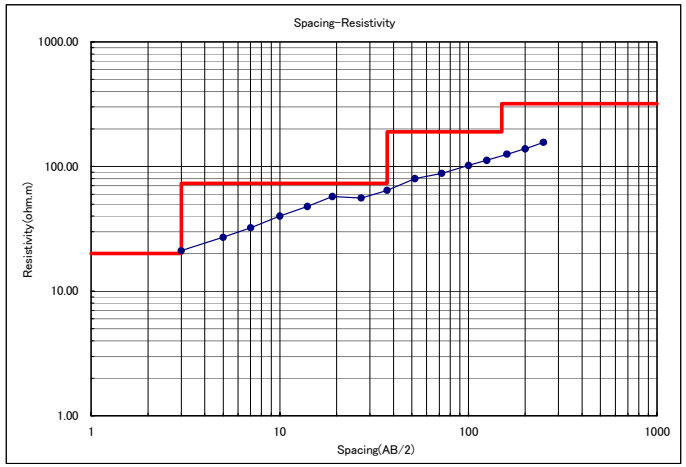
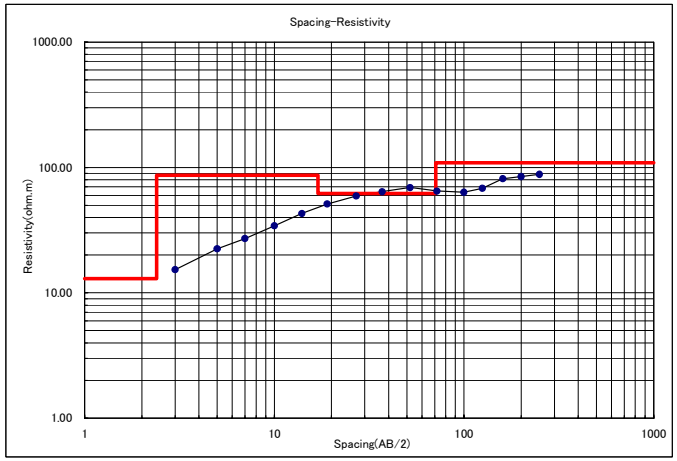
ＫＯ－３

Specific resistivity curve	Result
	Aquifer level 30m～100m

ＫＯ－４

Specific resistivity curve	Result
	Aquifer level 20m～100m

Result of Electric Resistivity on Borehole in Auki

ＡＫ－１		ＡＫ－２	
Specific resistivity curve	Result	Specific resistivity curve	Result
	Aquifer level 20m～100m		Aquifer level 20m～100m

Appendix – 8

Result of Topographic Survey

Fig- 1 Area of Topographic Survey

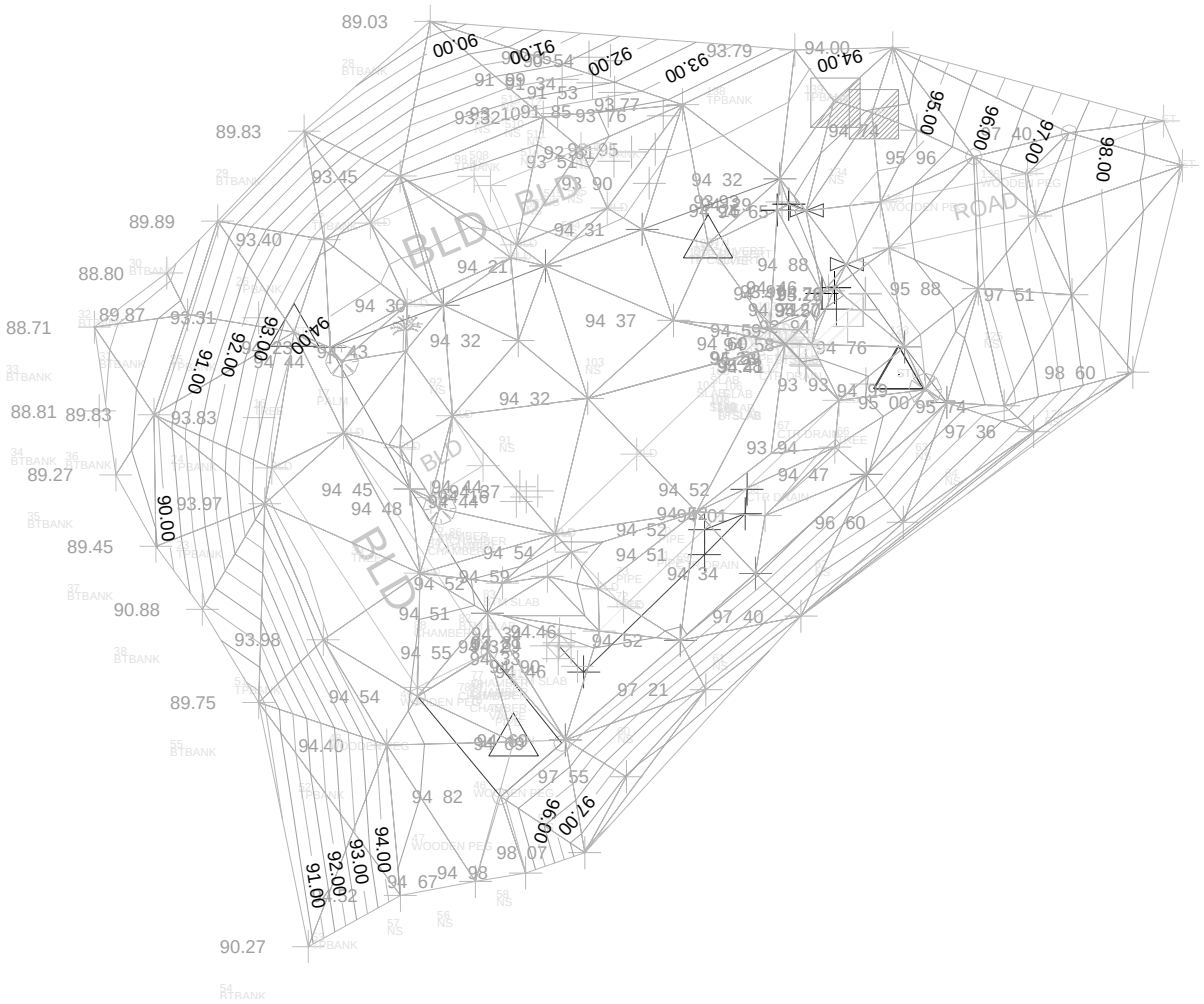


Fig-2 Konglai settling basin

Fig-3　From Tasahe borehole to Tashe reservior（1/3）

Fig-3　From Tasahe borehole to Tashe reservior（2/3）

Fig-3　From Tasahe borehole to Tashe reservior（3/3）