



**SOLOMON ISLANDS WATER AUTHORITY**

**THE STUDY FOR  
REHABILITATION AND IMPROVEMENT  
OF  
SOLOMON ISLANDS WATER AUTHORITY'S  
WATER SUPPLY AND SEWERAGE SYSTEMS**

**FINAL REPORT  
MAIN REPORT**

**JUNE 2006**



**JAPAN INTERNATIONAL COOPERATION AGENCY**

**YACHIYO ENGINEERING CO., LTD.**

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<b>06-037</b>



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Exchange Rate applied in this report (Aug. 2005)

US\$1.0 = J¥111.67

A\$1.0 = J¥84.81

US\$1.0 = SI\$7.00

SI\$1.0 = J¥15.95

## PREFACE

In response to a request from the Government of the Solomon Islands, the Government of Japan decided to conduct a study for Rehabilitation and Improvement of Solomon Islands Water Authority's Water Supply and Sewerage Systems, and entrusted to the study to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched a study team headed by Mr. Masahiro Takeuchi of Yachiyo Engineering Co., Ltd. between May 2005 and June 2006.

The team held discussions with the officials concerned of the Government of the Solomon Islands and conducted field surveys at the study area. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that this report will contribute to the promotion of this project and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of the Solomon Islands for their close cooperation extended to the study.

June 2006

Ariyuki Matsumoto,  
Vice President  
Japan International Cooperation Agency

June 2006

Mr. Ariyuki Matsumoto  
Vice President  
Japan International Cooperation Agency  
Tokyo, Japan

Dear Mr. Matsumoto

### LETTER OF TRANSMITTAL

We are pleased to submit to you the final report of the Study for Rehabilitation and Improvement of Solomon Islands Water Authority's Water Supply and Sewerage Systems in the Solomon Islands. The report has been prepared, the advices and suggestions of your Agency taken into account. Also included are the comments made by Solomon Islands Water Authority (SIWA).

The report consists of mid-term facility improvement plan for the target year 2010 for the capital city and provincial centers, and action plans for capacity development of SIWA for improving their management.

In the report, for the capital city of Honiara, water supply facility improvement project has been proposed for eliminating low pressure areas, improving water quality, expanding service areas, etc. and sewerage facility improvement project has been proposed for reducing water pollution. Meanwhile, for Auki as the provincial center, groundwater development project has been proposed for securing the required water source amount. Through these projects, in Honiara, stable water intake volume can be secured by shifting the unstable main spring source, whose water intake volume has been reduced 40% less than that in the normal condition due to the blockage occurred in October 2005, to the new groundwater source inside the town boundary. In Auki where the residents are now suffering from inconvenience of only two-hour water supply in a day due to the serious shortage of water source amount, the shortage will be eliminated by the development of new groundwater source and thereby 24 hour-water supply can be realized.

The action plan consists of an action plan for capacity development related to the management improvement and institutional strengthening, an action plan for water supply and sewerage facility improvement and an action plan for leakage reduction. It is expected that the management improvement and institutional strengthening be enhanced by implementing the above-mentioned action plans by SIWA.

We wish to take this opportunity to express our sincere gratitude to your Agency and the Ministry of Foreign Affairs. We also wish to express our deep gratitude to SIWA and the relating organizations for close cooperation and assistance extended to us during our study

Very truly yours,

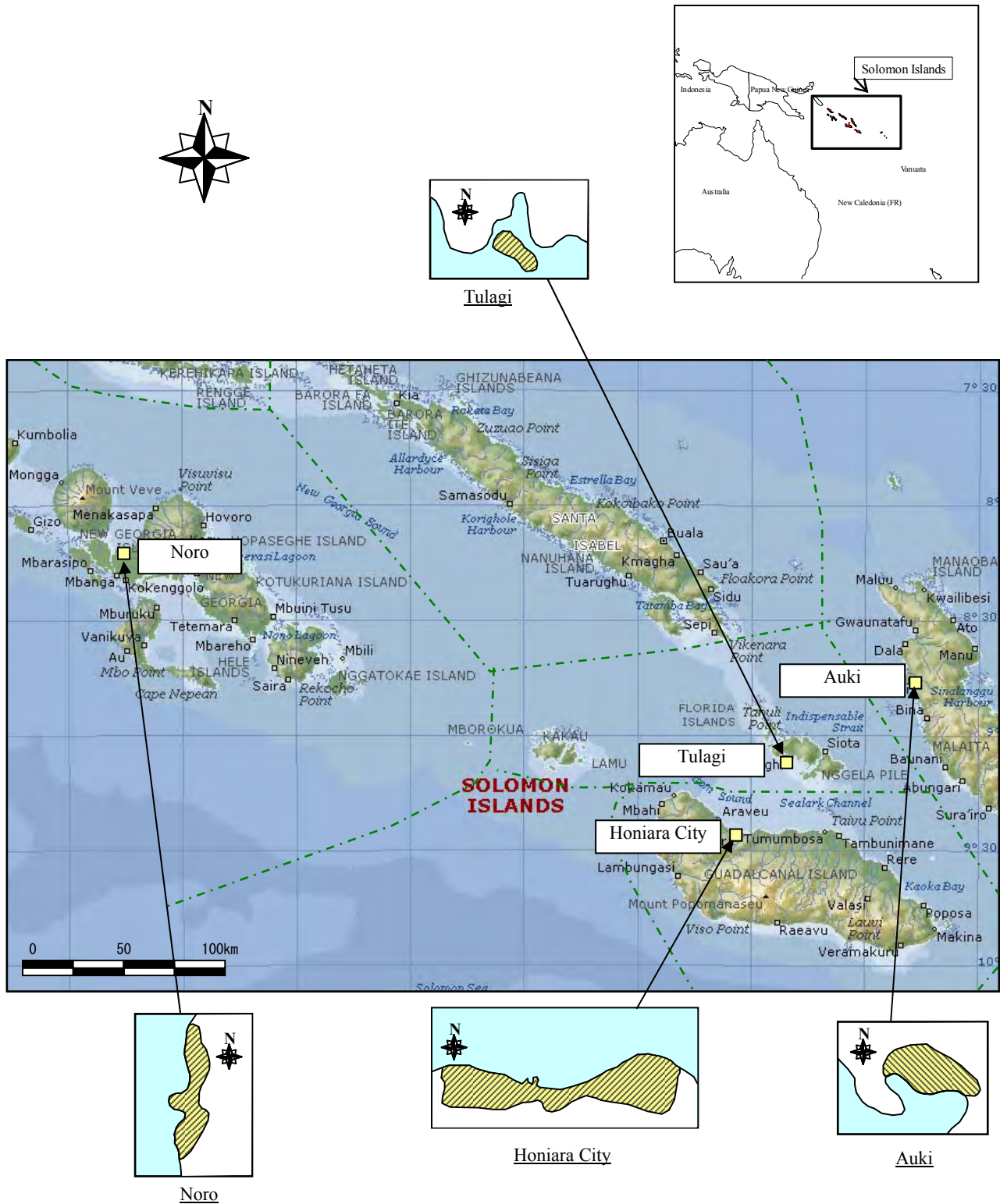


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Masahiro Takeuchi

Team Leader

The Study for Rehabilitation and Improvement of  
Solomon Islands Water Authority's Water Supply  
and Sewerage Systems



**Location of Study Areas**

PHOTOS



Situation of borehole washing in White river area. Several boreholes were washed to recover production capacity in the Study.



Situation of field work of electric survey. The survey was carried out covering entire Honiara to detect promising aquifer.



Situation of Konglai Spring in Dec. 2007. Discharge rate from the spring has been reduced since Nov. 2006 as half as the normal condition. Almost all the water is being taken by SIWA results in little over-flow.



Situation of hills in south of Honiara Honiara Reef-limestone is in the front and Honiara beds is in the back. Mbonehi limestone is distributed in the mountains behind hills.



Hill behind Auki town-area. Excellent aquifer by limestone is distributed in this area. Two new boreholes should be developed to meet water demand in 2010.



Situation of water-intake of Ziata river. The river has enough discharge to meet water demand of 2010. There is an existing purification plant 200m north of this intake.

PHOTOS



Water intake point of Konglai Spring. This spring is the main water source for Honiara covering 50% of distribution volume. However, the distribution volume is reduced to less than 40% due to the blockage occurred in October 2005.



Water conveyance pipe which conveys water from the intake point of Konglai Spring to transmission pump station.



Rove Spring which is one of three springs in Honiara. Intake volume of this spring is as small as one-seventh of Konglai Spring. Water from the spring is distributed mainly to Point Cruz district.



Condition of water intake point and weir of Rove Spring. Water weed can be seen and water quality is acceptable.









Chlorination injection house located downstream to Rove Spring.



Tap water shows high turbidity for a few days after heavy rain, which affects the daily life of the residents.



PHOTOS

	
<p>Tasahe Reservoir. Water is transferred from Konglai Spring to this reservoir by pumping.</p>	<p>Titinge Reservoir. Water transferred by pumping from Konglai Spring to Tasahe Reservoir is further transferred to this reservoir. This reservoir is not in use at present due to large leakage.</p>
	
<p>Skyline Reservoir. Water is transferred from Konglai Spring and Mataniko Borefield to this reservoir. The reservoir at the right hand side was constructed in 1998 by the Japan's grant aid.</p>	<p>Low West Kolaa Reservoir. This reservoir is not in use due to deterioration by usage over service life. One of the two reservoirs was demolished for replacement.</p>
	
<p>Panatina Reservoir. Water source of this reservoir is Panatina Borefield which was constructed under the Japan's grant aid project in 1998.</p>	<p>White River Reservoir. Old reservoir is not in use at present due to deterioration by usage over service life. New reservoir was constructed under the Japan's grant aid project.</p>

PHOTOS



Workshop for pilot projects.  
In selecting pilot projects, the contents of the projects were explained to the participants.



Workshop for pilot projects.  
In selecting pilot projects, discussions were made between the Study Team and the participants (stakeholders for the proposed projects)



Community workshop for water conservation (pilot project)  
SIWA staff is explaining the importance of water conservation to the community residents (Burns Creek area).



Community workshop for water conservation (pilot project)  
In order to make the residents understood the water usage and water tariff, SIWA staff had the residents calculated the water charge by themselves (Burns Creek area).



Community workshop for water conservation (pilot project)  
Many people in the community participated in the workshop (Fulisango)



Community workshop for water conservation (pilot project)  
SIWA staff discussed the necessity of water conservation with the residents (Kaibia).

PHOTOS



Leakage detection survey done in Phase-1 of this Study  
SIWA staff is doing the detection survey by means of leakage detector.



Leakage detection survey done in Phase-1 of this Study  
SIWA staff is surveying the leakage sound by means of digital sound detector.



Leakage detection survey done in Phase-1 of this Study  
Water flow for 24 hours was measured by means of portable ultrasonic flow meter in 12 model districts. Through this measurement, minimum night flow (leakage) and distribution pattern were obtained.



Leakage detection survey done in Phase-1 of this Study  
SIWA staff is measuring the minimum night flow by means of portable ultrasonic flow meter.



Leakage from water distribution branch pipeline (diameter of 50mm, galvanized iron pipe). Water is being spouted from the pipe.



On the water distribution main (diameter of 300mm, PVC pipe), large leakage may occur through large crack on the pipe.

PHOTOS



Pilot project for establishing leakage reduction indicator. 12 model sections were selected by the leakage survey. This photo shows the situation of the work at Vavaya Ridge district. Leakage (or minimum night flow) is measured before pipe replacement.



Situation of pipe replacement work at Vavaya Ridge district. About 100m of pipe was replaced in one section.



Situation of leakage measurement work before pipe replacement at Kola Ridge district.



Situation of pipe replacement work at Kola Ridge.



Situation of leakage measurement work before pipe replacement at Kukum Campus.



Situation of pipe replacement work at Kukum Campus.