



SOLOMON ISLANDS GOVERNMENT

WATER RESOURCES MANAGEMENT DIVISION ANNUAL REPORT 2016

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WATER RESOURCES MANAGEMENT DIVISION

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Introduction

This annual report of Water Resources Management Division is based on the achievements and challenges in 2016. The Water Resources Management Division was formally established in 1997. Its establishment was necessarily important because of the increasing demand for water resource development and management in the country.

Generally, Water Resources Management Division is responsible for water resources management and assessment. This includes assessment for groundwater and surface water availability for domestic, agriculture, industrial uses and energy development. The division also draft water policy and legislations that ensure the protection, restoration and enhancement of our water resources.

In addition, the division also carry out Community Based Disaster Risk Management with the focus mainly on flood monitoring and early warning system. Guidance for the division's work program has been defined and spelt in the policy statements of the ruling government.

Vision

That the Water Resources of Solomon Islands are protected, managed, and developed and sustainably used for the maximum benefit of our government and people.

Mission

Improve and strengthen the national institutional and administrative capacity of the division to be able promote, develop, manage and conserve our water resources for social and economic betterment and enhancement through the understanding of natural systems so that vulnerability to natural related hazards are reduced in our country.

Policy Objectives

- a) Maintain national hydrological monitoring program throughout the country;
- b) Provide water resources information in hydrology, hydrogeology and water governance for improved water related services to rural and urban communities.
- c) Provide well-founded technical advice to people of Solomon Islands, development partners and sectors on water resources and related natural hazards.
- d) Establish legal framework in administration and management and planning of water resources through water policies and legislations for sustainable water supply, agriculture, renewable energy and other development sectors in Solomon Islands.

Chapter One

Functions of the Division

1.0 Introduction

The Water Resource Management Division plays an important role in many aspects of the development of Solomon Islands. The overarching function of the division is to manage, administer, assess, protect and disseminate water resources information for development in Solomon Islands. Specific functions of the division are also mandated under the Water Rivers Act 1996 and those that are defined in the government policy statements. Commitments made by the government also influence the function of the division.

2.0 Aims of the Division

In order to fulfil its duties and obligations, the division aims to:-

- a) establish and upgrade national capacity in hydrology and water resources assessment to improve and provide water related services that are adequate and efficient to rural and urban communities;
- b) establish a framework for assessment and management of national water resources in the country;
- c) develop capacity for well-founded technical advice to government and the people of Solomon Islands on water resources issues and related natural hazards;
- d) establish a legal framework in the management and administration of water resources in Solomon Islands, and
- e) establish capacity to promote resilience in urban and rural water supply services in the country

3.0 Functions of the Division

The general requirement for water resources assessment in the country is to undertake a comprehensive evaluation of its potential water resources. This will ensure proper hydrological services are provided in the country to enhance social and economic developments.

The Democratic Coalition for Change Government (DCCG) Policy Statements set two specific National Objectives that very much reflects the Government's commitments towards water supply and sanitation both in urban and rural communities:

- a) Address and meet the basic needs (including water supply and sanitation) of the people in the rural areas and
- b) Ensure the sustainable utilization and conservation of natural resources (including water), protection of the environment and successful combating the adverse effects of climate change

These objectives reflects the current government's commitment to ensuring that our natural environment and resources are protected and managed for all Solomon Islanders to have access to sustainable, clean and safe water supplies. These objectives cover both rural and urban populations in Solomon Islands. The outcomes can only be realised through effective water resources governance and management in the country which the division promotes in its functions.

The specific functions of the division to achieve its objectives are:-

- a) To administer the following Acts of Parliament: Rivers Water Act (c.135 of 1969) and Solomon Islands Water Authority Act (c.130)
- b) To be responsible for Statutory Authorities that directly deals with the natural resources (water resources) in the country: Solomon Islands Water Authority (SIWA).
- c) To liaise with Regional and International Organizations such as SPC Division of Science & Technology (SPC-SOPAC), WMO in matters relating to earth sciences particularly water resources
- d) To execute the government's national plans as set out in the DCCG Policy Statement and Policy Translation and Implementation Framework and the National Water Resources and Sanitation Policy and its Implementation Plan (WATSAN Policy & Plan)
- e) Hydrological investigation and assessment country wide for potential hydropower development
- f) Draft and develop appropriate legislation and policy for proper management and administration of water resources in the country
- g) Conduct groundwater assessment
- h) Undertake community awareness and disseminate information and data to organisations, government ministries, companies and individuals for water development purposes.

The division comprises of the following sections:-

- a) Directorate;
- b) Hydrology;
- c) Hydrogeology;
- d) Policy and Management.

3.1 Directorate

The Directorate office deals with the overall organizational, administrative and management of the division. It also deals with policy and legislation in coordination with other ministries, regional and international organizations. Furthermore, it deals with planning, budgeting and coordination of water resources management division. The office is responsible to the permanent secretary.

3.2 Hydrology

Hydrology section is responsible for assessment of surface water for water supplies, energy generation, agricultural and industrial development and mitigation of water related natural hazards in the country. In addition, it carries out water level and rain gauge installations and river or stream flow measurements. The data is maintained and disseminated to companies and the public who have interests in the hydrological data for development or planning purposes.

3.3 Hydrogeology

The Hydrogeology section deals with the investigation, monitoring and assessment of potential groundwater resources for human consumption, agricultural and industrial development. It also conducts geophysical survey on ground water and gives advice to public and institutions who want to undertake ground water extractions.

3.4 Policy & Management

The Policy and Management section deal mainly on the water resources policy and legislation. It also coordinates water resource management projects with cooperation of international and regional organizations. It also administers water resources acts and conduct policy consultation and

awareness. The integrated water resource management approach is a new approach taken by the section as a way of managing water resources.

Chapter Two

Organisation and Staffing

4.0 Organisation Composition

The division is currently under staff so it needs to upgrade its manpower technical capacity and skills to provide adequate and efficient hydrological and hydro-geological services in the country. It also needs to strengthen national capacity to establish appropriate legislation and policy for the proper management and efficient administration of the country's water resources. Manpower requirement is essential to actively and efficiently pursue and deliver the services and the functions of the division.

5.0 Provision of Progression

Promotion was based on officer's work, conduct, qualification, character and general ability and capacity to undertake the higher duties. Provision of progression within the division seems non-existent which demoralise officers to fully undertake their duties. This was due to recruitment freeze policy by the Public Services Division over the years. Submission by the division for expansion was not considered due to the above reason however, there were some positions within the division which was approved and filled. The non-progression of officers to the next level has made some officers wanting to leave and seek employment somewhere else.

6.0 Provision of Training

There were number of trainings undertaken by staff of the division through seminars and workshops. Such trainings include short-term, workshops and meetings. The trainings were aim at improving staff performances and prepare them for advancement to higher grades and to enable them to enjoy a career in the service.

Table 1.0 – Trainings/Workshops for Water Resources Division in 2016

Staff	Training/Workshops	Objectives/Relevance	Institutions/Place
Director	Budget Workshop	Budgeting and Planning	Honiara
Deputy	SIWSAP Planning Retreat WATSAN Conference ICDL Computer Training Groundwater Monitoring	SIWSAP Planning SIWSAP MS Components Ground Water Investigation	Maravaghi Resort Brisbane – Australia IPAM – Honiara Suva – Fiji
Senior Hydrologist	Water Resource Development & Management	Development & management of water resources	Seoul – Korea
Senior Hydrogeologist	Integrated Urban Flood Management Training Microsoft Excel Training	EWS Flood Mitigation & Simulation models Excel Understanding	Tokyo – Japan IPAM – Honiara
Senior Program Coordinator	Project Management Training Performance Appraisal	Project Management Capacity building & Staff performance	IPAM – Honiara IPAM – Honiara
Assistant Hydrological Officer	Hydrology Training	Hydrology operation	JICA, Tokyo - Japan

7.0 Recruitment

There was one recruitment made in 2016 to fill a vacant position within the division. The recruitment was conducted with the successful candidate appointed by the Public Service Commission late 2016. The position was filled towards the end of last year.

This recruitment is vital to ensure the smooth operation of hydrology section. Currently, the division is still under staff although it had 8 filled positions. The expanding areas of coverage by the divisions function necessitate increasing positions within the division to effectively carry out its plans and programs to achieve the government's policies and plans

8.0 Manpower

Establishment organisational structure for the division is presented in the chart. The approved 2016 establishment chart is provided in Figure 1.0.

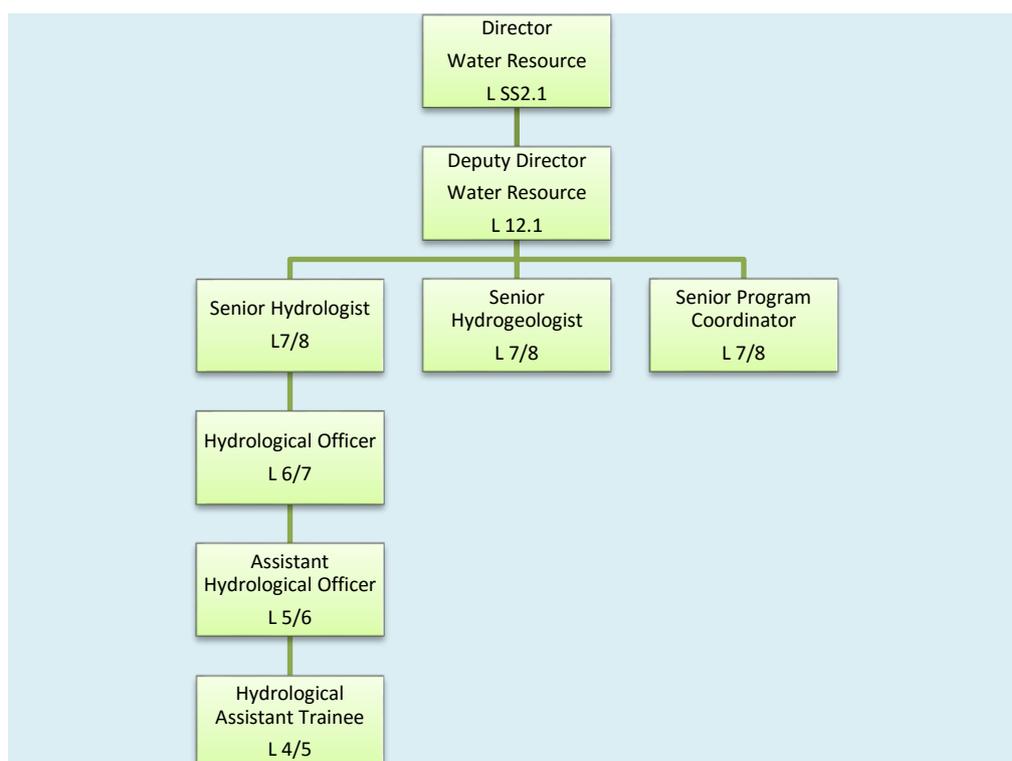


Figure 1.0 – Establishment Chart for Water Resource Division in 2016

The organizational structure of the division shows that there was a gap along the line of commands and the linkages to the directorate offices probably needs improvement. There were no principal and chief positions within the division to ensure better flow of communication and consultation. This was an ongoing issue for the division during past years which need to be addressed, however it depend very much on the Ministry's capacity to accommodate increased number of positions within the divisions. Such scenarios could affect the motivation of staff within the division as a result limited career progression path. During past years there were no additional positions allowed despite submissions made to Public Service.

Manpower need is evident within the division to fulfil the activities of the divisions which were accumulated every year as water is a cross cutting issues that affects a lot of sectors throughout the country. Furthermore, the impact of climate change on the water sector is becoming a pressing issue that needs co-operative efforts from all sectors.

The current staffing list for water resources division for 2016 is provided in Table 1.0 below.

Table 2.0 – Staffing for Water Resources Division in 2016

Post	Grade Level	Filled	Vacant	Total
Director	SS2.1	1	0	1
Deputy	12.1	1	0	1
Senior Hydrologist	8.1	1	0	1
Senior Hydrogeologist	8.1	1	0	1
Senior Program Coordinator	8.1	1	0	1
Hydrological Officer	7.1	1	0	1
Assistant Hydrological Officer	5.1	1	0	1
Hydrological Assistant Trainee	4.1	1	0	1
Total		8	0	8

Table 3.0 – Staffing Annual Leave Roster for 2016

Post	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Director												
Deputy Director												
Senior Hydrologist												
Senior Hydro-geologist												
Senior Program Coordinator												
Hydrological Officer												
Assistant Hydrological Officer												

The annual leave roster shows that most of the staff preferred leave towards the last quarter of the year because most activities have been implemented and that it's almost holiday time where lot of Christmas activities will take place. During the festive season there were few officers who remained in office. This is to ensure the division was able to provide services all throughout the year even during the Christmas period.

Chapter Three

Activities and Achievements

9.0 Introduction

There was no substantial progress made in the conduct of hydrological monitoring and inspection at hydrological stations for water level and rainfall during the course of the year as result of lack of transportation and slow release of funds to implement activities.

Although there was a slight increase in budget allocation some of the activities were not implemented because there are constrains in securing necessary funds to implement planned activities according to the work plan.

10.0 Activities

The Water Resources Division has responsibilities in the assessment, administration, management and planning of water resources in Solomon Islands. Such responsibilities are addressed through existing legislations, government and departmental policies and departmental work plans. There are key activities the division implement to achieve its aims and objectives:

- a) Administering the River Water Act (1969);
- b) Carry out a comprehensive assessment and investigation of surface water resources in the country,
- c) Carry out a comprehensive assessment and investigation of groundwater resources in the country,
- d) Ensure our water sources are protected from all forms of pollution,
- e) Assist Solomon Water to improve service delivery,
- f) Finalise WATSAN Policy and Plan for Cabinet endorsement,
- g) Facilitate the drafting of Water Resources Legislation,
- h) Support UNDP to finalise recruitment to establish PMU for SIWSAP
- i) Monitoring potential hydropower sources for development to meet the increasing energy needs of the country; and
- j) Work with regional bodies in relation to water and water-related projects.

In line with the Government National Plan as set out in Democratic Coalition for Change Government (DCCG) Policy Statement and Policy Translation and Implementation Framework, Ministry Corporate Plan 2013 – 2015 and Water Resource Division Work Plan for 2016 certain activities were undertaken within the provisions of budget allocation for 2016. These activities are discussed in the following sections.

11.0 Directorate Offices

11.1 Budget preparations

The preparation of 2017 budget involves finalizing of recurrent budget according to the 2017 Budget Baseline provided by Ministry of Finance and Treasury. The task involved re-allocation of funding within the division budget to reflect the priority of the division according to the draft 2017 work plan. It was unfortunate that there were no recurrent bids considered for the 2017 recurrent budget. This impacted the 2017 budget for the division as the budget was reduced compared to previous years.

However, the division would implement its annual work plan according to the limited resources available.

The 2017 Development Budget was also reviewed following the completion of the SIG support to SIWA for the water supply project in Honiara and Auki. As such the 2017 development program has been re-directed to activities not implemented in 2015&16 due to limited budget support. These activities are part of the MTDP 2015-2021 and should be funded in the 2017 development budget.

These activities have been further revised in line with the implementation of donor funded programs; GEF/LDCF/UNDP Solomon Islands Water Sector Adaptation Project (SIWSAP), JICA funded Non-Revenue Water Reduction Project with SIWA and Solomon Water Development Program. The Government had provided support to SIWA through development project in support of the donor funded programs.

11.2 Water Resource and Sanitation Policy and Implementation Plan

A DRAFT NATIONAL WATSAN POLICY and its IMPLEMENTATION PLAN has been formulated in 2013. The WATSAN Policy had been forwarded to Minister responsible for water to submit it to Cabinet for endorsement.

In 2016 there were increased number of enquiries regarding promotion of water bottling in the country thus the division took initiative to incorporate into the WATSAN policy provision of government recognition in the water bottle sector.

11.3 Solomon Islands Water Sector Adaptation Project (SIWSAP)

The division continued to support GEF funded Water Sector Adaptation Project which aims to increase the resilience of water supply systems in the country. Under this project there are six pilot sites that will receive funding support to improve water supply services through increasing storage capacities of water sources and adapting to appropriate technology that will provide portable water during disasters and emergencies.

This project will run for 4 years with project office recruitments and project management setups in pilot sites completed. The division closely supported the establishment of a Project Management Unit within the Water Resources Division offices and assisted in co-ordinating the Inception Workshops as well as conducting Inception workshops in the six Provinces where the six pilot sites are located.

As the focal point for this project, the Deputy Director Water Resources (DDWR) was heavily involved in the project's activities as follows:-

- a) Hydrological assessment for baseline information in the pilot sites
- b) Installation and monitoring rain gauges in pilot sites
- c) Support in implementation of Quick Fixes for pilot sites as intervention to the 2015 El Nino event
- d) Support to revitalize Gizo water supply through hydrological and rainfall data monitoring
- e) Day to day technical advice to SIWSAP PMU regarding progress was rendered

11.4 On-going hydrological monitoring

The main activities under this program were presented in Section 4.0 of this report. In conjunction with hydrological staff DWR and DDWR undertook several water resources assessments for water supply purposes.

A request for water supply assessment was received by Water Resources Management Division in 2015. However due to insufficient budget then the requests were programmed for year 2016. Following the budget passage in 2016 necessary fund was allocated to carry out the requests. The requests were for:

1. Kadabina Land, Malu'u, North Malaita, Malaita Province
2. Falala Bible College, Fulifo'oe, North Malaita, Malaita Province
3. Kidakale water source, Noro, Western Province

A team led by Director Water Resources was sent to North Malaita on 15/04/2016 to 22/04/2016 to conduct reconnaissance survey at Kadabina and Falala in North Malaita requests. A follow-up tour was recommended to verify findings during the first mission.

A second team led by DDWR was sent to Noro to conduct the Kidakale water source assessment request. The team travelled to Noro on 09/05/2016 to 12/05/2016. Again a follow-up tour was recommended for and undertaken late 2016 to install a water level recording station at the selected site.

Furthermore, there were site visits to hydrological installations for Goldie College and Gizo town. Both stations were operating at the time of visit with data retrieved for analyses.

11.5 Honiara groundwater monitoring

The two automatic data loggers at Kombito and Tuvaruhu (Mataniko) boreholes continue to provide data and information on groundwater levels, conductivity/TDS and temperatures from these sites. SIWA, trading as Solomon Water have been supplied with these data to assist them on the status of these well-fields. Downloaded data from these two sites were done by DDWR as and when required.

12.0 Hydrology Section

The Hydrology Section is responsible for the development and management of surface water resources in the country. The activities includes assessment and monitoring for water supply, hydro power and also rain water harvesting. Assessments and investigations work were done by collecting water level and rainfall data through hydrological monitoring using water level and rainfall recording equipment.

The Section maintains a Hydrological Monitoring Network that covers whole of the Solomon Islands, however not all provinces have data collected from. The monitoring program covers provinces with potential for surface water supply and hydro power development. Streams or rivers identified for hydro power assessment studies were monitored through hydrological monitoring program.

The activities are carried out on a quarterly basis and upon requests. During this times data are downloaded and retrieved. Some of the stations have been operational for more than 10 years now. As shown in figure 2.0 is a simplified hydrological monitoring station at Sorave, Choiseul province. The hydrological station consist of eternal staff gauge and data logger mounted on top of the staff gauge.



Figure 2 - Simplified Hydrological Monitoring Station

12.1 Hydrological Services

Hydrology section is responsible for the comprehensive assessment of water resources in the country for water supplies, energy generation, agricultural and industrial development and mitigation against water related natural hazards in vulnerable areas of the country. The data collected was maintained and disseminated to individuals and the public who have interests in the hydrological data for development or planning purposes.

Hydrological services in Solomon Islands are limited in relation to the core functions of the Water Resources Management Division. Some of the specific services provided by the Hydrology Section include:

- a) Provide information on river assessment for hydropower;
- b) Provide information on suitability and availability of water sources for water supply services;
- c) Carry out related water studies for infrastructure development;
- d) Provide and carry out data collection for related development purposes on rivers and streams;

- e) Carry out investigations relating to damages that are caused to rivers and stream catchments and
- f) To provide know how on rain water catchment

The Section was actively participated in the implementation of hydrological monitoring programs of the division in order to provide the above services. Such programs include activities being implemented throughout the country which include:

- a) Data collections on rivers, especially flow and water level measurements;
- b) Rainfall data collection on catchments of interest by Province and communities;
- c) Site selection surveys for hydrological monitoring installations;
- d) Water supply assessments on rivers and streams for water supply services;
- e) Undertake assessment for rain water catchments for low lying and atoll islands and
- f) Carry out basic environmental assessments on rivers and streams where pollution is a threat.

12.2 Hydrological Monitoring Networking in Solomon Islands

To achieve the aims and objectives of the division, there is monitoring undertaken for some rivers and streams which are of interest for hydro power scheme, water supplies and other related infrastructure development in the country. Other potential sites would be monitoring as and when required depending on funding and instrumentation. Table 4.0 below indicates the current interests for hydrological investigation throughout the country.

Table 4.0 - List of Provinces and Key Areas for water resources assessment

Provinces	Purpose of Hydrological Investigation
Malaita	Mainly hydropower, water supply and Infrastructure development.
Guadalcanal	Hydropower development, Water supply, infrastructure and Mining.
Choiseul	Hydropower and water supply service
Makira	Hydropower, some water supply
Santa Isabel	Hydropower, some water supply and mining development
Temotu	Hydropower and water supply.
Western	Water supply assessments

In 2016 there were a number of field trips undertaken as part of the hydrological services provided by the division. These activities involve quarterly visits to current hydrological and rainfall monitoring station throughout the country to carry out data collection from the hydrological stations and to do maintenance and services on the stations. Last year most of the data are not downloaded and archive because of the malfunction of the field laptop. Table 4 below provides a list of tasks implemented in 2016.

Table 5.0 - List of Hydrological Stations visited in 2016

Sites	Purpose of Visits
Fiu, Auki	Visited but could not download data because no field laptop. Carry out general maintenance
Hunanawa, East Are'Are	Installed in 2014. Visited in 2016 but could not download data because of no field laptop. The field is malfunction and still in repair at ICT.
Kubolota, Isabel	Uninstallation of logger and general maintenance work done. No retrieving of data.
Tetere, CSSI, Guadalcanal	Rainfall station only. Quarterly visits to do maintenance only

Rate Primary School, Guadalcanal	Rainfall station only. Quarterly visits to do maintenance only. No data download
Mt. Austin, Guadalcanal	Rainfall station only. Quarterly visits to do maintenance.
Rove stream, Botanical Harden, Honiara	Monthly gauging was undertaken. Station need reinstallation of new logger
Lungga river at Betikama, Honiara	Station not operational due to re-routing of river channel. Station dismantled for re-installation at suitable site downstream
Luembalele, Temotu.	No visit due to financial constraints
Sorave, Choiseul	Reinstallation of gauge and logger and carry out maintenance and service
Mataniko, Honiara	Download data, monitoring of borehole
Noro & Goldie College	Noro new installation of water level & rainfall, data acquisition at Goldie

12.3 Targets

There is always a need for improvements in hydrological monitoring networking in the country to collect hydrological and rainfall data for the country especially when the much needed logistic was improved let alone man power shortage. With adequate financial support from the government, the section should be able to conduct its work.

The hydrologists also participate in the implementation of the SIWSAP project through installation of manual rain gauges and technical support. Also the installation of simplified early warning systems in villages in Makira and Isabel under the CBDRM project of NDMO and JIAC. In 2017, there should be a lot of work for the section and the division as the project implementation phase commences.

Upgrading of all data logger software used by the division for its hydrological investigations need to be done. Software problem has led to difficulty in producing reports for the hydrological investigations throughout the country. Other important key activities for the coming years include:

- a) Improve and increase rainfall and water level data collection in 2017;
- b) Need new field laptop and new compatible software;
- c) Reinstallation of recorders to all sites that are temporary closed;
- d) Installation at new sites for monitoring in line with Rural Areas Renewable Policy Framework;
- e) Data management and archiving with appropriate back-up and
- f) Improve on seasonal gauging for rivers and streams closer to Honiara to capture extreme events.

12.4 Hydrological Issues

There are certain issues that have negative impacts on water sector developments in the country. Attempts were made over the years to address these issues without proper success.

Table 6.0 – Issues affecting water sector development

Issues	Shortcomings need improvement
Policies and Planning	Need proper water related policies to enhance hydrological net working in the country, especially in terms of land use which is a major obstacle to water related development.
Finance	One major setback is the insufficient fund to enable the much needed data to be collected for hydrological networking in the country.
Awareness	The need for awareness programs is very important especially in letting the rural populace know the importance of hydrological data collection. In the past

	up until now we have lost important equipment through vandalism because people are not aware of the importance of hydrology
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13.0 Hydrogeology Section

The section provides technical supports towards the investigation, monitoring and assessment of potential groundwater resources for human consumption, agricultural and industrial development in the country. This was done through conducting geophysical survey for ground water potentials and advised on ground water extractions.

Services were provided as and when request was received and falls within the functions of the division. In situations where the division was not able to provide support due to financial constraints the clients were able to partially fund the undertaking of such assessments. Mostly, requests for groundwater assessments were included in the division's work plan so that it can be budgeted for in the following year.

13.1 Hydrogeological Investigations

There were a number of water resources assessments conducted in 2016; some of which related to potential to develop groundwater whilst others related to potential surface water available in the area. The table below provides summary of hydrological activities of the section in 2016.

Table 7.0 - List of hydrogeological activities and request conducted in 2016

Location/Sites	Purpose of Assessment
Horabau & Duidui - Guadalcanal	Conduct pump test for water quality and quantity
Tenaru NSS - Guadalcanal	Assessment on water supply status needs improvement
Aligegeo PSS - Malaita	Assessment of water supply with report for Provincial government
Veuru GPPOL 1- Guadalcanal	Water supply assessment with report submitted to the community
Fly Harbour Primary School	Request for water assessment site visit to be confirm
Good Shepherd COM – Guadalcanal	Water resource assessment with report submitted as proposal

13.2 Hydrological activities

The hydrological activities undertaken includes the re-installation of automatic rain gauge at Gold Ridge after it was vandalised in 2015. During this re-installation no data was retrieved and downloaded. The data should be download in the first quarter of 2017.

However, monitoring and gauging at Tinahulu river is ongoing. The equipment are used for data collection program for Gold Ridge as part studies for rainfall in the Tinahulu catchment area. Such hydrological monitoring program is useful for the Tailings Storage Facility at Gold Ridge Mining Site.

The Kubulota hydrological station at Isabel was visited twice before it was later uninstalled. The station has been monitoring the Kubulota River for the past 10 years and all data are stored in the data base. The data when tabulated and put on hydrographs indicates different rainfall pattern at the catchment area. Kubulota station was un-installed because of the operation of Jejevo mini-hydropower station. The Jejevo hydropower can supply Kubulota and other communities that are situated within the vicinity of the hydropower station. Kamaosi has been identified as the new site for monitoring as of 2017.

The confirmation of the Terms of Reference (TOR) for drilling procurement consultant was prepared and given to consultant. Drilling procurement proposal received from local consultant. This was done in preparation for the re-establishment of the drilling section as of 2017. From the government's financial point of view, drilling used to bring in revenue (in excess of \$100,000.00) and contributed to economic growth every year. This stopped when the unit was made redundant in 1999 and resulted

in the loss of much needed revenue. Given the anticipated increase demand for groundwater developments into the future there is guarantee for more revenue collected to support government budget annually once the drilling section is operational.

13.3 Strengthening Community Based Disaster Risk Management

The division was actively involved with flood monitoring activities through provision of maintaining the Manual Flood Gauges which provided flood warning to selected vulnerable communities in Guadalcanal during flooding, as well as providing advice to these communities to strengthen their knowledge on matters relating to DRR.

This work was continuation of a JICA funded project on strengthening the capacity of communities in disaster risk reduction that ended in 2013. SIG through the division was pursuing this activity as part of its DRR program. The successful monitoring and operation of the flood EWS on Guadalcanal convince JICA and NDMO to extend the program to Makira and Isabel in 2016.

There are about 4 communities which have flood monitoring and warning instruments which the division maintains as part of its DRR program. The communities are:

Table 8.0 - List of Flood Monitoring Sites

Monitoring site	Purpose of flood monitoring & Remarks
Tamboko (Umasani basin)	Umasani is a successful pilot study area for the JICA project. All early warning systems are intact and needs continuous inspection; monitoring and Maintenance in 2017.
Selwyn College	Selwyn College Early warning systems were still operating as usual. The simplified water level gauge and simplified rain gauge was still used to monitor flooding at river during the wet season of 2016 at the school compound. It is recommended that the monitoring; inspection and maintenance of the early warning systems to continue. This really helps the school during wet season.
Rate	This site needs total replacement of the simplified water level gauge and simplified rain gauge. The simplified water level gauge was washed away during the April 2014. The simplified rain gauge at Rate school needs to be replaced with a new bucket. Currently all equipment need replacement and reinstallation to ensure continues data downloading and archiving.
Turarana	The Turarana Early Warning Systems consists of the simplified rain gauge. The equipment were located at the school compound and still operation. During the visit in the last quarter 2015, it seems also the simplified bucket was broken and needs replacement. The simplified rain gauge was also washed away during April 2014 flooding thus require immediate replacement. The equipment need replacement and reinstallation as it is not working now.

13.4 JICA and NDMO DRM Project

The JICA and NDMO community based disaster risk management project proposed sites includes Makira and Isabel. In Makira Province there are 10 rivers and 14 sites that the communities identified by the JICA Expert and the stakeholders involved. There are 4 EWS that have been installed by the JICA experts and WRD officers in Makira province while 2 EWS has been installed in communities in Isabel Province. The project implementation and installation of simplified water level gauge and rainfall gauge will continue in 2017. WRD is a stakeholder so it will still continue to the support the project through technical support.

14.0 Policy & Management Section

This section deals with water governance issues such as legislation, policy and management of water resources, however, it also involves in hydrological and hydrogeological activities when necessary. This brief report covers the activities of the Policy and Management Section of Water Resource Management Division in 2015. The report relates to the 2015 work plan and other related work of the division.

14.1 Solomon Islands Water Sector Adaptation Project [SIWSAP]

14.1.1 WASH Climate Change Adaptation Plans and Option Evaluation

An Adaptation Planning workshop was held at Ferafalu to review the WASH options and for pre-selection of the options for intervention during the implementation phase. This was done to assess the community's ranking and prioritizing of the WASH options through a detailed evaluation criteria. The community was also brief on the findings and recommendations of the SIWSAP CCVA Assessment. The process of assessment and planning implemented through this initiative will present to government partners a number of innovations and approaches that aim to support better local, provincial and national response to climate change.

14.1.2 National Feedback Session

The objective of the National Feedback Session is to explain the methodology and share its results, such as the Climate Change Vulnerability Assessment (CCVA) Reports, and draft Water-Sector Climate Change Adaptation Response Plans (WS-CCARP) piloted in Ferafalu, Gizo, Taro, Tigoa, Tuwo and Santa Catalina. Lessons learned and the methods it has developed will also be shared for further improvement and/or validation.

In doing so members of the government and pilot communities will be able to contribute comments and feedback to the process and reports, as well as share recommendations on how the process can be scaled to other priority communities in the 6 provinces and beyond so that Solomon Islands National and Subnational policies and priorities for climate change and water sector resilience can be further advanced.

14.1.3 Quick Fix Handover

SIWSAP through contractors recently completed installing quick fix water infrastructure at project sites. These investments include new rainwater harvesting systems (RWHS), digging new wells and rehabilitating wells most accessed by communities. The total number of RWHS systems installed is 71 while the number of new/rehabilitated wells is 9. These infrastructures has greatly improved and increased each project site's water storage capacities and resilience to current extreme weather challenges and in turn improved family health and sustained livelihoods in terms of clean and accessible water. Quick Fix actions are short term responses to the 2015/2016 El Nino event that resulted in a prolonged drought and had in turn cause severe water stress to island communities around the country. The handover was to officially handover quick fix infrastructure to recipient SIWSAP communities and townships to ensure community ownership of the infrastructures.

14.2 Field Visit and Assessment

14.2.1 Sorave Station

The Sorave Hydrological Station was reinstalled on the fourth quarter of 2016. During the reinstallation a new housing was assembled on top of the new staff gauge to replace the old torn staff gauge and

housing. Data from the odyssey data recorder was retrieved, staff gauge was replace and general clearing of the site. After the installation, the recorder reading encounter a problem when recording data. The reading was set at 15 minutes intervals for data recording however it was recorded at 45 minutes intervals. There is no lock for the housing of the hydrological station. The housing must be locked to ensure that the recorder is safe inside.

14.2.2 Rove Station

After the station was function for quite sometimes, it was noticed during the gauging that the logger inside the housing was not working properly as a result data cannot be downloaded. The status of the station need reinstallation in 2017 to ensure that data are collected and archive.

14.2.3 Kubulota Station

The Kubulota hydrological station was uninstall but the staff gauge was left at the site. The Provincial Government was informed of the purpose of the uninstalation. The logger was uninstalled because the mini hydropower at Jejevo is now operational. Power lines can be pulled to Kubulota and other nearby communities along the road. The proposed site for installation is Kamaosi School. This would be in line with the energy's division mini-hydropower strategic development plan.

14.3 Foxwood Church Groundwater Assessment

An assessment was carried out at Foxwood church to ascertain the availability of ground water source so that a borehole can be constructed to supply water to the people as the increasing demand for water is evident in this area. The Good Shepherd Church is situated within the boundary of Guadalcanal Plains to the east of Honiara. The proposed expansion of the area to be the head-quarter of the Dioses of Guadalcanal for the Church of Melanesia would increase the demand for water. The geology of the area consists of poorly deposits with a mixture of gravels, sands and clay. However, best aquifers are can be located in the gravel layers of the delta sediments and are suitable for borehole drilling and water resources extraction.

Chapter Four

Financial Information

15.0 Budget Estimates Allocation

The budget allocation for the division for 2016 was decreased compared to 2015 budget. The budget was not adequate to implement all the work plan of the division however there were other constraints hindered the implementation of the division in 2016. The main one being delay in securing necessary funding to implement the various programs and plans of the division. Other budget constraints were discussed under the sections.

Table 9.0 – 2016 Re-current Expenditure for Water Resources Management Division

Budget Code	Details of Expenditures	Amount
295-0275-0000-2008	Publicity & Promotions	\$15,780.00
295-0275-0000-2103	General Stores & Spares	\$86,625.00
295-0275-0000-2105	Office Stationery	\$59,610.00
295-0275-0000-2301	Fuel	\$50,000.00
295-0275-0000-2501	Maintain - Non Residential Buildings	\$105,415.00
295-0275-0000-2506	Maintain - Motor Vehicles	\$28,000.00
295-0275-0000-2508	Maintain - Office Equipment	\$9,100.00
295-0275-0000-2601	Conferences, Seminars and Workshop	\$102,100.00
295-0275-0000-2708	Public Servants - Local Fares	\$83,320.00
295-0275-0000-2714	Public Servants - Annual Leave Fares	\$30,801.00
295-0275-0000-2901	Uniforms	\$50,000.00
295-0275-0000-5575	Capex - Other Equipment	\$100,000.00
	Total Other Charges	\$722,232.00

15.1 Disbursements of Funds

The disbursement of funds allocated to the division was mainly divided into the following categories:

- Public Servants - Local Fares (Hydrological and hydrogeological activities)
- Workshops & Meetings Expenses
- Maintenance of Materials and Equipment
- Travel and transportation
- Office Expenses

15.2 Constraints and Limitations

It has not been easy and smooth during the implementation of the division's work programme. Experiences with efforts to effectively address the work program have indicated certain deficiencies within existing implementation arrangements. Generally, either there has been lack of adequate support for particular activities or that existing capacity of WRD was insufficient to cope with the activities.

The difficulties encountered by the division can be broadly categorized under one or the other of the limitations outlined below:

- a) Inadequate budgetary support
- b) Ineffective coordination mechanisms
- c) Lack of or inadequate information or data

- d) Lack of promotion for officers
- e) Inadequate capacity within the division
- f) Time constraint or limitation

15.3 Government Support in Water Resources Sector

It was observed over the years that water resources sector was relatively given less priority by successive government compared to other sectors. Water supply and sanitation was ranked highest in the NDS 2011-2020 yet it was not really reflected in the Government's policy statements during past years.

One of the reasons for this was the lack of understanding and appreciation of hydrology and water resources. As a result there was relatively less emphasis given to water resources sector activities and budget.

Probably the way to address the above issue was to promote Hydrology and water resources through seminars, workshops and awareness, especially on the importance of hydrology and water resources even up to the highest level in the government. By educating the policy makers and planners on the various aspects and components of Hydrology and water resources programs there could be improvement on budget allocation to conduct hydrology and water resources programs in the country.

16.0 Way Forward

The section reports produced by officers have highlighted and pointed to key areas that need particular attention to improve the efficacy of the division. The way forward to address the limitations includes:

- a) Increasing manpower to reflect the expanding activities of the division
- b) Establishment of WRMD information database and library
- c) Conduct more water management awareness program
- d) Strengthen stakeholder engagement in relevant activities
- e) Review of existing legislations
- f) Strengthen existing coordination and collaboration mechanisms with stakeholders
- g) Adequate funding support by government
- h) Motivation of officers through promotion

One of the major problems the division faced is the current limited man power for the division. Probably the lack of understanding the importance of the divisions work by our employing authority resulted in difficulty to increase the manpower requirement of the division.

There was even difficulty to recruit new officers to fill vacant positions within the division. Worst still there was relatively small budget to implement the expensive program throughout the country. This limited budget stretched the division's capacity to acquire new instruments and equipment to replace those that were vandalised in the field.

17.0 Conclusions & Recommendations

The WRMD division has achieved some of its specific activities within its work program. However, the capacity of the division requires greater improvement and that the involvement of relevant stakeholders is crucial. Participation of division staff in selected short term training workshops and meetings, both locally and internationally, has been an important and integral component of efforts to

increase the division's capacity. This has been promoted as part of the division's Staff Development Plan 2011-2016 however, the implementation of such plan have been difficult over the years.

Despite the achievements made there are certain limitations that have been identified that also contributed to the division not being able to carry out its work effectively. Prompt released of funds to implement work plan activities. The division is aware of the financial difficulties faced by government and will always make every effort to maximize use of its limited resources according to its priorities.

There is a need for improved coordination and collaboration within the division from the directorate and arrangements between the division and its stakeholders. Providing additional human resource to the division is important to realise this as the division will be in a position to develop a more focused approach in implementing its many duties. While the division always tries to work with its priority activities and assign scarce resources accordingly, effective realisation of the work program largely depends on adequate budgetary support and manpower resources available.

The division's objectives and functions have been expanded over the years as additional key sectoral areas have been covered by the division. These sectoral areas include the division's involvement in Disaster Risk Reduction, Climate change and Flood Monitoring for vulnerable communities. These additional activities has stretched the already limited financial and manpower resources of the division. The division is looking into restructuring the division to accommodate additional activities which are now included as part of the divisions functions and responsibilities. A submission was made through the Corporate Service in 2016 to expand the manpower capacity of the division.