

**SUPPORT TO SWM INSTITUTIONAL AND OPERATIONAL STRENGTHENING**

**SU-T1102**

**CERTIFICATION**

I hereby certify that this operation was approved for financing under **Ordinary Capital Strategic Development Program for Infrastructure (INF)** through a communication dated February 27, 2018 and signed by Felipe Caicedo (ORP/GCM). Also, I certify that resources from said fund are available for up to **US\$500,000** to finance the activities described and budgeted in this document. La reserva de recursos representada por esta certificación es válida por un periodo de cuatro (4) meses calendario contados a partir de la fecha de elegibilidad del proyecto para financiamiento. If the project is not approved by the IDB within that period, the reserve of resources will be cancelled, except in the case a new certification is granted. The commitment and disbursement of these resources shall be made only by the Bank in US dollars. The same currency shall be used to stipulate the remuneration and payments to consultants, except in the case of local consultants working in their own borrowing member country who shall have their remuneration defined and paid in the currency of such country. No resources of the Fund shall be made available to cover amounts greater than the amount certified herein above for the implementation of this operation. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, represent a risk that will not be absorbed by the Fund.

Certified by:

**(original signed)**

June 20,  
2018

Date

\_\_\_\_\_  
Sonia M. Rivera  
Chief

Grants and Co-Financing Management Unit  
ORP/GCM

Approved by:

**(original signed)**

June 21,  
2018

Date

\_\_\_\_\_  
Sergio Campos  
Division Chief

Water and Sanitation Division  
INE/WSA

## TC DOCUMENT

### I. Basic Project Data

▪ Country/Region:	SURINAME/CCB - Caribbean Group
▪ TC Name:	Support to SWM Institutional and Operational Strengthening
▪ TC Number:	SU-T1102
▪ Team Leader/Members:	EVAN STEPHEN CAYETANO, Team Leader (INE/WSA); DAVID WILK, Alternate Team Leader (INE/WSA); MARLE DOLORES REYES PANTOJA, STEFAN BUSS, IRENE CARTIN BARRIOS, MARILYN GUERRERO, (INE/WSA); MONICA CENTENO LAPPAS (LEG/SGO); and RAIJANT AMARNATH GANGADIN (CCB/CSU).
▪ Taxonomy:	Client Support
▪ Number and name of operation supported by the TC:	N/A
▪ Date of TC Abstract:	June 11, 2018
▪ Beneficiary:	Republic of Suriname, and N.V. <i>Surinaamsche Waterleiding Maatschappij</i> (SWM)
▪ Executing Agency:	Inter- American Development Bank (IDB)
▪ IDB funding requested:	US\$500,000.00 OC Strategic Development Program for Infrastructure (INF)
▪ Local counterpart funding:	US\$0.00
▪ Disbursement period:	24 months (24 months execution period)
▪ Types of consultants:	Firms and Individual
▪ Prepared by Unit:	Water & Sanitation
▪ Unit of Disbursement Responsibility:	INE/WSA
▪ TC included in Country Strategy (y/n):	Yes
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Productivity and innovation, Institutional capacity and rule of law and Climate change

### II. Objective and Justification

- 2.1 The objective of this Technical Cooperation (TC) is the development of a Strengthening Action Plan (AP) for the improvement of N.V. *Surinaamsche Waterleiding Maatschappij* (SWM) operations performance and the strengthening of its groundwater management capacities and risk pollution control. The AP will identify areas for SWM improvement and provide guidelines to achieve measurable improvement.
- 2.2 The Action Plan will assess the needs and identify measures to ensure the company has the capacity to undertake the investment interventions included in the Master Plan<sup>1</sup>, improving the quality of service, and increasing the efficiency of the company. Additionally, the AP will also identify activities to prepare SWM for new obligations and responsibilities (including protection of groundwater resources and drinking water quality) outlined in new sector legislation expected to be approved in the short term. The TC will undertake a comprehensive review of the operational culture of SWM and define its training needs. Therefore, the TC will be sustainable since it will contribute to the

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<sup>1</sup> The Water Supply Master Plan for Suriname prepared by Genivar in 2010 was identified by the Government of Suriname in December 8, 2008 and financed by the IDB as a necessary project to determine the infrastructure investment and institutional strengthening needed to meet growing water demands for the entire country to the year 2024.

improvement of SWM organizational and operational efficiency as well as to enhance SWM capacities for risk pollution control, which would be replicable in other areas.

- 2.3 The SWM is a state-owned utility that supplies water to approximately 91% of Suriname's population. Other agencies with responsibilities in the water sector include: (i) the Ministry of Health, which oversees monitoring environmental health; (ii) the Ministry of Agriculture, which oversees irrigation; and (iii) the Ministry of Public Works (MPW) and the Ministry of Regional Development, which oversee drainage systems. The SWM has been working towards advancing the implementation of the US\$250 million investment program established in the 2011 Water Master Plan through the ATN/SF-11374-SU. However, to manage increasing investment programs, as well as maintaining and operating the facilities to be constructed requires a strong and resilient institutional structure. Additionally, the responsibility for the supply of potable water to some coastal communities was recently transferred from the Ministry of Natural Resources (DWV/NH) to SWM. As SWM continues to take over these areas, there is an urgent need to increase its operations performance. The SWM institutional capacity is weak and the additional responsibility requires an Action Plan that properly describes the issues and the steps needed to overcome the weaknesses.
- 2.4 The water supply in Greater Paramaribo relies almost entirely on groundwater extraction, which represents about 85% of all groundwater exploitation currently in Suriname. While SWM has successfully executed the ATN/OC-14410-SU assessing the aquifer potential and groundwater level of the Coastal aquifer in Suriname, there is the need to complement this study with a pollution risk assessment and model to consolidate SWM groundwater management capacities. The groundwater study will provide for understanding the impact of climate change and assuring sustainable yields given climate change scenarios on groundwater levels. Sustainable water supply contributes to gender equality given that lack of water supply impacts more on women and girls.
- 2.5 This operation is linked to the Country Strategy's objective of Modernization of the Public Sector governance and efficiency. Specific elements of the CS to which this TC would contribute through the Institutional Strengthening AP include reducing subsidies and lowering public spending while protecting the social safety net and strengthening public administration. The AP will provide guidance on improving operating efficiencies, financial management (including debt management, cost containment, and revenue maximization), and governance arrangements. The program is consistent with the Update to the Institutional Strategy (UIS) 2010-2020 (AB-3008) and is aligned with the development challenges of productivity and innovation. This TC is aligned with the Water and Sanitation Sector Framework Document as the Action Plan will provide for improving service quality and efficiency in the management of the SWM. This TC is also aligned with the objective of Ordinary Capital Strategic Development Programs (GN-2819-1), addressing challenges of low productivity, climate change and environmental sustainability, and will help to enhance the quality of design and efficiency in execution of infrastructure projects in water and sanitation, and provide for diagnostics, assessments and country dialogue.

### III. Description of Activities/ Components and Budget

- 3.1 In order to achieve the above-mentioned objective, the TC would finance consulting services to an institutional strengthening action plan and a groundwater pollution risk assessment and model to evaluate vulnerability of the aquifers in *La Vigilantia*, as well as activities to strengthen the SWM's capacity on pollution risks assessments.
- 3.2 **Component I: SWM Institutional Strengthening Plan.** The component will finance the development of the Institutional Strengthening Plan for the SWM. The activities will comprise a review of the management and operations of SWM and identification of aspects of SWM performance that need to be improved, and clear definition of

recommendations for improvement, including when necessary preparation of required tender documents. The component's output will be the Institutional Strengthening Plan approved by the SWM.

- 3.3 **Component II: Strengthening of groundwater pollution risk assessment capacity.** The component will finance the development of a pollution risk assessment model to be applied to the aquifer in *La Vigilantia*, building upon the recently developed Hydrogeological Assessment of the Coastal Aquifer in Suriname (HCAS) model, with replication possibilities by SWM in other areas. The activities will include water quality analysis and hydrologic flows modelling. The component's output will be the model and a specific pollution assessment for La Vigilantia.
- 3.4 **Component III: Project Evaluation.** The component will finance the conduct of a final evaluation of the execution and results of the TC.
- 3.4 The total cost and the amount that would be made available by the IDB for the proposed TC is US\$500.000 (see [Detailed Budget](#)).

**Indicative Budget (US\$)**

Activity/Component	IDB/Fund Funding	Counterpart Funding	Total Funding
SWM Institutional Strengthening Plan	350,000	0.00	350,000
Component 2. Strengthening of groundwater pollution risk assessment capacity.	120,000	0.00	120,000
Component 3. Project Evaluation	30,000	0.00	30,000
<b>Total</b>	<b>500,000</b>	<b>0.00</b>	<b>500,000</b>

#### **IV. Executing Agency and Execution Structure**

- 4.1 At the request of the Government of Suriname, this TC will be executed by the IDB. the IDB's Water and Sanitation Division (INE/WSA) will be responsible for the execution of this TC. Supervision of this TC will be the responsibility of the Project Team Leader assigned by INE/WSA, with the support of the Chief of Operations in the IDB's country office of Suriname and the assigned Operations Analyst. INE/WSA will be responsible for procurement of the required services. In accordance with Annex 10 of GN-2629 the justification for IDB execution is that the Beneficiary and the IDB agree that contracting by the IDB would enhance independence of the studies.
- 4.2 As an IDB Executed Operation (BEO) the activities to be executed are included in the Acquisition Plan (Annex) and will be contracted in accordance with Bank policies as follows: (i) AM-650 for Individual consultants; (ii) GN-2765-1 and Guidelines OP-1155-4 for Consulting Firms for services of an intellectual nature; and (iii) GN-2303-20 for logistics and other related services. Accordingly, the selection and contracting process will be done in the "Firm Procurement Module" within Convergence, which guides and documents the selection and contracting process of Consulting Firms for BEO Work. For procurement for individual consultants, the contracting will be in accordance with AM-650.

#### **V. Project Risks and Issues**

- 5.1 There are no major risks foreseen under this TC. The execution will be simplified by maintaining three procurement processes; two for consulting firms and one for an individual consultant. The consulting firms will be one for each Components I and II, and an individual consultant for the final evaluation.

## **VI. Exceptions to Bank Policy**

6.1 No exceptions to Bank policy identified.

## **VII. Environmental and Social Classification**

7.1 In accordance with the guidelines of the Policy Environment and Safeguards Compliance Policy (OP-703) the proposed operation was classified as category C ([Environmental Filters](#)). No potential negative environmental and/or social impacts of the TC were identified and therefore no mitigation strategy is required to address any impact.

### **Required Annexes:**

- [Request from the client](#)
- [Results Matrix](#)
- [Terms of Reference](#)
- [Procurement Plan](#)



**MINISTERIE**

**VAN**

**FINANCIËN**

Tamarindelaan # 03

Onafhankelijkheidsplein

Paramaribo-Suriname

T: 597 472610 / F: 597 476314

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La F No.: 4594

Paramaribo, August 28, 2017

**Mr. Cesar Falconi**

**Representative**

**Inter-American Development Bank**

**Country Office Suriname**

Peter Bruneslaan nr. 2-4

Paramaribo

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Enclosure : ---

Subject : Request for Technical Cooperation for the N.V. Surinaamsche Waterleiding  
Maatschappij (SWM)

Dear mr. Falconi,

The N.V. Surinaamsche Waterleiding Maatschappij (SWM) has been working towards advancing the implementation of the MUS250 investment program established under the 2011 Water Master Plan, through IDB Loan SU-L1018.

In light of the above financing operations are being implemented or prepared, for instance with the Agence Française de Développement (AFD) and the Caribbean Development Bank (CDB). The SWM recognizes that managing those investment programs, as well as maintaining and operating the facilities to be constructed will require a strong and resilient institutional structure. SWM is therefore desirous of identifying institutional strengthening (IS) needs and developing an IS program (ISP) to ensure the company has the capacity to undertake those investment interventions, improving the quality of service, and increasing the efficiency of the company. Additionally, the ISP will prepare SWM for new roles and responsibilities (including protection of groundwater resources and drinking water quality) outlined in new sector legislation expected to be approved in the short term.

We are therefore requesting IDB support for a Technical Cooperation for the N.V. Surinaamsche Waterleiding Maatschappij (SWM) of an amount of US\$500,000 which would include two components:

1. Component 1 (US\$350.000) – A review of the management and operations of SWM and identification of aspects of SWM performance that need to be improved and a clear definition of recommendations for improvement, including when necessary preparation of required tender documents;
2. Component 2 (US\$120.000) – The development of a pollution risk assessment model to be applied to the aquifer in La Vigilantia, building upon the recently developed HACAS model, with replication possibilities by SWM in other areas. The activities will include water quality analysis and hydrologic flows modeling.

Additionally an amount of US\$30.000 is requested for project administration.

We look forward to your positive reaction.

Yours sincerely,



G. Hoefdraad  
Minister of Finance

Dear Mrs. Edwards and Mr. Linger,

We thank you for following up on the request of the GOS.

Mr. Linger we thank you as well for sharing the view of the SWM with us.

In general, the MOF can agree with the draft TC. We have two observations:

- 1) in para 2.3 please mention the current full name of the 'Ministry of Agriculture' and 'Ministry of Public Works'
- 2) in para 4.1 we would appreciate to be copied as MOF\Joint Desk in the communication between SWM and IDB during the implementation of the TC

We look forward to the continuation of the preparation of this process.

Regards,

Iris Sandel  
Ministry of Finance

On Thursday, June 7, 2018, 3:00:47 PM GMT-3, Linger, A. <[A.Linger@swm.sr](mailto:A.Linger@swm.sr)> wrote:

Dear Ms. Sandel,

I was included in this email conversation by the IDB and asked by the IDB if I agree with the contents of the Draft TC document. I refer to the email below (from Ms. Edwards) and confirm that I agree with the contents of the Draft TC Document.

Regards,

Alwin Linger

*Deputy Director Operations*

*N.V. Surinaamsche Waterleiding Maatschappij*

*Willem Campagnestraat 40*

*Paramaribo, Suriname*

*P.O.B. 1818*

*Tel.: 402390 ext. 422*

*Fax: 476343*

*E-mail: [A.Linger@swm.sr](mailto:A.Linger@swm.sr)*

**From:** Gangadin, Raijant Amarnath [<mailto:raijsantg@IADB.ORG>]

**Sent:** Friday, June 01, 2018 1:58 PM

**To:** Linger, A.

**Cc:** Cayetano, Evan Stephen; Edwards, Leslie-Ann G.



**Subject:** FW: SU-T1102 Support to SWM Institutional and Operational Strengthening - Draft TC Document

Dear Mr. Linger,

As discussed, this morning I hereby share with you the email that was sent to the Joint Desk on the Draft TC document.

Regards,

Raijant

**From:** CSU Correspondence

**Sent:** Tuesday, May 29, 2018 3:08 PM

**To:** Iris Sandel <[cciris@yahoo.com](mailto:cciris@yahoo.com)> <[cciris@yahoo.com](mailto:cciris@yahoo.com)>; 'sagita.jaggan@finance.gov.sr' <[sagita.jaggan@finance.gov.sr](mailto:sagita.jaggan@finance.gov.sr)>

**Cc:** Falconi, Cesar A. <[CESARF@iadb.org](mailto:CESARF@iadb.org)>; Gangadin, Raijant Amarnath <[raijsantg@IADB.ORG](mailto:raijsantg@IADB.ORG)>; Edwards, Leslie-Ann G. <[LEDWARDS@iadb.org](mailto:LEDWARDS@iadb.org)>; Cayetano, Evan Stephen <[EVANC@iadb.org](mailto:EVANC@iadb.org)>

**Subject:** SU-T1102 Support to SWM Institutional and Operational Strengthening - Draft TC Document

Dear Mrs. Sandel and Mrs. Jaggan,

The Inter-American Development Bank is pleased to submit the Draft TC document (attached) for the proposed technical cooperation entitled: **SU-T1102 Support to SWM Institutional and Operational Strengthening**, for the review and approval of the Government of Suriname.

The Bank has consulted with Mr. Alwin Linger, Deputy Director Operations, on the preparation of this document and has also shared with him the Draft TC document.

During the preparation of the TC, it was discussed and agreed that the IDB will execute the project on behalf of the SWM.

We are respectfully seeking to receive the clearance of this Draft TC document by June 12, 2018 which will allow the Bank to maintain the preparation schedule and secure the funding.

If no response is received by such date, the Bank shall assume that the Government of Suriname does not have objection to the document in its entirety and will continue towards the approval of the project.

Please let us know if any additional information is required.

Sincerely,

**Leslie-Ann Edwards**  
**Chief of Operations**  
Country Office Suriname  
Caribbean Country Department  
(Internal: \*251223)



Peter Bruneslaan 2-4  
Paramaribo, Suriname  
[www.iadb.org](http://www.iadb.org)

## Results Matrix

### Outcomes

<b>Outcome:</b> 1 Institutional Strengthening Plan (SWM Operations Audit and Pollution Risk Assessment Recommendations)							
Indicators	Flags*	Unit of Measure	Baseline	Baseline Year	Means of verification	EOP	
1.1 SWM Institutional Strengthening Plan		Plan	0.00	2018		P	1.00
						P(a)	1.00
						A	
1.2 Strengthening groundwater pollution risk assessment capacity		Plan	0.00	2018		P	2.00
						P(a)	2.00
						A	



### Outputs: Annual Physical and Financial Progress

1 SWM Institutional Strengthening Plan						Physical Progress					
Outputs	Output Description	Unit of Measure	Baseline	Baseline Year	Means of verification	2018	2019	2020	EOP		
1.1 Institutional development plan prepared (SWM Management and Operations Audit Report Prepared)		Plan	0	2018	Consultant's Report	P	0	0	1	1	P
						P(a)	0	0	1	1	P(a)
						A					A
2 Strengthening groundwater pollution risk assessment capacity						Physical Progress					
Outputs	Output Description	Unit of Measure	Baseline	Baseline Year	Means of verification	2018	2019	2020	EOP		
2.1 Groundwater pollution risk assessment model		Model	0	2018	Consultant's Report	P	0	1	0	1	P
						P(a)	0	1	0	1	P(a)
						A					A
2.2 Training workshops (IS) developed and delivered		Workshop	0	2018	Consultant's Report	P	0	2	0	2	P
						P(a)	0	2	0	2	P(a)
						A					A

Other Cost

Total Cost

Total Cost



CRF Indicator



Standard Output Indicator

P
P(a)
A



Financial Progress						
2018	2019	2020	EOP	Theme	Fund	Flags
			350000	Water and Sanitation	INF	
			350000			
Financial Progress						
2018	2019	2020	EOP	Theme	Fund	Flags
			110000	Water and Sanitation	INF	
			110000			
			10000	Water and Sanitation	INF	
			10000			

2018	2019	2020	Total Cost
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			\$500,000.00
			\$500,000.00

## **Terms of Reference**

### **Management and Operations Audit of the SWM**

#### **Background**

The N.V. *Surinaamsche Waterleiding Maatschappij* (SWM, Suriname Water Company) is a government-owned utility that supplies water to approximately 91% of Suriname's population. Other agencies with responsibilities in the water sector include: (i) the Ministry of Health, which oversees monitoring environmental health; (ii) the Ministry of Agriculture, which oversees irrigation; and (iii) the Ministry of Public Works (MPW) and the Ministry of Regional Development, which oversee drainage systems. The SWM has been working towards advancing the implementation of the US\$250 million investment program established in the 2011 Water Master Plan through the ATN/SF-11374-SU. However, to manage increasing investment programs, as well as maintaining and operating the facilities to be constructed requires a strong and resilient institutional structure. Additionally, the responsibility for the supply of potable water to some coastal communities was recently transferred from the Ministry of Natural Resources (DWV/NH) to SWM. As SWM continues to take over these areas, there is an urgent need to increase its operations performance.

The water supply in Greater Paramaribo relies almost entirely on groundwater extraction, and represents about 85% of all groundwater exploitation currently in Suriname, is operating under constant challenges. The main problems include: (i) old pipes, the majority of which were laid more than 40 years ago; (ii) insufficient maintenance of the infrastructure, limited rehabilitation activities and inefficient energy use; (iii) ever increasing demand for water; (iv) lack of an integrated management information system within SWM; (v) lack of financial resources and autonomy of the SWM; (vi) uncertainty with respect to safe yield of its aquifers; and (vii) lack of comprehensive water quality monitoring system. These problems have led to gradual deterioration of the network, with high NRW levels, electromechanical inefficiencies; and saltwater intrusion in some wells.

Some of these problems have been addressed by LO 2451/OC-SU (SU-L1018) Water Supply Infrastructure Rehabilitation that increased household connects, replaced some aged pipes, reduced NRW to a limited extent, improved energy efficiency, and provided for some institutional strengthening. However, given the limited scope of SU-L1018, much remains to be done to improve water supply in Suriname. There remains the need for a comprehensive review of SWM's operational culture and development of an institutional development plan for SWM. Under ATN/OC-14410-SU (TC Name) SWM successfully executed the assessment of the aquifer potential and groundwater level of the Coastal aquifer in Suriname, but there is need for a complementary pollution risk assessment and model to consolidate SWM groundwater management capacities.

In its attempt to address this need the Government of Suriname, requested further IDB support for technical support, and the IDB has agreed to TT-L1102 Support to SWM Institutional and Operational Strengthening. The objective of this technical cooperation is the development of a Strengthening Action Plan (AP) for the improvement of SWM operations performance and the strengthening of its groundwater and (future) surface water

management capacities and risk pollution control. The accomplishment of terms of reference will contribute SWM attaining the TC objectives.

### **Objective of Consultancy**

The objective of this consultancy is to examine all aspects of the SWM's management and operations and provide recommendations, inclusive of a modernized SWM organizational structure, an operational strategy (inclusive of standard operational procedures and benchmark performance standards) and a customer service strategy (inclusive of 24-hour service provision), towards the improved efficiency of the SWM operations and its readiness for regulation by the Fair Trading Commission (FTC). The impact of the 3 upcoming water laws (protection of ground water sources, extraction of ground water and the water quality standards) should also be taken into account.

Important to the achievement of the objective is a thorough analysis of the following areas of the Authority's business:

- Strategic and Corporate planning
- Human Resources
- Supply coverage/population served
- Availability and reliability of supply
- Operational Management and Efficiency
- Water Quality
- Environmental Compliance
- Customer Service Delivery
- Information Management
- Financial Management
- Project Management
- Maintenance Management

To deliver the specific objectives, the Consulting Firm will undertake all necessary activities, which will include as a minimum the tasks outlined in section 4.

The expected results are:

1. Summary of relevant findings and recommendations of previous reports and documentation related to the management and operations audit of the SWM.
2. Review of the SWM operations and recommendations for improvements of supply coverage, customer service, operating efficiency, commercial operations, water quality, compliance with environmental standards, information management, financial management, project management, and support systems and services.
3. Review of SWM's organization, and management, and recommendations for improvement of the organizational structure, staffing levels and capacity, organizational culture, and compensation.
4. Review of SWM's training plan and recommendations for improvement.



## **Specific Tasks**

### **General:**

The N.V. Surinaamsche Waterleiding Maatschappij (SWM) seeks the services of a Consulting Firm (hereinafter referred to as “The Consultant”) to conduct a review of its management and operations in terms of its structure, processes, systems, human resource competencies and utilization and output.

The intent is to:

- Improve the level of service to customers in all respects;
- Maximize the utilization of human resources;
- Integrate related functions, where possible;
- Enhance communication and information management;
- Improve overall efficiency of processes.

Modern and scientific techniques are expected to be used in the analysis of the different areas of the organization, as appropriate and the recommendations are to be supported with adequate justifications. The Consultant will be required to outline the proposed methodology that will apply for the assignment in its technical proposal.

Recommendations should be made to address the specific problems identified in the analysis of the various aspects of the utility’s operations. However, in order to ensure consistency and coherence, the final recommendations should be contextualized under the following headings, as a minimum:

- General Management
- Financial Management
- Operations & Maintenance
- Customer Service
- Human Resources
- Strategy & Policy
- Planning

### **Task 1: Review of existing reports and documentation related to previous management and/or operations audit of the SWM**

In performing the works, the Consultant shall take into account all previous reports on the SWM of relevance, including:

- Institutional Strengthening & Financial Administrative Study by Coopers and Lybrand Report, 1995
- Job Evaluation Study by David Shorey
- Barbados Water Study by WS Atkins International Ltd.

- Project documents and reports (including Operations Manual, Initial Report, Information Technology Department Human Resources Review, etc.)
- SWM Management's Organisational review
- Suriname Water Supply Master Plan (SWMP) 2011 – 2024
- Hydrogeological Assessment of the Coastal Aquifer in Suriname (HACAS)
- Other relevant reports and documentation (e.g. Board papers, etc.)

**Deliverable: Summary of relevant findings and recommendations of previous reports and documentation related to the management and operations audit of the SWM**

## **Task 2: Operations Review**

The Consultant shall perform a detailed review of the operations of the various departments of the SWM and determine areas where improvements are required. In particular, the Consultant shall review performance in accordance with stated objectives of the organization and estimate the extent to which each department of the Authority is contributing to the attainment of these objectives. The review of the operations should be done in terms of the listed parameters, as a minimum, including:

### **2.1 Supply Coverage, Availability and Reliability of Supply**

The Consultant shall investigate the extent to which supply coverage is adequate and in particular the potential impact of the project on supply coverage. The Consultant shall investigate the reliability of supply of water and sewerage services. This shall be based, among others, on reports of outages, customer minutes lost and the performance of major equipment.

### **2.2 Customer Service**

As this is a major deliverable of the organization in terms of quality and quantity of supply and the level of customer care offered, special emphasis shall be placed in this area. Activities to be carried out include:

- A detailed review of customer service delivery against key industry standards;
- Evaluation of the extent to which the age, capacity and condition of the installed infrastructure impact on reliability of service;
- Review of the operational practices of the various operational crews and their impact(s) on customer service delivery;
- Investigation of the requirements to facilitate 24-hour service operations, particularly as it relates to installations and repairs.

### **2.3 Operating Efficiency**

#### **2.3.1 Technical Operations:**

##### **2.3.1.1 Non-Revenue Water (NRW)**

The NRW comprises the losses from transmission and distribution mains, overflowing or leaking storage tanks and service connections to meters; metering inaccuracies and unauthorized consumption; and unbilled metered and unmetered consumption;

- The relative level of NRW compared to acceptable standards;
- The major contributors to NRW. Emphasis should be placed on institutional and procedural issues;
- The structure and systems to ensure that NRW management and control are institutionalised in the SWM.

#### **2.3.1.2 Leak Repairs and Installations**

- The frequency of occurrence of leaks and the major causes;
- The system for detecting and reporting leaks;
- The timeliness of response to reported leaks;
- The effectiveness of leak repair activities;
- The timeliness of installations;
- The feasibility and requirements to facilitate availability of crews on a 24-hour basis to carry out leak repairs and installations.

#### **2.3.1.3 Road Reinstatement**

- The timeliness of road reinstatement after disruption due to SWM related activities;
- The efficacy and cost effectiveness of road reinstatements.

#### **2.3.1.4 Plant Operation and Maintenance**

- The level of record keeping in respect of plant operation and maintenance (O&M);
- The extent to which O & M procedures are documented and followed by staff;
- The adequacy of the existing institutional arrangements;
- Capability, aptitude and attitude of O & M staff;
- Feasibility of improving O & M systems, including potential for automation, electronic monitoring and control;
- The general state of plants and facilities should be commented on in terms of general housekeeping.
- The creation of standard operating procedures for major operational and maintenance activities

#### **2.3.1.4 Quality, Environment, Occupational Health and Safety**

- Review the environmental, occupational health and safety legislation;
- Review the compliance with the occupational health and safety requirements
- Review the quality management system.

### **2.4 Commercial Operations**

#### **2.4.1 Metering**

- Review the extent to which customers are being accurately metered with specific reference to the percentage of customers with functional meters by customer category and geographic location. Where meters are absent, the Consultant should comment on the adequacy of consumption estimates used;

- Review the existing system of meter reading to determine the most efficient way to ensure that all customer meters are accurately read at least once every 2 months.

#### **2.4.2 Billing**

- The efficiency and accuracy of the existing billing arrangements and systems including bill calculation, production and delivery;
- The constraints now being posed by the existing billing system.

#### **2.4.3 Collections**

- Compare the levels of revenue collection as a percentage of billings with other local utilities;
- Determine reasons for levels of collection.

#### **2.4.4 Customer Service**

- Investigate the ease with which customers are able to communicate concerns and queries to SWM;
- Review the management of customer queries and complaints including the recording, routing and response time.

### **2.5 Water Quality**

- Review the water quality sampling program;
- Water quality based on samples tested should be compared with the existing standards with special emphasis on levels of coliform bacteria and residual chlorine;
- Where the water quality does not meet requirements, reasons should be given and appropriate recommendations made to address this failure.

### **2.6 Compliance with Environmental Standards**

#### **2.6.1 Quality of Effluent from Drinking Water Treatment Plants**

- The levels of compliance of the effluent (= waste water) of drinking water treatment plants with environmental requirements;
- Reasons for any non-compliance.

#### **2.6.2 Effects of Capital Projects**

- Review the environmental impact of capital works

### **2.7 Information Management**

#### **2.7.1 Management Information System**

- Identify areas for improvements to better support the business, including through better use of the current technology;
- The adequacy of the existing management information systems and processes;

### **2.7.2 Record Keeping**

- Completeness and accuracy of records on SWM's operations and systems;
- Recording and accessing important information.

### **2.7.3 Reporting**

- The accuracy and adequacy of reports being generated;
- The use of technology to improve record keeping.

## **2.8 Financial Management**

### **2.8.1 Debt Management**

- Review of debt management measures including the ability to repay debt on outstanding and proposed loans.

### **2.8.2 Cost Containment**

- Review of cost accounting measures;
- Effectiveness of cost containment measures.

### **2.8.3 Procurement**

- Review of procurement procedures;
- Efficiency, effectiveness and transparency of procurement procedures.

### **2.8.4 Revenue Maximization**

- Review of billed revenue and collections systems.

## **2.9 Project Management**

- The extent to which the goals and objectives of SWM projects synchronise with the strategic objectives of the SWM
- The performance of projects with regards to the targets set in the objectives

## **2.10 Support Systems and Services**

- Examine the systems supporting the SWM's operations to determine whether or not they are facilitating or constraining the company's operations. Specific recommendations should be made to address any deficiencies in these systems. Particular emphasis should be placed on the areas of information systems, transport, purchasing, stores and maintenance services;

### **2.11 Asset Management (task 3?)**

- Examine the asset management systems and make recommendations.

### **2.12 Strategic Planning (task 3?)**

- Review the strategic planning (department) and make recommendations.

**Deliverable: Interim Report, including:**

- Information on supply coverage and availability and recommendations to improve supply suitability in terms of any modifications of the existing organizational arrangement, staffing and operation and maintenance practices;
- Long-term Customer service plan, inclusive of 24-hour service provision;
- The required structure and systems to ensure institutionalization of the NRW management and control and the resources required;
- Recommendations for minimizing the occurrence of leaks and efficiently and effectively detecting, monitoring and repairing leaks;
- Recommendations on the strategy that should be implemented for ensuring timely and cost effective road reinstatements;
- The required structure and systems for effective plant operation and maintenance including the development of Standard Operating Procedures for major activities/equipment in the respective operational areas;
- Standard Operating Procedures (SOPs) for major operational and maintenance activities;
- Recommendations for compliance with occupational health and safety requirements, inclusive of human resources and equipment requirements;
- Meter management plan;
- Recommendations for improving billing and collection efficiency, including use of specialized private agencies;
- Water quality sampling and monitoring programme;
- Recommendations for addressing problems in the short, medium and long term;
- Summary of environmental issues identified and recommendations for eradication/mitigation activities and their effectiveness in the short, medium and long term; and
- Recommendations for improvements such that effective management can be supported;
- Recommendations regarding the most effective way of realigning/deploying human resources to maximize workforce productivity.

### **Task 3: Organizational/Management Review**

The review of the organization should be done in terms of the listed parameters, as a minimum, including:

#### **3.1 Strategic Objectives**

- Review the strategic objectives of the SWM and the level of the performance of the company in relation to those objectives;
- Review the level of awareness of the staff about the strategic objectives and the influence of the strategic objectives on departmental and individual performance.

#### **3.2 Organizational Structure**

- Review the governance structure of the SWM;
- Examine the current organizational arrangements in detail;

- Review the extent to which the existing organizational arrangement should be modified to facilitate the achievement of its objectives by the SWM in relation to service delivery and profitability.

### **3.3 Staffing Levels and Capability**

- Review the staff complement of SWM, inclusive of comparison with that which obtains in similar utilities and what is deemed to be required in a world class enterprise. In particular, the number of staff per 1000 accounts should be compared with other local utilities and with world class water utilities. These numbers should be compared at the macro level as well as at the levels of different institutional functionalities;
- Investigate the manpower services of the SWM in respect of the deployment of skills and competencies to determine the most effective way of re-aligning/redeploying such to maximise the productivity of the workforce;
- Investigate the skills and technical capability typically required for the activities carried out by SWM in comparison that possessed by existing staff
- Examine the processes and functions and produce systematic procedures for establishing and maintaining a sound operational structure;

### **3.4 Organizational Culture**

- Review the cultural practices within the SWM regarding their consistency with the requirements for a well-run utility. The Consultant shall, to the extent possible, use scientific means to assess the cultural impediments in the organization and make specific recommendations to address these.

### **3.5 Compensation**

- Review the existing compensation policy and structure in detail and the extent to which there should be modification to facilitate the achievement of its objectives by the SWM in relation to service delivery and profitability and the attraction and retention of human resources.

### **3.6 Training**

- Review the existing training plan and the extent to which there should be modification to facilitate the achievement of its objectives by the SWM in relation to operational and service delivery

**Deliverable:** Interim Report with organisational recommendations including,

- The review of the strategic objectives and performance of the company and recommendations for improvements in the performance of the company in relation to those objectives;
- The preparation of a manpower plan to facilitate the strategic objectives of the organization;
- Production of systematic procedures for establishing and maintaining a sound operational structure;
- The development of an organization structure that will allow for a more co-ordinated and efficient delivery of customer service while improving the viability of the SWM as an enterprise;
- The establishment of a system of job accountability and performance appraisal, monitoring and management;
- Recommendations for a training plan;
- Recommendations on compensation levels; and
- The overall impacts and estimated cost of implementing the recommendations.

#### **Task 4: Presentations and Final Report**

The Consultant shall be required to:

- Present the recommendations to the Board of Directors, Unions, Management and other identified parties. The venue and required equipment and materials (projector, flipchart, stationary, etc.) shall be the responsibility of the client. All other equipment (laptop, handouts, etc.) shall be the responsibility of the consultant;
- Recommend an implementation schedule. It is expected that the final recommendations will be implemented on a phased basis.

The report shall be provided in both electronic and hard copy format. A minimum of ten (10) hard copies of the entire report shall be provided.

#### **Characteristics of the Consultancy**

**Type of Consultancy:** Consulting firm

**Procurement Method:** Quality-and-Cost-Based Selection (QCBS).

**Contract Type:** Lump-sum

**Start-up date, length and duration:** This will be a 268-day consultancy (continuous days) starting XXXXXXXX to XXXXXXXX

**Place of work:** Suriname and country of Consulting Firm.

**Qualifications and Experience:** The Firm shall have at least ten (10) years' experience in carrying out management and operations audit of companies with more than five hundred (500) employees. The auditing of utility companies would be an asset. The composition of the firm's audit team should include the following experienced personnel as a minimum:



- Professional and/or Registered Engineer, with experience in the water sector, particularly in NRW reduction and asset management as well as strategic planning
- Water Sector Policy/ Human Resources Specialist
- Financial Analyst/Economist
- IT Specialist

**Payment Schedule:**

<b>Reports and Payment Schedule</b>	<b>Payment</b>
Upon signing of contract and submission of work plan	10%
Upon acceptance of First Interim report (to include deliverables for task 1 up to task 2)	25%
Upon acceptance of Second Interim report (to include deliverables for task 3)	35%
Upon the acceptance of draft final report and completion of presentations	20%
Final payment Upon acceptance of final deliverables by the SWM and the Bank	10%

**Coordination**

Coordination of this consultancy will be conducted by Mr. Evan Cayetano, Water and Sanitation Specialist. The Consultant will work closely with the Board, management and staff of SWM during the execution of this consultancy.

## **Terms of Reference**

### **Pollution risk assessment La Vigilantia**

#### **Background**

The N.V. Surinaamsche Waterleiding Maatschappij (SWM, Suriname Water Company) is a government-owned utility that supplies water to approximately 91% of Suriname's population. Other agencies with responsibilities in the water sector include: (i) the Ministry of Health, which oversees monitoring environmental health; (ii) the Ministry of Agriculture, which oversees irrigation; and (iii) the Ministry of Public Works (MPW) and the Ministry of Regional Development, which oversee drainage systems. The SWM has been working towards advancing the implementation of the US\$250 million investment program established in the 2011 Water Master Plan through the ATN/SF-11374-SU. However, to manage increasing investment programs, as well as maintaining and operating the facilities to be constructed requires a strong and resilient institutional structure. Additionally, the responsibility for the supply of potable water to some coastal communities was recently transferred from the Ministry of Natural Resources (DWV/NH) to SWM. As SWM continues to take over these areas, there is an urgent need to increase its operations performance.

The water supply in Greater Paramaribo relies almost entirely on groundwater extraction and represents about 85% of all groundwater exploitation currently in Suriname, is operating under constant challenges. The main problems include: (i) old pipes, the majority of which were laid more than 40 years ago; (ii) insufficient maintenance of the infrastructure, limited rehabilitation activities and inefficient energy use; (iii) ever increasing demand for water; (iv) lack of an integrated management information system within SWM; (v) lack of financial resources and autonomy of the SWM; (vi) uncertainty with respect to safe yield of its aquifers; and (vii) lack of comprehensive water quality monitoring system. These problems have led to gradual deterioration of the network, with high NRW levels, electromechanical inefficiencies; and saltwater intrusion in some wells.

In addressing the groundwater issues the SWM drilled one new observation well in 2013 along the Afobakkaweg where a new potential wellfield is projected and the Water Division of the Ministry of Natural Resources and drilled two new observation wells in the period 2012-2013. Data are available for all these wells. The possibilities to calibrate the groundwater model in detail will depend on the available data regarding the geology, the static and dynamic water levels, pump test data, water quality data, and depth filter, pump type, etc. The SWM monitors the static and dynamic water levels in existing groundwater wells weekly since 2012, after taking over this function, until present. Little information is available from the old wells; but information of the wells and mudlakes from the Suralco are available in reports.

Some of the operational problems of SWM were addressed under LO 2451/OC-SU (SU-L1018) Water Supply Infrastructure Rehabilitation resulting in increased household connects, replacement of some aged pipes, reduction NRW to a limited extent, improvement in energy efficiency, and institutional strengthening. However, given the limited scope of SU-L1018, much remains to be done to improve water supply in Suriname. There remains the need for a comprehensive review of SWM's operational culture and development of an institutional development plan for SWM. Under ATN/OC-14410-SU (Hydrogeological Assessment of the Coastal Aquifer in Suriname) SWM successfully executed the assessment of the aquifer potential and groundwater level of the Coastal aquifer in Suriname, but there is need for a complementary pollution risk assessment and model to consolidate SWM groundwater management capacities.

Since mining activities have taken place in the Afobakka area, specifically the La Vigilantia area, there is a concern that the ground water aquifers have been contaminated, which can be further increased by future ground water extractions by the SWM in the area.

In its attempt to address this need, the Government of Suriname requested further IDB support for technical support, and the IDB has agreed to TT-L1102 Support to SWM Institutional and Operational Strengthening. The objective of this technical cooperation is the development of a Strengthening Action Plan (AP) for the improvement of SWM operations performance and the strengthening of its groundwater management capacities and risk pollution control. The accomplishment of terms of reference will contribute SWM attaining the TC objectives.

### **Objective(s) of Consultancy**

The objective of this consultancy is to conduct a comprehensive dedicated groundwater pollution risk assessment analysis and model to evaluate vulnerability of the aquifers in La Vigilantia; and to conduct activities to strengthen the SWM's capacity on pollution risks assessments.

The assignment will involve a comprehensive assessment of the water resources of the Zanderij aquifer to evaluate the aquifer storage capacity and aquifer yield, and to evaluate its capacity for providing the groundwater supply that would be required to cover SWM projected water demands for the next 25 years. To meet the 2024 demand the existing production capacity in the coastal area will have to increase from appr. 5,800 m<sup>3</sup>/hr to appr. 11,000 m<sup>3</sup>/hr. The assignment will include the development of a pollution risk assessment model to be applied to the Zanderij aquifer in La Vigilantia, building upon the recently developed HACAS model, with replication possibilities by SWM in other areas. The activities will also include water quality analysis and hydrologic flows modelling. The proposed assessment will also improve SWM decision-making capabilities to manage water resources and to protect and guarantee a reliable and affordable provision of potable water in the area La Vigilantia.

The expected results are:

1. Inventory of Zanderij aquifers, incorporating the assessment of storage capacity and potential yield;
2. Determination of hydraulic parameters and long-term abstraction capacity of the aquifer;
3. Pollution assessment for La Vigilantia.
4. Groundwater quality determination and monitoring requirements, particularly with respect to pollution;
5. Groundwater modeling to simulate existing conditions of aquifer potential yield and salinity intrusion;
6. Aquifer vulnerability assessment, particularly with respect to pollution;
7. Incorporation of the groundwater modeling simulation tool into SWM operations; and
8. Training to SWM personnel on groundwater modeling and management and other activities to strengthen and improve groundwater assessment, management and planning.

### **Scope of Services, Tasks (Components) and Expected Deliverables**

#### **Water resources assessment.**

The Consultant shall produce a comprehensive pollution risk assessment model to be applied to the aquifer in La Vigilantia, building upon the recently developed HACAS model, with replication possibilities by SWM in other areas. This model will include water quality analysis and hydrologic flows modeling.

In particular, the Consultant will:

1. Become familiar with existing data and information, using existing studies and material (survey of topographical maps, cadastral and geological maps, geophysical studies and remote sensing data, etc.), including the 2010 Master Plan and HACAS reports. The Consultant will collect, interpret and analyze existing data and review information related to the HACAS groundwater model and Tauw models. The report shall identify an inventory of the pollution risks and describe the proposed action plan to do so.
2. Based on the data collected, and in consultation with the SWM, the Consultant will select the aquifers that need to be analyzed in depth, through water resources assessment, data analysis and groundwater modeling to determine the aquifer storage capacity, potential yield and pollution risk. The final proposal will have to be duly agreed with the representatives of the SWM.
3. The Consultant will carry out an investigation on groundwater resources, incorporating the assessment of aquifer characteristics and potential yield. The scope of this part of the study is to characterize local conditions. In particular, the Consultant will:
  - a. Determine the design of the well-field such as the well spacing etc.;
  - b. Carry out a pollution risk assessment in the area La Vigilantia, which will include:
    - i. Production of GIS-based Groundwater Resources Inventory and geological and hydro-geological maps of the aquifers including their recharge areas.
    - ii. Identify hydraulic parameters and long-term abstraction capacity.
    - iii. Groundwater quality determination and monitoring.
    - iv. Develop Groundwater Simulation Models for the pollution of the aquifer.
    - v. Vulnerability Assessment land use in the La Vigilantia area, and mapping of potential sources of pollution.

In particular and based on the above, the Consultant will conduct a pollution risk assessment model, this will include:

### **Expected Deliverable**

Using the information collected, the Consultant will prepare groundwater simulation models of the selected aquifer systems. The model(s) shall include (physico-chemical) quality aspects of the groundwater and facilitate forecasts of movements of the chemical real and hypothetical scenarios to predict the effects of hydrological changes (like groundwater abstraction according to the pollution, etc.) on the behavior of the aquifer. Within the framework of this exercise, and to enhance knowledge transfer and capacity building, using contract resources the Consultant will be required to purchase basic groundwater modeling/management software and hand it over to SWM with training on how to use it. The software to be used is GMS and Q-Gis, which the SWM is already using.

## Characteristics of the Consultancy

**Type of Consultancy:** Consulting firm

**Procurement Method:** Quality-and-Cost-Based Selection (QCBS).

**Contract Type:** Lump-sum

**Start-up date, length and duration:** This will be a 110-day consultancy (continuous days) starting XXXXXXXX to XXXXXXXX

**Place of work:** Suriname and country of Consulting Firm.

**Qualifications and Experience:** International Consulting Firm with at least 15 years of experience in pollution risk assessment. Consultants should have a broad and specific knowledge of hydrogeological and geophysical surveys, ground water quality, groundwater modeling, and all relevant areas as required to undertake the key functions listed above. The composition of the firm's team should include the following experienced personnel as a minimum:

- Project Manager/ Hydrogeological Engineer
- Hydrogeological Modeling Specialist
- Groundwater Quality Specialist
- GIS Specialist

### Payment Schedule:

Reports and Payment Schedule	Payment
Upon signing of contract and submission of work plan	10%
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## Coordination

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PROCUREMENT PLAN FOR IDB-EXECUTED OPERATIONS														
Country: Suriname							Executing Agency: IDB					UDR: INE/WSA		
Project number: SU-T1102					Project name:SWM Institutional Strengthening Plan - Management and Operations Audit of SWM									
Period covered by the Plan: [6 months] July - December 2018					Total Project Amount: US\$500,000									
Component	Procurement Type (1) (2)	Service type (1) (2)	Description	Estimated contract cost (US\$)	Selection Method (2)	Type of Contract	Source of Financing and Percentage				Estimated date of the procurement notice	Estimated contract start date	Estimated contract length	Comments
							IDB/MIF		Other External Donor					
							Amount	%	Amount	%				
Component 1	A. Consulting services	Consulting Firm (GN-2765)	SWM Institutional Strengthening Plan - Management and Operations Audit of SWM	\$ 350,000	FCS	Lump Sum	\$ 350,000	100%	\$ -	0%	1-Aug-18	1-Dec-18	18 months	
Component 2	A. Consulting services	Consulting Firm (GN-2765)	Strengthening SWM Capacity for Assessment of Ground Water Pollution Risk: Pollution Risk Assessment	\$ 120,000	FCS	Lump Sum	\$ 120,000	100%		0%	1-Aug-18	1-Dec-18	10 months	
Component 3	A. Consulting services	Individual Consultant (AM-650)	Final Evaluation	\$ 15,000	ICQ	Lump Sum	\$ 15,000	100%		0%	1-Jan-20	1-Mar-20	3 months	
Prepared by:			TOTALS	\$ 485,000			Total should equ	100%	\$ -	0%				
(1) Grouping together of similar procurement is recommended, such as publications, travel, etc. If there are a number of similar individual contracts to be executed at different times, they can be grouped together under a single heading with an explanation in the comments column indicating the average individual amount and the period during which the contract would be executed. For example: an export promotion project that includes travel to participate in fairs would have an item called "airfare for fairs", an estimated total value od US\$5,000, and an explanation in the Comments column: "This is for approximately four different airfares to participate in fairs in the region in years X and X1".														
(2) (i) Individual consultants: ICQ: Individual Consultant Selection Based on Qualifications; SSS: Single Source Selection. Selection process to be done in accordance with AM-650.														
(2) (ii) Consulting firms: Per GN-2765-1, Consulting Firm selection methods for Bank-executed Operations are: Single Source Selection (SSS); Simplified Competitive Selection (<=250K) (SCS); Fully Competitive (>250K) (FCS); and Framework Agreement Task Order (TO). All Consulting Firm selection processes under this policy must use the electronic module in Convergence.														
(2) (iii) Goods: Per GN-2765-1, par. A.2.2.c: "The procurement of goods and related services, except when such goods and related services are necessary to achieve the objectives of the Bank-executed Operational Work and are included in the consulting services contract and represent less than ten percent (10%) of the consulting services contract value."														