Terms of Reference (ToR)

SOLWEZI WATER & SANITATION WORKS

Phase 1

Feasibility Study for the water supply system and Pre-Feasibility Study for the related sewerage system
SOLWEZI WATER & SANITATION WORKS

Phase 1

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1. Background information

1.1 Beneficiary country
Zambia

1.2 Contracting authority
North Western Water and Sewerage Limited
P.O. Box 1100184
Mema House
Mwanawasa Street
Solwezi
Zambia.

1.3 General context of project
The project contains a water supply & sanitation project, which shall be located in Solwezi, the capital of the North Western province in Zambia. Solwezi is also the key mining town situated 160 kilometres west of the Copper belt Province accounting for over 50% of Zambia’s copper production. Solwezi Town has been developing at a very rapid rate due to the advent of huge copper mining companies in the Town. The population increase in the town has caused enormous pressure on the existing water system which was developed long time ago for a maximum connecting capacity of about 5000 water connections. The other challenge, is the limitation of the Solwezi River as a source of water in the longer term. In terms of the existing sewerage system, it is too small serving only 1% of the total 30,000 identified households in the SUBS report. Moreover, in future (up to 2025) the population is expected to grow to 196,680 people.

The D2B Drinking water and sanitation project consists of two phases:

Phase 1: Project preparation:
To meet the requirement of the 2030 National Vision for water and sewerage coverage for Solwezi town, two separate studies have to be prepared:

• **Part A: a full Feasibility Study for the water supply system.** In case the results are positive, D2B has the intention to finance Phase 2;
• **Part B: a Pre-Feasibility Study for the related sewerage system.** Part B is directly related to the final measures proposed in Part A (which are technically, financially, economically and environmentally sustainable/feasible) and the vision for realization (in steps) the full sewerage coverage. The results of the Pre-Feasibility Study for sewerage will be shared with the responsible authorities in Zambia and (in case positive) are aimed to interest potential financiers for additional studies and its implementation. The main reason is that additional financing through D2B and/or DRIVE will not be possible.
• **Part C: Preliminary ESIA for part A and part B.** The Preliminary ESIA should focus mainly on distinctive choices between alternative options, for instance the pros and cons of different locations from environmental and social point of view.

After execution of the activities mentioned under Phase 1 Part A, consisting of a full Feasibility Study of the Water Supply System in Solwezi, a go/no go decision will be taken by RVO.nl and NWSSC about continuation of the project for the water supply component. Upon a positive assessment by both RVO.nl and NWSSC regarding the
performance of the contractor and the proposed water supply system, the contractor is allowed to proceed with Phase 2.

**Phase 2: Follow-up Phase 1 Part A (Water Supply component)**

Phase 2 will consist of the following activities/deliverables:

1. Final design, including drawings and Bill of Quantities (BoQ) for investments between 18 and 25 million EUR;
2. Final ESIA (of option agreed in Phase 1)
3. Preparation of Tender Docs

For more information on the contracts, see chapter 3.

The feasibility study under phase 1 could indicate the following infrastructural solutions (not limited to):

**Water Supply Infrastructure:**

- Construction of a small new weir/dam, intake and conventional water treatment plant, upstream of the current location of the existing WTP. This is because the current location of the WTP and the intake is not suitable for further expansions;
- Construction of a high-level pump station and transmission main from the new WTP to the distribution centres;
- Restructuring of the water distribution network and construction of primary mains to create manageable pressure zones;
- Construction of additional reservoirs to increase storage capacity and create distribution centres that will conform to the new pressure zoning structure of the distribution network (feasibility Study to confirm capacity required);
- Replacement and rerouting of pipes, including all appurtenant installations (feasibility study to confirm required lengths);
- Expansion of the distribution network to new development areas (and old currently unserved areas) in order to increase the water service coverage ratio and increase revenue (feasibility study to confirm pipe lengths);
- Installation of new service connections including water kiosks (feasibility study to confirm number of connections).

It must be noted that the main focus of the project lies in the construction of a new intake in the Mutanda River, instead of rehabilitation of the intake of the Solwezi River. However, infrastructural solutions will be the outcome of the feasibility study in phase 1 of the Develop2Build project.

**Sewerage Infrastructure:**

The approach to improve sanitation in Solwezi should comprise the following principles:

- (Decentralised) off-site Sewerage only to be improved, extended and/or developed where measures can be appropriately financed and sustainably operated and maintained. By all means, an adequate separate sewerage tariff must be applied for areas to be served, and connection must be obligatory;
- On-site systems should be promoted according to NWASCO guidelines for On-site sanitation and faecal sludge management, under development at national level. This can only be done in close cooperation between the Council NWWSSCL and private sector actors (desludging vehicles) whose services should be coordinated and regulated. OSS measures may include onsite waste disposal and procuring sewerage vacuum tankers.
• Measures of promotion of SWM should be integrated as solid waste usually ends up in the household toilets if SWM is not effectively tackled.

It is too early to mention possible measures at this stage. A list of (possible) measures has to be based on the outcome of the Feasibility Study for the drinking water system on the one hand and its consequences for sewerage, as well as the principles of the sewerage infrastructure mentioned above, and the discussions/views and agreement(s) with the Government of Zambia as well as NWWSSCL on the other.

Other aspects of the project are:
• O&M systems and asset management (including GIS unit)
• Reduction of Non-revenue water
• Commercial management (billing software; eventually use new pre-paid metering technology and/or use of handheld App and devices);
• HR development: HR planning; assessment of training needs and training measures

1.4 Relevant country background
Zambia is a landlocked country situated in the South of Africa with about 16,212,000 inhabitants. Its total area covers 752,618 m². Zambia’s Head of State is President Edgar Lungu since 2015. He has been re-elected in August 2016 for a period of five years. Zambia is known for its political stability.

Zambia’s economy grew at an average annual rate of 7% between 2010 and 2014. However, the global economic crisis (among which the drop of the copper price by 50% between 2014 and 2016) and domestic pressures have strained the Zambian economy. Zambia’s total GDP amounts to $65,493 billion in 2014, which result in $3,917 per capita. Despite this promising development, still 60% of the population lives below the poverty line and 42% in extreme poverty.

The mining industry, located in the old and the so-called new Copperbelt in the Northern part of the country, is the largest local employer, the largest local spender and the largest driver of local business growth and indirect employment. The country’s traditional dependence on the mining industry, especially copper mining, remains a serious threat to stabilise the economy and reach the middle-income country status. Zambia’s main economic challenge is the lack of diversification of the economy and its corresponding sustainable economic growth.

The second most important industry in Zambia is agriculture. 58% of the country’s surface land is classified as medium to high potential for agriculture production. Around 15% of this land is currently under cultivation. The Zambian agriculture sector comprises crops, livestock and fisheries. Zambia is also one of the biggest seed exporters in Africa.

Overall, the climate is favorable to agriculture. Zambia is a landlocked country, but thanks to its numerous rivers, lakes and underground water resources, the country concentrates 40% of Southern and Central Africa’s water resources on its own.

1.5 Description of project area
The Specific Project area include the area around small Mutanda Central Township running all the way to Solwezi.
Some key figures are$^1$:

- Total population in the North-Western Province is currently 833,818 people (2015 figure);
- The population within the licensed areas (under jurisdiction of NWWSSCL$^2$) is 334,658 people in 2015 (which is only 40% of total population and includes clusters of villages on traditional land around council jurisdiction and new mining townships);
- From 2010 up to 2015 population in these licensed areas increased from 290,602 people to 334,658.
- The licensed areas are containing 9 urban centres. Solwezi is one of them with a current population (in 2015) of 152,155 people.
- The (water supply) service coverage for these 9 urban centres in total amounts to 58% (in 2015) or 192,737 people. For Solwezi only, this coverage is 59% or 89,052 people having access to piped drinking water.

In future (up to 2025) the population in the licensed areas (9 urban areas) is expected to grow to 435,647 people and in Solwezi the comparable figure is 196,680 people.

The project scope is Solwezi only: 'the area with a current population of 152,155 people in 2015'. However, because NWWSSCL is intending to also serve people on the route to Mutanda intake, its population and the consequence for the entire water system (now and in the future) has to be taken into account too (in consultation with NWWSSCL).

1.6 Current state of affairs in the relevant sector

The water Sector in Zambia was born as result of the Water and Sanitation Act of 1997. In 1999, North Western Water Supply and Sewerage Company (NWWSSCL) was incorporated and began operations in 2000. Currently there are 11 licensed commercial utilities that provide water and sewerage services to different consumers across Zambia,

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$^1$ Source: Final Pre-Feasibility Study Report for NWWSSCL, July 2015, funded by GDC/KfW

$^2$ NWWSSCL is the North-Western Water Supply and Sewerage Company
each one in a given licensed area. NWWSSCL is licensed to provide water and sewerage services in North Western Province.

The sector is highly regulated by Government through the National Water and Sanitation Council (NWASCO) who sets specific regulatory policies, procedures and the issuance of licenses.

NWWSSCL is owned by the seven local Authorities of the Province that includes Solwezi Municipal Council. The following table explains the structural sector set up and other key players that have had an impact on the water sector in general and NWWSSCL in particular.

**Sector Structure and Setup**

<table>
<thead>
<tr>
<th>Law, Policy &amp; Institutional Setup</th>
<th>Roles and Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water &amp; Sanitation Act of 1997; WRM Act of 2012</td>
<td>The two basic laws that governs the WRM and water supply and Sanitation in the Country.</td>
</tr>
<tr>
<td>Ministry of Local Government and Housing (MLGH)</td>
<td>It is the Former line Ministry in charge of the water supply and sanitation. It focuses more on water and sanitation services in the Country. The Local Authorities in North Western Province are the Shareholders of North Western Water and Sewerage Company. Directly report to the MLGH, through the provincial administration. MLGH has been responsible for mobilisation of funds for infrastructure development.</td>
</tr>
<tr>
<td>Ministry of Energy and Water Development (MEWD)</td>
<td>Is responsible for the Water Resources Management (WRM) and development and regulation of water resources through WARMA. It also embraces the regulators for water and sanitation services NWASCO.</td>
</tr>
<tr>
<td>Ministry of National Planning Development</td>
<td>Is responsible for the overall planning for National Development which includes infrastructure Development. In this project the role of this Ministry is to help mobilise finances or identify a strategic co-financer.</td>
</tr>
<tr>
<td>Ministry of Water, Sanitation and environmental Protection</td>
<td>A new Ministry with the mandate covering Water development; promotion of Water and Sanitation services (still implemented by Local Authorities, under supervision of MLGH); Environmental Protection. It shall embraces three regulators i.e. NWASCO, WARMA, Zambia Environmental Management Authority (ZEMA). It will have the major role of resource mobilisation and infrastructure development.</td>
</tr>
<tr>
<td>NWASCO (National Water &amp; Sanitation Council)</td>
<td>It is the Regulator of all Water utilities and others that provide public water and sewerage services. Issuance of water and sewerage operating licences to Water utility Companies. The new policy draft for WSS services foresees that NWASCO might as well regulate on-site sanitation services, and SWM service provision (tbc).</td>
</tr>
</tbody>
</table>
The National Vision 2030 is for Zambia to become a prosperous Middle Income Nation by 2030’. In terms of water and Sanitation this translates into achieving some of the following key objectives:

   a. Attainment of 80% access to clean water supply to all by 2015 and 100% by 2030.
   b. Attainment of 68% access to sanitation to all by 2015 and 90% by 2030.
   c. Fully Integrated and sustainable water resource management.
   d. Rehabilitation, Reconstruction of sewerage treatment facilities in all major towns and cities.
   e. 80% of unplanned settlements upgraded and residents have access to clean drinking water.

In order to achieve these objectives, in 2011, the Ministry of Local Government and Housing (MLGH) formulated the National Urban Water Supply and Sanitation Program (NUWSSP). The NUWSSP is an implementation strategy and outlines measure, investments and actions needed to achieve the 2030 National vision.

In terms of the human resources capacity, NWWSSCL has developed policies and procedures that identifies, recruits, retains and manages a very competent human resource portfolio that ensure efficient and effective operations of the Company.
Section 7. Terms of Reference

Currently, NWWSSCL has a workforce of about 124 permanent staff working in various Districts of the Province and at head office located in Solwezi Town.

However the Company has some human resource constraints and challenges in the following areas:

- The human resource markets in the province is highly competitive due to the presence of the vibrant mining industry how pay high wages. And so the company experiences high turnover.
- The Company has not been engaged in handling international procumbent and tenders and so may require capacity building in these areas.

1.7 Impact of the problem on the region
The current water and sewerage situation in Solwezi has had negative impact on the social and economic wellbeing of the communities. These includes:

- Water bone diseases caused by the use of unsafe and inadequate water supply and poor sanitation.
- Increased pressure on health care provision due to water and sanitation related health problems.
- Too much time spent by many households especially by low income townships fetching for water.
- Pollution of the underground water due to onsite disposal of waste.
- The current source of surface water supply-Solwezi will become completely unsafe due to increased human activities including construction of settlements along the river banks, gardens and farming and mining all taking place upstream.
- The cost of treating water is increasing due to increased human activities upstream.

1.8 Development relevance
This project will have direct and indirect impacts on the social and economic wellbeing of Solwezi and the province.

- Firstly, there will be improvements in water supply in Solwezi increasing service coverage from the current situation where only 76,000 persons in 2016 have access to adequate and safe water to having 158,000 persons by 2025 receiving safe and adequate water especially women and children.
- Reduction in water bone diseases that are a result of unsafe and inadequate water supply.
- Reliable water supply will lead to increased economic activities in Solwezi especially industries and commercial enterprises that depend on water.
- Increased access to friendly and reliable sewerage facilities.
- General improvement in the standards of living due to improvement in water supply and sanitation for example time spent on fetching water is expended on better economic activities.
- Increased business opportunities for the local community in tourism, Farming, transport and providing business services to NWWSSCL.
- The project will also create direct and indirect jobs during project construction and afterwards.
2. **Project: objective, purpose, assumptions & risks**

2.1 **Objectives**
The main aim is to develop an appropriate water and sanitation system that contributes to meeting the current and future needs of the people of Solwezi. According to the National Vision 2030, 100 percent of the population should have access to clean water supply and 90 percent of the population should have access to sanitation by 2030. The water supply objective of NWWSSCL is even more ambitious regarding water supply; 100 percent water supply in 2025. For Solwezi this means 15,119 new household connections, 3,024 additional non-domestic connections and 24 additional water kiosks. This sums up to 18,167 additional connections in 10 years’ time, which makes a total of about 24,500 connections in 2025. The realisation of these objectives before 2025 or 2030 depends amongst others on the capacity to finance the infrastructure needed, but also on the capacity of NWWSSCL to connect all the users within the time specified.

Realistic objectives within the Develop2Build scope will be determined after phase 1 of the Develop2Build project. The feasibility study for the water supply system will determine a realistic timeline for the connection of all users to the water system and the amount of water available for each household. Furthermore, based on this information, a vision for realisation (in steps) of full sewerage coverage can be developed.

2.2 **Problem analysis – Water supply**

North Western Water Supply & Sewerage Co Ltd. (NWWSSCL) has the licence to provide water supply and sanitation services to all urban centres in North-Western Province and does this in 10 urban centres of the province. Moreover, NWWSSCL is in the process of taking over assets and providing services to the newly developed mining townships around Solwezi. The urban centres under the service jurisdiction of NWWSSCL are: Solwezi, Mutanda, Kasempa, Mwinilunga, Mufumbwe, Manyinga, Kabompo, Zambezi and Chavuma, including the mining townships of Kalumbila and Lumwana. The company has been in operations since the year 2000 and customer connections for the above mentioned 10 urban centres have grown from 2,200 (to be checked) since then to around 11,500 (as of February 2015).

In Solwezi total number of customer connections amounts to 6,365 of which 6,224 are active. From this 6,224 active connections, the majority (5,705 is domestic, 32 kiosks, 399 commercial/private ones and 88 are institutional. One kiosk is serving about 1,500 people.

NWWSSCL covers with the above mentioned connections a population of about 89,000 people translating to a coverage of 59% (see also section 1.1) of the total population in the service area of Solwezi. One of the key strategic objectives of NWWSSCL is to increase its customer connections in the next 10 years in order to achieve the objective of 100% connection in 2025 (according to the National Policy), taking into account a growing population estimated at around 197,700 people in 2025.

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3 See note 3 Appendix 5.1 Population projections Solwezi
NWWSSCL surface water treatment facilities are located alongside the Solwezi River as shown in the following figure:

![Figure 2: Treatment facilities of Solwezi town water supply](image)

NWWSSCL inherited a water supply system from the Local Authorities following the creation of commercial water utility companies through the Water Supply and sanitation Act of 1997. The system incorporated a smaller plant meant to service the Central Business District (CBD) only. It included abstraction, treatment and pumping both direct and indirect through gravity from elevated tanks to customers as outlined below. There was no provision for sufficient storage capacities. A rehabilitation that took place in the year 2003-2005 (GDC, KfW) did not seek to fully expand and provide sufficient capacity, but rather rehabilitate and expand partially for a 10 year period. By the year 2010, the system reached its design life and is unable to cope with increased water demand.

The lay out of the current system is as follows:

![Figure 3: Schematic presentation of the Solwezi Water supply system](image)

Currently, Solwezi town relies on water from Solwezi River and two well fields. The intake on the Solwezi River recovers raw water treated at the main Solwezi Water Treatment Plant. The Solwezi WTP is a conventional plant constructed in 1970’s with 3 water treatment units, a Sulzer compact plant installed in 1989 and a pressure filtration unit installed in 2014. At the clear well the water is chlorinated through a chlorine delivery line from the chemical room before it is pumped to storage facilities. Ground water is abstracted from the Kifubwa and College well fields. Kifubwa well field has 5 boreholes but only 4 are equipped. The college well field has 2 boreholes but only one is operational. Water from the well fields is disinfected only and pumped to the reservoirs and distribution system.
The population increase in Solwezi is challenging the existing water & sanitation infrastructure which could not cope with the rapidly increasing demand. The current water supply encounters multiple problems, stipulated hereafter.

1. **Rapidly increasing water demand**

   Solwezi Town is developing at an exceedingly faster rate with population inflows exerting pressure on the already stressed public water supply infrastructure. Right now the coverage rate of commercial, industrial and domestic properties in town, is about 59% (or >6,200 active connections). This means that a significant part of the population as well as commercial and industrial activities did not have any water connection but depend on either shallow hand dug wells, or get water straight from streams or rivers and a few have sunk borehole.

   As already mentioned total population in Solwezi (urban area) will increase to about 196,700 people in 2025. Main industries and commercial businesses that depend on using high volumes of water are thinking twice to invest in the town and so have ended setting up on the Copper belt which is located 200 kilometres away from Solwezi.

2. **Insufficiency current water supply system for Solwezi**

   The current water works was designed over 40 years ago for a very small population of not more than 5,000 connections. Currently, there are more than 6,200 metered (active) connections, which is above designed plant capacity. The designed capacity for the surface water plant was 300m3/hour while the capacity for the boreholes was 240m3/hour bringing the total design capacity to 540m3/hour against the current demand of 1000m3/hour not to mention the over 3,400 m3/hour anticipated demand in 10 years and beyond. The current water treatment plant can’t be expanded since as space is limited for any expansion.

3. **Overexploitation of Solwezi River**

   Information provided by the Department of Water Affairs indicates that in the 1970, the average minimum of water depth in Solwezi river, which is the intake river, was 2.1 meters while the maximum was 2.4 meters. At the moment the average maximum water level seems to remain the same the minimum is now 0.8 meters. This is indicating dwindling volumes of water especially in the dry season. With mining and human activities around the river it is anticipated to even become shallower a decade from now thus threatening the source of water for supply.

   The new *Water Resources Management Authority* (WARMA), created only in 2013 under the water act 2011, has not yet established all necessary guidelines on water rights and water allocation. Therefore, WARMA has not yet been able to manage present water use practises, which at times are not based on proper water rights. In particular, the Upper Kafue catchment Council has not yet been formally established, and catchment management plans not yet development as foreseen by the Act. Recently attributed water permits e.g. to the Kansanchi Mines, for abstraction from the Solwezi River, has created controversy. The abstraction practices have resulted in water stress by reduced river volumes as evidenced from records by the Department of Water Affairs.

4. **Siling of the Solwezi river bed and contamination of the river**

   The Solwezi river, along which the current surface water abstraction and treatment plant is located, traverses through the centre of Solwezi Town. Human activities along the river
banks are reducing the water quality. North Western Province of Zambia is one of the heaviest rain belts in the country with 1309 mm of rain per annum. With this kind of rainfall that finds the river banks destroyed, rain storms carry everything away and damp it in the river. Cutting trees and grass result in soils washed into the river during rainy seasons causing the river to silt and contaminate. The risk is that the river could become too shallow for abstracting water within the next five to twelve years. During rainy season, the surface water treatment plant is shutdown sometimes for prolonged periods due to high water turbidity. The cost of treating water has also increased because of this.

Moreover, Solwezi has never had a running sewerage system. The rehabilitation that took place in 2003 did not fully address the issue of sanitation due to cost implications. This certainly created a challenge in safe guarding the rivers and aquifers as the population has resorted to on-site disposal affecting the open rivers and underground water.

5. **Lack of sufficient storage facilities**

The current water system does not have sufficient storage capacities as per design requirement. The water from the main WTP is transmitted to Police Tanks via a rising main – 1,500 m. The Police tank site has 2 tanks both with a capacity 250m³ each. The rising main from the WTP supplies to Kyawama booster tank site via a rising main to the tank – 3,500 m. The total current storage capacity is 2,250m³/hour against the desired storage capacity of 5,000m.

6. **Relatively old distribution system and frequent pipe bursts**

Solwezi district network was reported to be approximately 292Km long. The majority of the pipes in the network are mPVC pipes. The Solwezi network is relatively old and experiences frequent pipe bursts, especially in AC pipes. The distribution network pipe lengths and material classifications are summarized in the table below. NWWSSCL covers a population of 89,052, translating to coverage of 59% of the total population in the service area. The network is relatively old and the network connection is configured haphazardly. There is need to reconfigure the network especially on household connection level. The NRW is reported at 26% with the district having a metering ratio 98%. The weighted average hours of supply are 24hrs.

The population of Solwezi is growing at a fast rate and new plots are being opened up regularly by the Local councils, hence there is need for an extension program to supply to the new areas. The Utility recommended the removal and replacement of all old dilapidated AC pipes and household connection (GI pipes in the network. The utility has more than 6,200 Active connections (see also section 1.2.1).

7. **Revenue generation and financial sustainability**

The key challenge to sustainably operate the water supply system is availability of water to supply to customers. Currently, the plant capacity to supply water is too limited to meet the demand and thus NWWSSCL cannot achieve economies of scale and generate sufficient revenues to meet the full cost that includes the investment cost. That’s why this project is so important to NWWSSCL for long term commercial viability and sustainability.

One of the major reasons for the 1994-water sector reforms and 1997 water and sanitation act creating Water Utilities was to transform water and sewerage service
provision into social responsible, viable and sustainable business ventures. From inception, NWWSSCL has made strides in achieving commercial viability where its annual revenues meet operations and maintenance costs. However, the revenue generated does not allow meeting the investment needs. This is critical to the long-term viability and sustainability of the company. Two key issues that are inhibiting this to be achieved include:

- The service coverage and operational capacity of the current water system is very constrained. The overall production and supply capacity is limited.
- For Solwezi Town (about 60% of the business in North Western Province) only >6,200 connections are supplied with water and billed. According to NWWSSCL the current status of affairs does not allow achieving the level of economies of scale needed to break even.

2.3 Problem analysis – Sanitation
The population increase in Solwezi is challenging the existing water & sanitation infrastructure which could not cope with the rapidly increasing demand. The current sanitation encounters multiple problems, stipulated hereafter.

1. An appropriate sewerage system is not-existent
Over 90% of sanitation of faecal matter in Solwezi is affected through on-site sanitation (septic tanks, household latrines). The septic tank systems that are built do not meet the standard designs. The Local Authority has not directly regulated the construction of septic tanks. NWWSSCL operates the vacuum tanker services to empty septic tanks at a fee. The empting of septic tanks is not regulated so other operators equally provide the services to the same customers.

2. Pollution of ground water and contamination
Over 90% of all development in town have on-site waste disposal through septic tanks and soakaways. At the rate the town is developing, the distances between on-site disposals are becoming smaller and smaller. This means that the level of underground pollution is increasing. If this situation is not urgently addressed, environmental contamination will increase. Further, NWWSSCL also depend on boreholes, and if the situation is not addressed, even underground water wells could be contaminated (high risks for the water supply system; risk of water contamination and increased cost of treatment).

3. Current sanitation policies strategies
At national level under the current regulatory regime (NWASCO), Commercial WSS Utilities like NWWSSCL only have the mandate to provide functional sewerage systems (“off-site”), while the management of faecal sludge (FSM) from household and public places (schools, markets, lorry parks) as well as solid waste management, storm water drainage end environmental health enforcement is the responsibility of the Town Council. The treatment of faecal sludge, however, is included in CIUs mandate, as they are supposed to handle it in their waste water treatment facilities. However, this is rarely affected. Private service providers offer FSM collection service under poor hygienic conditions and in general poorly regulated.
Through the SUBS survey there is quite reliable information on the actual status of access to sanitation (sewerage) in Solwezi town\(^4\). Over 90% of sanitation of faecal matter in Solwezi is affected through on-site sanitation (septic tanks, household latrines). Less than 7% of the current plots are connected to three small decentralised sewerage systems (Kandundu township, Hospital and Solwezi Secondary High School). With Sewerage Coverage at 18% (NWASCO, 2014), this is far behind the national urban WSS programme (NUWSSP) whose target is to have 68% coverage by 2015 and 90% by 2030.

The following sewerage systems are currently in operation in Solwezi:

- **Kabitaka Township** with app. 500 households. The reticulation system and the treatment ponds were constructed by *First Quantum Minerals* (FQM) and operated by NWWSSCL under a MoU between NWWSSCL and Kansanshi Mine (FQM). Handing over of operation of the system to NWWSSCL is in progress.
- **Kandundu C** was constructed and went into operation late 2013 covering app. 70 households in the inner city of Solwezi.
- **Kandundu A/B** was constructed with financing from GDC (KFW) in 2005 connecting about 100 houses. The system (septic tanks treatment) never went into operational, the tanks were not maintained and got silted up causing a sewage-bypass into an affluent of the Solwezi River upstream of the Surface Water Treatment plant intake. The tanks were cleaned in early 2016 and a sewer line was built, financed by Shoprite Supermarket, the main operator of the newly built Solwezi City Mall.
- Another system located within the premises of the Soltec College at Mushitala is not operational since years, the ponds are overgrown and most of the pipes are broken.
- **App. 100 houses** are connected to 2 septic tanks in the Hospital compound, located downstream the houses and were desilted as well in early 2016.
- **Finally two ponds** were constructed between the Hospital Compound and the Solwezi River serving the Central Hospital and some premises on the ground. These ponds were used by the privately operating Sewage Suction Trucks, discharging the sewage collected from onsite sanitation facilities, which are mainly constructed as cesspits but frequently called septic tanks.

In summary, the overall operational sewerage coverage of Solwezi is in the range of less than 1% of the 30,000 households identified by the SUBS in urban and peri-urban Solwezi. The large majority relies on onsite sanitation systems, which are in general poorly built thus creating a serious contamination danger to nearby constructed hand dug wells or even small private boreholes.

### 2.4 Purpose

The purpose of this contract is as follow:

**Successfull completion of:**

- Preliminary ESIA for part A and part B.
- a full Feasibility Study for the water supply system.
- a Pre-Feasibility Study for the related sewerage system

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\(^4\) It is not clear how the areas defined in the SUBS study are fitting with the KFW study area as discussed in section 1.1 under project scope. This has to be checked.
After a positive decision, successful completion of:
- Final ESIA
- Final design, including drawings and Bill of Quantities (BoQ);
- Preparation of Tender Docs

### 2.5 Assumptions & Risks underlying the project intervention

#### Risks

<table>
<thead>
<tr>
<th>Type of risk</th>
<th>Chance of risk</th>
<th>Impact</th>
<th>Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>E.g. Technical Feasibility</td>
<td>Low</td>
<td>High</td>
<td>The technical solution proposed for the Project is relatively simple and utilises tried and tested technology such as canals, pumps, pipes and pivots which are widely used in the region. The owners engineer has extensive experience of working on similar project in the region and has specified technology with which he is very familiar. The risk that the Project infrastructure cannot be constructed to specification is low.</td>
</tr>
<tr>
<td>That Assumptions are wrong</td>
<td>Low</td>
<td>High</td>
<td>The ToR is subjected to a lot of check up by all parties to ensure the information is factual. Further each phase of the D2B up to completions will be subjected to scrutiny by RVO, NWWSSCL and other key stakeholders.</td>
</tr>
<tr>
<td>That the Contractor does not understand the scope</td>
<td>Low</td>
<td>High</td>
<td>The tender process will be comprehensive and will involve a number of key stakeholders- NWWSSCL, TA, RVO, ZPPA, MWDSEP, MOJ. The tender documents will follow international process of procumbent and will undergo refinements.</td>
</tr>
<tr>
<td>That the time taken to complete the Feasibility study is longer than expected</td>
<td>medium</td>
<td>High</td>
<td>The final Time frames will be discussed with the contractor and will be part of the contractual agreements. Time frames for each of the component of work will be assessed and agreed based on the level of complexity and challenges to be encountered so that they are realistic</td>
</tr>
<tr>
<td>Project Budget is lower than actual work</td>
<td>Low</td>
<td>medium</td>
<td>The budget was set based on the best practice for Consultancy services. The only risk that could push the budget up is if time to execute the project is longer than expected. There will be close supervision of the contractor though regular, site visits, meeting and reports which will show project progress against timelines.</td>
</tr>
</tbody>
</table>
3. **Scope of the work**

3.1 **Overview of services and deliverables to be achieved by the consultant**

The D2B Drinking water and sanitation project consists of two contracts:

**Phase 1: Project preparation:**
To meet the requirement of the 2030 National Vision for water and sewerage coverage for Solwezi town, two separate studies have to be prepared:

- **Part A: a full Feasibility Study for the water supply system.** In case the results are positive, D2B has the intention to finance Phase 2;
- **Part B: a Pre-Feasibility Study for the related sewerage system.** Part B is directly related to the final measures proposed in Part A (which are technically, financially, economically and environmentally sustainable/feasible) and the vision for realization (in steps) the full sewerage coverage. The results of the Pre-Feasibility Study for sewerage will be shared with the responsible authorities in Zambia and (in case positive) are aimed to interest potential financiers for additional studies and its implementation. The main reason is that additional financing through D2B and/or DRIVE will not be possible.
- **Part C: Preliminary ESIA for part A and part B.** The Preliminary ESIA should focus mainly on distinctive choices between alternative options, for instance the pros and cons of different locations from environmental and social point of view.

After execution of the activities mentioned under Phase 1 Part A, consisting of a full Feasibility Study of the Water Supply System in Solwezi, a go/no go decision will be taken by RVO.nl and NWWSSC about continuation of the project for the water supply component. Upon a positive assessment by both RVO.nl and NWWSSC regarding the performance of the contractor and the proposed water supply system, the contractor is allowed to proceed with Phase 2.

**Phase 2: Follow-up Phase 1 Part A (Water Supply component)**
Phase 2 will consist of the following activities/deliverables:

1. Final design, including drawings and Bill of Quantities (BoQ);
2. Final ESIA
3. Preparation of Tender Docs
**Detailed tasks Phase 1 - Inception phase**

**Inception phase**
Upon the start of the contract the Contractor shall familiarize itself with available documents (see list in Annex A), the situation on the ground and relevant stakeholders in Solwezi. The contractor will update and refine the methodology and work planning elaborated in the proposal. We propose that a kick-off meeting shall be held in Solwezi, introducing the Contractor, his team and the scope of the services to NWWSSC and RVO.nl. Upon completion of the Inception Phase the Contractor is expected to submit an “Inception Report”. This report will be presented and discussed with the client.

**Detailed tasks Phase 1 - Full Feasibility Study water supply system**

The Full Feasibility Study shall depart from a thorough evaluation of available data, information and, if available, planning documents in order to trace critical issues and clarify key problems. The Consultant shall carry out local inventories as required to determine the overall conditions of the water supply facilities. Further own investigations shall be performed where the database is not up to date, incomplete, inconsistent or missing. The database and the evaluation of the current situation in the concerning CU (NWWSSC) shall provide a reliable basis for conceptual planning. The assessment of the present situation and the problem analysis shall relate to physical and operational characteristics covering technical, institutional, financial and socio-economic aspects. Particular focus shall be placed on environmental, climatic and public health conditions as well as poverty aspects. The actual financial situation of NWWSSC and its possibility for managing new investment effectively shall also be evaluated.

The services for this Full Feasibility Study shall comprise but not necessarily be restricted to the following tasks:

**Task1: Final project area**
First, the final project area has to be discussed and agreed upon with NWWSSC(L). Does it concern Solwezi only (being the area with a current population of 152,155 people in 2015) or has this project area to be extended with the area along the route to Mutanda intake, to serve its related population, now and in future? If extension of the area is agreed, please, keep this distinction in all tasks to be carried out as specified below.

**Task 2: Inventory and assessment of available information**
Inventory and assessment of available documentation, reports, analyses, O&M data, and studies concerning existing water supply facilities in the service area of NWWSSC and a random review and appraisal of their condition, suitability and appropriateness. Special attention shall be paid to the Pre-Feasibility Study from July 2015 (task 3) and the Solwezi Urban Baseline Study (SUBS) from October 2016 (task 4).

Review thoroughly the Pre-Feasibility Study Report (and Appendices) for NWWSSC as executed by KfW (published in July 2015) covering the period up to 2025, with special attention to water supply in Solwezi. This review concerns among others:

1. (Comprehensive inventory of the) Existing water supply system in Solwezi and its use (e.g. overexploitation) covering all components (i.e. existing sources, including hydrogeological investigations, if necessary, transmission system, water treatment & storage system as well as the distribution system);
2. If available review (or if not available prepare) overview maps of the concerned infrastructure systems, showing at least major facilities, as water sources, treatment plants, pumping stations, reservoirs, water kiosks, transmission mains, key information on the secondary network zones and other important information on the sites;

3. Key problems and major shortcomings of the water supply facilities and water quality (e.g. mining and agriculture activity), as well as consequences of those shortcomings;

4. Population served as well as the Current and Future Water demand (see also “water demand projections up to 2030”);

5. Current NRW and the NRW reduction strategy (including possible actions already taken by NWWSSC, see point 7 short term investment program) and its consequences for current and future water demand (see also task 7 “water demand projections up to 2030”);

6. Capital projects undertaken in the period 2011-2014 which were still running (when the Pre-FS was published in July 2015) and projects planned for 2015 (see Appendix 3.5, Pre-FS KfW), assessing (in consultation with NWWSSC):
   a. Which projects/measures are implemented today (including date of finalization)?
   b. Which projects/measures are still ongoing (including expected date of finalization)?
   c. Which projects/measures are still in planning with their finance secured and what is the proposed start and finalization date?
   d. What are the consequences of the above with respect to the shortterm investment program (see point 7 hereafter);

7. Short term investment program (2015-2018) for drinking water and related measures in Solwezi (as proposed in detail under item A, B and D, see appendix 7.1 Pre-FS KfW), assessing (in consultation with NWWSSC):
   a. Which projects/measures are already implemented (including date of finalization)?
   b. Which projects/measures are currently ongoing (including expected date of finalization)
   c. Which projects/measures are already in planning with their finance secured and what is the proposed start and finalization date?
   d. Which projects/measures are still not covered including their status/expectations?
   e. What are the consequences of the above for new investments (in general and with respect to medium term investment program (see point 8 hereafter);
   f. Are any new insights available?

   a. Is this entire program (among which a completely new intake and WTP at a new location is proposed) still valid (taking into account the water demand to be updated and extended, including the final project scope)?
   b. Are any additional measures (not mentioned in the Pre-FS) needed (see task 7 “water demand projections up to 2030” and task 8 “measures to be taken”)

9. Any other relevant item from the Pre-FS:
   a. Are any alternative options possible? If yes, which ones and what are the consequences?

10. Transform and/or extend all valuable information from this review as discussed in points 1 up to 6 from Pre-Feasibility Level assessment up to Full Feasibility
Standard Level, *where applicable*, also taking into account all specific tasks mentioned below.

**Task 4: Review the Solwezi Urban Baseline Survey (SUBS) (published in October 2016)**
Review the Solwezi Urban Baseline Survey (SUBS) for NWWSSC as executed by GIZ (published in October 2016) with special attention to water supply in Solwezi town (including re-defined area in this project: see task 1 “final scope” and task 7 “water demand projections up to 2030”). Does the information in this report contribute/add/put new lights on the current situation with respect to drinking water as already discussed in the Pre-FS from KfW (July 2015), and if yes, how?

**Task 5: Socio-economic study**
Carry out a socio-economic study on Affordability to Pay.
1. Examine differences in the affordability to pay for the services (drinking water and also sewerage (see Part B) by different socio-demographic groups both individual and household level and reflect them in the affordability analysis and assessment. Conduct a Survey which includes current and future drinking water consumption patterns for various types of customers as mentioned in the KfW Pre-Feasibility Study. Also include in this Survey consumption patterns for industrial, commercial and institutional activities;
2. Compare the results with the per capita consumption figures recommended by NUWSSP as is presented in table 5-7 in the FS from KfW and assess whether or not per capita figures to be used in the water demand projections have to be adjusted, including argumentation;
3. Link the differences in affordability to the current and future tariff system and assess if these tariffs fit, yes or no, including any recommendations.

**Task 6: Tariff system**
Review current tariff (setting) system for drinking water:
1. Evaluation of the current tariffs structure by consumer groups (see also socio-economic study) to determine to what extent all recurrent costs are included;
2. Link the current tariffs by consumer groups to their affordability (see above)
3. Examine and thoroughly elaborate the functioning of the current billing and collection system by the different consumer groups (households, companies, governmental institutions etc.) including percentage of people billed as well as the collection ratio and recommend on any improvements (if any) on the tariff setting model (see also activities in this respect for Part B), taking into account introducing the new facilities as proposed under task 8 “measures to be taken”;
4. Discuss and report also on short and medium-term tariff policies, among others, taken into account aforementioned points.

**Task 7: Water demand projections up to 2030**
Update and extend the water demand projections up to 2030 (including peak season demand), based (among others) on the information/insights gathered from the reviews of the Pre-FS (KfW) (task 3) and the SUBS (GIZ) (task 4) as well as from the Socio-Economic Study (task 5). Take into account (not limited to):
- Solwezi town and (if agreed) the area along the route to Mutanda intake, separately;
- Population (annual) growth figures, including potential attraction of improved water supply;
• (Annual) Growth of related other activities (like industrial, commercial, institutional) based on current economic development perspectives against existing economic development plans of the CU concerned;
• Various customer types;
• Change in consumption patterns per customer type;
• Current NRW and expected changes in the short and medium term;

Assess and elaborate on current and future customers connections (by type) and its consequences for additional investments (measures) taking into account the results of the review on the short term investment program and proposals for the medium term investment program).

Compare current and future demand (up to 2030) with current capacity (including measures already taken (see review short term investment program) which probably have increased the 2015 daily production capacity), and assess additional production capacity needed, and the related additional storage capacity.

Task 8: Preliminary ESIA

In this phase of the project, a Preliminary ESIA is needed. The Preliminary ESIA is not intended to be a stand-alone set of activities, but needs to bring into view what the environmental and social issues are that need to be addressed in project design and implementation. Focus in this phase is on integrating social and environmental aspects into the problem analysis and definition of the project objectives, to ensure that the impacts of interventions are considered when the intervention are compared and ranked, and to identify impact mitigation measures that need to be further addressed in the full-fledged ESIA. In the following ESIA steps (after a “go” decision) the interventions and associated impact measures will be further developed and assessed. Those subsequent steps will also support detailed project design, and design of measures to manage impacts, as well as further consultation on these matters.

The difference between the Preliminary ESIA and the full ESIA is more of detail of process. In the Preliminary, for example

<table>
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<th>Box 1: IFC Performance Standards</th>
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To qualify for RVO financing, project must conform with the IFC Performance Standards. The ESIA process can be utilized to apply the relevant IFC PS. Detailed assessment of each PS is appropriate in the full-fledged ESIA that will be part of the second contract/phase. For the preliminary ESIA it is sufficient to consider each of the PS, and draw conclusions on how each PS will need to be further addressed. The following IFC PS are likely to be triggered.

- IFC PS1: Assessment and Management of Environmental and Social Risks and Impacts: *Triggered*. Project will have significant (positive and negative) environmental, social and economic impacts, which means a full-scale ESIA is needed
- IFC PS 2: Labour and Working Conditions: *Triggered*, because significant workforce (possibly including migrant workers) will be needed for the project (construction and implementation phase).
• IFC PS 3: Resource Efficiency and Pollution Prevention: Triggered, because the project involves the use of resources and energy for construction of pumping station, rising main, water storage facility (possible construction of a dam), water treatment plant and sewerage system. Pollution also needs attention: minimizing pollution is one of the key objectives of the project, but construction may generate waste and/or pollution. Also, managing and cleaning up existing pollution is a point of attention.

• IFC PS 4: Community Health, Safety and Security: Triggered. The project may influence health conditions in the areas where constructions are built (pumping station, water storage, water treatment plant, sewerage system). In areas of water storage, the risk of vector borne diseases (Malaria etc.) needs attention. The project aims to improve health conditions in the Solwezi area (over 300,000 inhabitants, growing to over 400,000 in the next 10 years). Optimization of this improvement should also be part of the project/ESIA.

• IFC PS 5: Land Acquisition and Involuntary Resettlement: Triggered, because (economical and/or physical) resettlement might be necessary. Water storage facilities could cover large areas of land. Also for the water treatment plant land acquisition may be needed. The 1997 Zambia EIA Regulations (third schedule) state that social cohesion or disruption (resettlement) (2-ii) and effects on land uses and land potential (4-i) need to be considered in the ESIA.

• IFC PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources: Almost certainly triggered. Any sensitive areas or (protected) species in the area have not been identified yet, however given the scale of the proposed measures, natural resources will almost certainly be affected by the project. The intake of water from the river will have impacts on ecology and users; aquatic live is probably the live form that will suffer most from the project component water intake. Information of the hydrology of the river, use of its waters and maintaining the required ‘environmental flow’ in the low-flow periods is needed. The 1997 Zambia EIA Regulations (third schedule) state that effects on biological diversity need to be considered.

• IFC PS 7: Indigenous Peoples: Possibly triggered, if there are indigenous people living in the area of influence. The Landmark tool shows no indigenous people in the project area. This needs to be checked.

• IFC PS 8: Cultural Heritage: Possibly triggered. The project document doesn’t mention cultural heritage objects in the area (of influence). This needs to be identified.

The consultant will need to deliver a coherent preliminary ESIA report that explains how the ESIA steps have been integrated into the other feasibility work. The following needs to be presented in the preliminary ESIA report:

• **Key issues/problem definition**: which problems will have to be solved by the project and/or which opportunities can be expected from the project. As stated in § 3.3, the feasibility study will depart from a thorough evaluation of available data, information and, if available, planning documents in order to trace critical issues and clarify key problems. It is important (and also required according to Zambian EIA regulations) to discuss the key issues with stakeholders, to ensure that all relevant issues are dealt with and to engage them in the project development and ESIA process, so that it becomes more inclusive and transparent. In this case it is important to clarify which of the problems (and opportunities) mentioned in the previous chapters will be dealt with and to what extent: will the focus be on water supply for Solwezi only? Or will solving the problems with water volume, silting and

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5 [http://www.landmarkmap.org](http://www.landmarkmap.org)
contamination of Solwezi river also be part of the project? What is the link with the sanitation/sewerage part of the project? This will help define the scope of the project (task 1), which is also important from financial feasibility point of view.

- **Project objectives**: Once the key issues have been determined, the objectives of the project will have to be discussed. Objectives should be distinct and measurable as much as possible, to make it possible to define alternatives and compare alternative options on “achievement of objectives”.

- **Alternative options**: Comparing alternatives is key to an ESIA. Task 9 mentions potential measures and selecting the most feasible options. Possible options (or combinations of these) can be presented as alternatives.

- **Consistency analysis**: The purpose of this step in ESIA is to check the consistency of the project under development with existing (national, regional and sectoral) policies, plans and programmes (PPP). Task 2, 3 and 4 will probably provide much of the information on existing PPP. This is not intended to be an exhaustive analysis at this stage, but it will be important to identify, for example, Zambian Environmental and Climate Change PPPs and local environmental and social laws and regulations. The consequences of these PPPs for the project (conditions and standards to be met, for example) need to be analysed and described.

- **Assessment framework**: For comparing alternatives an assessment framework is needed: which environmental, social and economic effects and criteria are relevant and which indicators can be used to assess the effects against those criteria. (See Third Schedule of the EIA-regulations 1997 for a list of effects to consider). It is important to identify ‘significant’ effects and (measurable) indicators, taking different stakeholders in the area into account. Furthermore, the “achievement of objectives” should be part of the assessment framework: to which extent will the identified problems be solved.

- **Identification and assessment of impacts (including cumulative effects)**: in the ESIA the information gathered in task 1-8, in combination with expert judgement, can be used to identify the potential impacts of the proposed project interventions. Special attention should go to the issues mentioned already in the 8 IFC PS (p. 19). The ESIA should show which effects will be most serious, and how the effects may differ across the alternative options. The preliminary ESIA report then needs to prioritize impacts that require further exploration in the subsequent ESIA process.

- **Mitigation measures**: identification of measures needed to prevent, reduce and eliminate as fully as possible any significant adverse effects of the project interventions. Often mitigation options are part of the development of alternative options. In the preliminary ESIA the key measures that require further development need to be identified (see also the IFC PS). The description of the relevant measures does not yet need to be elaborate, but it is important to know if reasonable measures are available if there are likely to be impacts that are unacceptable. These can then be further developed in the subsequent ESIA process.

- **Consultation**: How stakeholders have been identified and included in the ESIA, how their input has been utilized and what information has been provided to stakeholders to inform their involvement. Note that stakeholder identification and consultation is integral to any ESIA process. See for example: “Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets”. Specifically the sections on: Project Concept & Feasibility Studies and Project Planning.

Preliminary ESIA should also deliver a detailed ToR and workplan for the full ESIA, in accordance with the IFC performance standards and local regulatory requirements.

**Task 9: Measures to be taken including cost estimates**
Development of a list of potential measures for realizing the future production capacity (up to 2030) taking into account insights gathered based on the review of the Pre-FS with respect to the short and medium-term investment program, discussions with NWWSSC and other stakeholders, etc. In case other measures are considered more feasible and/or additional measures should be implemented, the contractor should change the short term and medium-term investment plan drafted in the Pre-FS.

Preliminary design of the selected measures, including hydraulic design and process design for treatment plants, for all major components to be implemented under the proposed project.

Presentation of an adequate operation concept (organisation, staffing, equipment) for the future operation of the water supply and sanitation facilities including assessment of risks involved, proposals for supporting actions and formulation of accompanying measures (training, professional advice) to secure sustainability.

Elaboration of preliminary technical specifications for materials, fittings and mechanical-electrical equipment (Bill of Quantities) to be used under the project and the needs for an appropriate stock of repair materials.

Presentation of an implementation concept, showing envisaged project administration, consulting services for project implementation and accompanying measures, pre-construction activities, implementation of works and the overall implementation schedule. Comprising hard (infrastructure) and soft (capacity development, sensitization…) measures.

Estimate of investment cost for the proposed components, including physical and price contingencies, separate indication of local VAT, for all suggested project stages.

Estimate of operation and maintenance cost for a period of 20 years.

**Task 10: Financial and economic analysis**

Financial and economic analysis of the proposed/preferred measures based on the above gathered information.

Consultant should prepare a financial and economic analysis consistent with international IFI standards for cost-benefit analysis (CBA).

The financial (cash-flow) analysis should estimate investment and O&M costs over time and any direct financial revenues related to operating interventions.

The economic analysis should estimate the socio-economic costs and benefits of implementing the defined program (through the with- and without-the-project methodology). All investment and operational costs and revenues shall be converted to economic costs and benefits by: i) eliminating transfer payments (taxes and duties) as well as price contingencies (inflation, foreign exchange movements and interest during construction, if applicable); and ii) applying shadow pricing for foreign cost component and local unskilled labour. The types of economic benefits from the water supply project shall be identified and quantified – e.g. improved health benefits and productivity, reduced costs and time in obtaining potable water, etc. The economic costs of the project shall also be derived from the financial costs.

Normal results of Financial Analysis and Economic Analysis (IRR’s, NPV’s and cost-benefit ratios) should be presented. Insights in financial sustainability should be provided also in regard of coverage of O&M costs by national or local authorities. All cash-flow models (financial analysis, economic analysis in excel or other software) will be handed over to the
client as annexes to the feasibility report. In the economic analysis, a discount rate of 10% shall be used. In both analysis, a sensitivity analysis shall be undertaken considering different scenarios for the main parameters in the model.

**Task 11: Financial performance assessment of NWWSSC**

The Financial Performance assessments will focus on evaluating the financial performance of NWWSSCL as follows:

a. Evaluating the Company’s profitability for the last three years, and based on this financial performance project the furfure performance if this project is not done and if this project is done.

b. Evaluation of the Company’s liquidity in the previous three years and based on this project the cash flows with and without this project.

c. Evaluation of the Asset base and liabilities and how this project will affect revenue generation if it is undertaken. (This must include the customer changes with and without this project).

**Task 12: Possibilities for co-financing**

First assessment of possibilities for co-financing the project (additional to DRIVE) through the Government of Zambia, International Financing Institutes (like WB, AfDB, EIB, EU, etc.) as well as relevant bi-literal donors, based on the results of the financial and economic analysis of the project.

a. **Detailed tasks Phase 1 - Pre-Feasibility Study for the related sewerage system**

The Pre-Feasibility Study for the related sewerage system is directed to assist NWWSSC in the preparation of potential projects to be implemented in the short, medium and long term. This has to be based on the National Urban Sanitation Strategy with respect to the involvement of Commercial Utilities (CUs) like NWWSSC in urban areas (in which conventional sewerage systems are (likely to be) present) as well as in peri-urban areas and informal settlements (in which unconventional sewerage systems are (likely to be) present.

The Consultant shall depart from a thorough evaluation of available data, information and, if available, planning documents in order to trace critical issues and clarify problems. The Consultant shall carry out (among others) a review of existing studies, and where needed update the data and information. Based on the National Urban Sanitation Strategy as is mentioned above, the assessment of the present and future situation shall fully take into account the results of the Full Feasibility Study of the Water Supply System (see Phase 1, Part A) and its consequences for the sewerage system (conventional and unconventional).

Activities proposed are (not limited to):

**Task 1: Inventory and assessment of available information**

Inventory and assessment of available documentation, reports, analyses, O&M data, and studies concerning existing sewerage facilities in the service area of NWWSSC and a random review and appraisal of their condition, suitability and appropriateness. Special attention
shall be paid to the Pre-Feasibility Study from July 2015 (task 3) and the Solwezi Urban Baseline Study (SUBS) from October 2016 (task 4).

**Task 2: Status and content of the National Urban Sanitation Strategy**

At the time, the Pre-Feasibility Study from KfW (see task 3) was carried out, the National Urban Sanitation Strategy was fully in the process of development and focused on the main question if CUs should take responsibility for service provision in non-sewered areas either directly or under a delegated management model. Therefore, the Consultant has to find out and to discuss the current status of the National Urban Sanitation Strategy (NUSS) and its content as well as its consequences for the operations of NWWSSC.

In this respect, it is of utmost importance to discuss the final project scope for sewerage based on the above mentioned NUSS, as well as the final project scope and its consequences of the results of the Full Feasibility Study of the Water Supply System (see Phase 1, part A).


Review the Pre-Feasibility Study Report (and Appendices) for NWWSSC as executed by KfW (published in July 2015) covering the period up to 2025, with special attention to sewerage, also taking into account the final results of task 2. This review concerns among others:

1. Existing sewerage system in Solwezi (conventional and unconventional). Special attention should be given to the three town sections with a sewer system: Soltech, Kandundu (A, B and C) and Hospital area, including an update;
2. If available review (or if not available prepare) overview maps of the concerned infrastructure systems;
3. Key problems and major shortcomings of the existing sewerage system, as well as consequences of those shortcomings;
4. Capital projects undertaken in the period 2011-2014 which were still running (when the Pre-FS was published in July 2015) and projects planned for 2015 (see Appendix 3.5, Pre-FS KfW), assessing (in consultation with NWWSSC):
   a. Which projects/measures are implemented today (including date of finalization)?
   b. Which projects/measures are still ongoing (including expected date of finalization)?
   c. Which projects/measures are still in planning with their finance secured and what is the proposed start and finalization date?
   d. What are the consequences of the above with respect to the short term investment program (see point 5 hereafter);
5. Short term investment program (2015-2018) for sewerage and related measures in Solwezi (as proposed in detail under item C, see appendix 7.1 Pre-FS KfW), assessing (in consultation with NWWSSC):
   a. Which projects/measures are already implemented (including date of finalization)?
   b. Which projects/measures are currently ongoing (including expected date of finalization)
   c. Which projects/measures are already in planning with their finance secured and what is the proposed start and finalization date?
   d. Which projects/measures are still not covered including their status/expectations?
6. Any other relevant item from the Pre-FS?
Task 4: Review the Solwezi Urban Baseline Survey (SUBS) (published in October 2016)
Review the Solwezi Urban Baseline Survey (SUBS) for NWWSSC as executed by GIZ (published in October 2016), with special attention to sewerage in Solwezi town (including the final scope for sewerage decided and agreed upon in task 2). Does the information in this report contribute/add/put new lights on the current situation with respect to sewerage as already discussed in the Pre-FS from KfW (July 2015), and if yes, how?

Task 5: Socio economic study
Make use of the results of the socio-economic study from Part A on Affordability to Pay as well as results of the Survey on current and future drinking water consumption patterns for various types of customers as mentioned in the KfW Pre-Feasibility Study and elaborate on its consequences for sewerage.

Task 6: Tariff system
Make use of the review of current tariff system for drinking water and the short and medium-term tariff policies and discuss the possibilities for a tariff system for sewerage (taking into account the various options for implementation of this sewerage system as well as the consumer groups making use of the sewerage system (conventional types).

Task 7: Sewerage projections
The sewerage projections shown below are based on the current customer connections currently at 560 connections. Until major investment are done from this project, growth in sewerage will remain static. By the end of 2020, it’s assumed that the over 90% of the sewerage project will have been completed. It is expected that by 2021 all sewerage connections from the project will be achieved and so the exceptional increase by Over 2000%

<table>
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<th>Growth %</th>
<th>2%</th>
<th>4%</th>
<th>3%</th>
<th>2522%</th>
<th>7%</th>
<th>8%</th>
<th>6%</th>
<th>5%</th>
<th>2%</th>
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<td>20846</td>
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<td>21728</td>
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**Task 8: Measures to be taken**

Preliminary elaboration and design of all measures to be undertaken (as well as alternatives if possible) including preliminary cost estimates, taking into account the results of the previous tasks and the various stages of coverage (to be discussed and agreed upon with the responsible authorities).

Related operation and maintenance costs estimates valid after implementation of the preferred measures;

**Task 9: ESIA**

Initial ESIA taking into account project scope, measures and timing/stages of implementation (see also task 10).

**Task 10: Proposal for implementation in phases**

Prepare a proposal for implementation of the sewerage system in various phases over time (based on subsequent steps in coverage to be agreed upon with the responsible authorities, see tasks 2, 7, 8).

The Feasibility study for the drinking water system and Pre-Feasibility Study for the sewerage system are tendered as one single contract. In the contract it will be stipulated that only upon a positive assessment of Feasibility Study for the drinking water system, the activities under Phase 2 are to be carried out.

b. **Detailed tasks Phase 2, Follow-up Phase 1 Part A (Water Supply component)**

**Task 1: Final design**

The design must be based on the contract specification, international standards and actual site data obtained from detailed site surveys. The Client or its representative may ask for corrections and changes in the design report based on the actual site conditions or other evident parameters. The contractor will be liable for the correction of any such changes and for the submission of a complete and acceptable final detailed design report without additional cost to the Client.
A meeting shall be organized in NWWSSC for the presentation of the Concept final design report and additional contribution shall be incorporated in the Final design report. The Reports shall address: (but not be restricted to):

- The definition of the accepted Design Criteria;
- The results of various analyses and surveys and its conclusion, as accepted;
- Detail drawings, maps, schemes, bill of quantities, specifications, etc;
- A tentative work plan for the implementation of the works, avoiding interruption of water supply;
- All drawing shall be submitted in Editable format (AutoCAD, ArchCAD, etc.).

**Task 3: ESIA**

In this stage, a full-fledged ESIA is needed, according to EIA-regulations. Zambia’s Environmental Management Act of 2011, article 29, regulates Environmental Impact Assessment for any project that may have an effect on the environment. In article 30, the Minister for Environment is mandated to make regulations for the effective administration of environmental impact assessments, including the specification of categories of projects that are required to conduct EIA. A draft of 2012 of such EIA regulations is available but ZEMA is currently revising the Zambian EIA regulations.

The draft Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations of 2012 presents two lists of projects requiring EIA:

* First Schedule: projects requiring an Environmental Project Brief (EIB).
* Second Schedule: projects requiring an Environmental Impact Statement (EIS).

It is recommended to check the procedural obligations with ZEMA. According to the EIA regulations important milestones for the procedure are:

* Project brief, submitted to ZEMA
* Decision letter on EIA; ZEMA decides on the need for an EIA within 40 days (taking comments from the authorising agency into account)
* Terms of reference for EIA/EIS, prepared by the developer in consultation with ZEMA and approved (within 5 days) by ZEMA. During preparation of the ToR a public consultation process shall be organised by the developer.
* Preparation of the EIA, submitted to ZEMA
* Review; EIA is submitted to the authorising agency and stakeholders and public for comments; ZEMA decides if a public hearing is needed.
* Decision; ZEMA issues a decision letter stating if the project is approved, rejected or approved under conditions, within 30 days of public hearing report or within 20 days from submission of the EIA.

The preliminary ESIA will be the foundation for the full-fledged ESIA. In addition to the preliminary ESIA, the full-fledged ESIA should further elaborate the (program of) measures according to the detailed design. This should include the nature, location(s)/routes, size, scale etcetera of the measures as well as specifications on the implementation phase (use of materials, transportation, storage, waste generation etcetera). The environmental and social impacts should be quantified as much as possible, allowing to elaborate and quantify the necessary mitigation measures. An Environmental and Social Management Plan (ESMP) and Environmental Monitoring Plan (EMP) should be part of the ESIA.

**Task 2: Preparation of Tender Documentation**

Internationally recognised standard procurement documentation for the water supply works, need to be prepared.
The Tender Documents shall address: (but not be restricted to):

- Tendering procedures:
  - instruction to tenderers
  - evaluation and qualification criteria
  - tender forms

- Requirements:
  - The Terms of Reference with the scope of work
  - Technical specifications;

- Conditions of contract and contract form

- All relevant information:
  - studies from Phase 1
  - Drawings;
  - Bill of Quantities;
  - Priced Bill of Quantities;

The type of procurement procedure needs to be decided: open procedures, restricted procedures, competitive dialogue, negotiated procedures.
4. Outputs

a. Reports

Phase 1: Project preparation
The Contractor shall prepare the following reports:

- **Inception report:** Within six weeks from the starting date of the assignment, the contractor shall present to NWWSSC an inception report presenting an update of the workplan, the final project scope agreed upon with NWWSSC, the initial findings regarding the analysis of the current situation and existing infrastructure (drinking water and sewerage system) based on the assessment of available information and the review of the pre-feasibility studies and baseline survey.

- **Interim report – drinking water:** Within 4 months from the starting date of the assignment, the contractor shall submit an interim report presenting 1) the result of the Preliminary ESIA 2) the results of the socio-economic study, 3) review of the current tariff system for drinking water, 4) the water demand, 5) conceptual design and cost estimation of technical feasible options to comply with the water supply objectives.

- **Interim report – sanitation:** Within 6 months from the starting date of the assignment, the contractor shall submit an interim report presenting 1) the result of the initial ESIA on sewerage 2) results for sewerage projections up to 2030 3) the need for sanitation services based on the proposed drinking water infrastructure investments, 4) preliminary design of technical feasible measures to comply with the sanitation objectives.

- **Financial and economic report:** Within 10 months from the starting date of the assignment, the contractor shall submit this report containing 1) a financial and economic analysis of the proposed investment plan, 2) an assessment of the financial implications of these options for NWWSSC and 2) possibilities for co-financing the drinking water supply project.

Phase 2: Follow-up Water Supply component
Upon a positive assessment by RVO.nl and NWWSSC about the continuation of the water supply project, the following reports will be delivered:

- **Final design report.** Within 3 months from receiving the go instruction from NWWSSC, the contractor shall submit a final design report including drawings and BoQ.

- **Environmental and Social Impact Assessment with Resettlement Action Plan (ESIA):** Within 5 months from the starting date of the assignment, the contractor shall submit a full ESIA consistent with the IFC Performance Standards for the drinking water supply project and a preliminary ESIA for the sanitation activities.

- **Tender Documentation:** Within 6 months from receiving the go instruction from NWWSSC, the contractor shall submit the tender documents. The Tender Documents shall address the elements discussed under task 2 of section 3.4.

The Contractor shall submit above mentioned reports in 1 hard copy and an electronic copy. Specifications of all studies can be found in chapter 3 – Scope of the work. All written communication must be in English.

b. Reporting schedule
The following schedule is applicable to delivering the following reports/activity/event:
<table>
<thead>
<tr>
<th>Main/Critical event/Report</th>
<th>Due Date</th>
<th>Parallel/ Side event/Report</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Mobilisation and set up</td>
<td>1 month from contract signing</td>
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<td></td>
</tr>
<tr>
<td>2. Inception report</td>
<td>Up to 1 month 6 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Interim report – drinking water Covering</td>
<td>Up to 3 months</td>
<td>Interim report - sanitation</td>
<td>Up to 2.5 months</td>
</tr>
<tr>
<td>Preliminary ESIA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall overview of project</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Decision Point 1 alternatives – Decision full ESIA or terminate</strong></td>
<td><strong>Once 3 above is done</strong></td>
<td><strong>Decision Point on any options-(Pre-Feasibility study)-Sanitation</strong></td>
<td><strong>Once 3 above is done</strong></td>
</tr>
<tr>
<td>4. Draft final report water – (Feasibility study)-Water</td>
<td>Up to 6 months.</td>
<td>Draft Report (Pre-Feasibility study)-Sanitation</td>
<td>Up to 5.5</td>
</tr>
<tr>
<td>Full ESIA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Final report (Feasibility study) -Water</td>
<td>Up to 7 months</td>
<td>Final Report (Pre-Feasibility study)-Sanitation</td>
<td>Up to 6.5 months</td>
</tr>
<tr>
<td><strong>Phase 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Draft detailed design report</td>
<td>Up to 10 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final detailed design report</td>
<td>Up to 11 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tender documentation</td>
<td>Up to 14 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final project completion report</td>
<td>Up to 15 months</td>
<td></td>
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</tr>
</tbody>
</table>

In addition, Quarterly reports are required, this should be between 8 and 10 pages of main text, with annexes to include a graphical representation of the work plan, comparing planned with actual. This report should include, at least, the following information:

- Review the implementation status: planning vs. reality;
  - Comparing planning tasks with output for the last 3 months;
  - Plan for the following 6 months and impacts;
  - Analysis of time schedule variations: planning vs. reality;

- Review risk identification, prevention measures/activities, adaptation measures/activities;
• Cooperation with relevant stakeholders and Donors;

• Provide monitoring of the contract;
  o Monitoring of Reporting, as defined above;
  o Monitoring of resources;
  o Monitoring of Approvals, contract dates;
  o Monitoring of Correspondence between parties;
  o Needed contractual variations, if applicable.

Approval of Reports and deliverables.

All draft reports shall be sent to NWWSCL and RVO.nl for comment. NWWSCL and RVO.nl will provide comments within ten working days of receipt of the draft. Responses to comments shall be documented in the final draft of the report and included within an annex. Following issue of the final report NWWSCL and RVO.nl will provide ‘approval’ and ‘no-objection’ respectively, within ten working days of receipt of the final draft document, such approval will not unreasonably be withheld.

Approval of Quarterly Reports

Quarterly reports should be issued, for comment, within 15 calendar days of the end of the respective quarter. Such reports are of a factual nature and thus don’t require ‘approval’ or ‘no-objection’. However, NWWSCL and RVO.nl will provide comments within ten working days of receipt of the reports. The consultant shall respond to such comments within ten working days of receipt and include such commentary within an annex of the following Quarterly Report and assist in the improvement of subsequent Quarterly Reports.
Qualifications and resources requirements

5.1 Firm/group of firms
The contractor shall be a reputable Consulting Engineering firm with at least 20 years’ experience in urban water engineering, planning and management. Specific experience with water supply and sanitation planning, surface water sourcing, water conservation and demand management in Africa is required, including design of water supply and sanitation system components.

The contractor shall develop its methodology and work plan and shall propose appropriate qualified and experienced full and part-time staff to fulfil the requirements of the assignment and these Terms of Reference. Combinations of international and local consultants in the team is encouraged.

The contractor shall develop its methodology to show on and off-site communication with staff and stakeholders in Solwezi and the project impact area. The contractor shall detail its proposed staffing presence in the project area and Lusaka. It is envisaged that at least a third of the Team Leader and ESIA Expert’s input time should be within the project area.

5.2 Personnel
The contractor shall propose appropriate full time and part-time staff with the proposed time inputs for the assignment. All key staff must be able to demonstrate that they are fluent in English. The minimum requirements for each individual key staff are as detailed below:

<table>
<thead>
<tr>
<th>Position</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Team Leader/Water Supply Specialist</strong></td>
<td>Team leader shall be an international expert (preferably a civil engineer or hydrologist) having a Master’s degree and at least 15 years of experience in managing international projects in water supply and sanitation sector infrastructure development and management. He/she shall have at least 10 years of experience with implementing feasibility studies in the field of drinking water supply and/or sanitation. He/she shall have a proven track record in drafting feasibility reports in English and shall have experience in Africa.</td>
</tr>
<tr>
<td>Civil engineer</td>
<td>The civil engineer shall have a Master’s degree with at least 10 years general relevant experience and 7 years specific experience with feasibility studies for water and sanitation projects, design of water supply and sewerage / sanitation infrastructure and cost estimation.</td>
</tr>
<tr>
<td>Drinking water expert</td>
<td>The drinking water expert shall have a Master’s degree with at least 10 general relevant experience and 7 years specific experience in the design of water treatment works.</td>
</tr>
<tr>
<td>ESIA specialist</td>
<td>The ESIA specialist shall have a Master’s degree with at least 10 years’ experience in managing and conducting ESIA according to international standards.</td>
</tr>
</tbody>
</table>
Experience in conducting ESIA in Zambia according to the national requirements (registered local ESIA expert)*)

*) EIA-regulations (1997), Fourth Schedule (Guidelines for developers in conducting Environmental Impact Assessment) state: Together with the co-ordinator, the developer selects the experts that will comprise the team that will undertake the study. Preference should be given to experts with specific knowledge of local or similar conditions. The team shall include at least one-person resident in the potentially affected area.

The new Draft EIA-regulations (2016), part X state: A person shall not conduct an environmental impact assessment or an environmental audit unless the person is registered with the Agency and holds a valid certificate of registration issued by the Agency. Schedule 8 of these regulations lists criteria for these EIA-experts.

It should be noted that an individual can be offered for more than one position if he/she meets all qualifications and experience and can produce the service within the stated time limit.

Other experts, support staff and backstopping
To complement the above-mentioned staff, the contractor shall propose additional appropriate qualified and experienced full and/or part-time support staff to fulfil the requirements of the assignment and this Terms of Reference.

CVs for these experts should not be submitted in the tender. The contractor shall select and hire other experts in agreement with the client as required according to the needs. The selection procedures used by the contractor to select these other experts shall be transparent, and shall be based on pre-defined criteria, including professional qualifications, language skills and work experience. The selected experts must be subject to approval by the client.

In terms of professional and technical competence, the areas of expertise which will be needed from non-key experts should include at least the following:

<table>
<thead>
<tr>
<th>Position</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deputy Team Leader</td>
<td>The Deputy Team Leader shall be a national expert (preferably a civil engineer or hydrologist) having a university degree and at least 10 years of experience in managing projects and feasibility studies in the drinking water and sanitation experts. He/she shall have good verbal and written English and excellent reporting skills.</td>
</tr>
<tr>
<td>Hydrologist</td>
<td>The Hydrologist shall have a B.Sc. degree in a relevant field and a post graduate qualification in river and reservoir management. He / she shall have 8 years general relevant experience and 6 years specific experience in hydrological analysis of rivers and reservoirs.</td>
</tr>
<tr>
<td>Geotechnical Specialist</td>
<td>The Geotechnical Specialist shall a B.Sc. degree in a relevant field as well as postgraduate qualification in geotechnical engineering. He / she</td>
</tr>
</tbody>
</table>
will shall have 8 years general relevant and 6 years specific experience in planning and design of dams, and carrying out geotechnical investigation works and dam safety analysis.

<table>
<thead>
<tr>
<th><strong>Financial and economic specialist</strong></th>
<th>The economic/financial expert shall have a bachelor’s degree or equivalent with at least 8 years experience with financial modelling (cash-flow modelling) and cost-benefit analysis.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Procurement expert</strong></td>
<td>The procurement expert shall have a bachelor’s degree or equivalent with at least 8 years’ experience in preparation of tender dossiers under FIDIC and/ or World Bank standard conditions of Contract.</td>
</tr>
</tbody>
</table>

Cost for backstopping and support staff, as needed, are considered to be included in the financial offer of the tenderer.
5. Other requirements and considerations for the services

a. **Language**
All written communications for this tender procedure and contract (reports) must be in English.

b. **Timetable of the contract**
The contracting authority is of the intention to conclude an agreement from 1 October 2017 until 31 December 2018.

c. **Contract value**
The tendering authority assumes a maximum estimated total contract value (total of for Phase 1 and Phase 2) of 860,977 EUR inclusive of VAT. This amount is including daily fees, travel costs, DSA and other costs. However, as this is solely indicative no rights can be derived from the above.

The contractor shall include an amount of 80,000 EUR within the Phase 1 contract value for the purchase of two vehicles. These vehicles shall be purchased from new, in Zambia, to have four-wheel drive capacity, have at least 4 doors and two rows of seats, have a ground clearance similar to a ‘double cab 4*4 pick-up truck’. These vehicles will be handed-over to NWWSSCL at the end of the project.

d. **Payments**
Payments shall be made on the basis of agreed percentage of the Lump Sums for each completed milestone of the assignment. The relative milestone payments in proportion to the total sum for the assignment is given below:

<table>
<thead>
<tr>
<th>Report</th>
<th>Percentage of Phase Price</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Phase (Maximum of 50% of Contract sum)</strong></td>
<td></td>
</tr>
<tr>
<td>Advance payment (Evidence of mobilization and contract signature).</td>
<td>20%</td>
</tr>
<tr>
<td>Payment 1 - First Quarter (Evidence of approved Inception plan and issued Quarterly Report)</td>
<td>40%</td>
</tr>
<tr>
<td>Payment 2 - Second Quarter (Evidence of approved final report of FS – Water and PFS – Sanitation, issued Quarterly report)</td>
<td>40%</td>
</tr>
<tr>
<td><strong>Phase total</strong></td>
<td><strong>100%</strong></td>
</tr>
<tr>
<td><strong>Second Phase</strong></td>
<td></td>
</tr>
<tr>
<td>Payment 3 - Third Quarter (Evidence of issued Quarterly Report)</td>
<td>30%</td>
</tr>
<tr>
<td>Payment 4 - Fourth Quarter (Evidence of approved final design report, issued Quarterly Report)</td>
<td>30%</td>
</tr>
<tr>
<td>Final payment (Evidence of approved Final production of tender document for the Implementation DRIVE project, and approved Final Project Completion Report (project Evaluation Report))</td>
<td>40%</td>
</tr>
<tr>
<td><strong>Phase total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

e. **Implementation arrangements**
- NWWSSC will provide the contractor with working space and necessary furniture.
• NWWSSC will designate senior officials to be the primary contact persons with specific responsibility for assisting the contractor and co-ordinating activities.
• NWWSSC will make available all of their records, plans, reports, designs and other documents as appropriate, but it will be the responsibility of the contractor to translate these documents, if necessary.
• NWWSSC will provide access to all of their facilities and employees for questioning or assistance relative to an understanding of the functioning of system facilities.
• The contractor shall be responsible for paying for all international telephone connections, office supplies, external printing. The contractor shall pay for all local transportation required by the contractor’s staff throughout the duration of the assignment.
• The contractor should procure required motor vehicles in consultation with the client and to be handed over to the client at the end of the undertaking as shall be provided for in preliminary and general.
• The Contractor to facilitate exchange visits identified by NWWSSCL, RVO.nl and the contractor to learn on potential technologies to be applied on the project.
• The contractor shall be responsible for providing suitably qualified interpreters/translators to work with their staff.
Annex A Available documents

i. Pre-Feasibility Studies for the water and sewerage in North Western Province done by MLGH thorough KFW

ii. The Solwezi Urban Baseline Survey (SUBS)