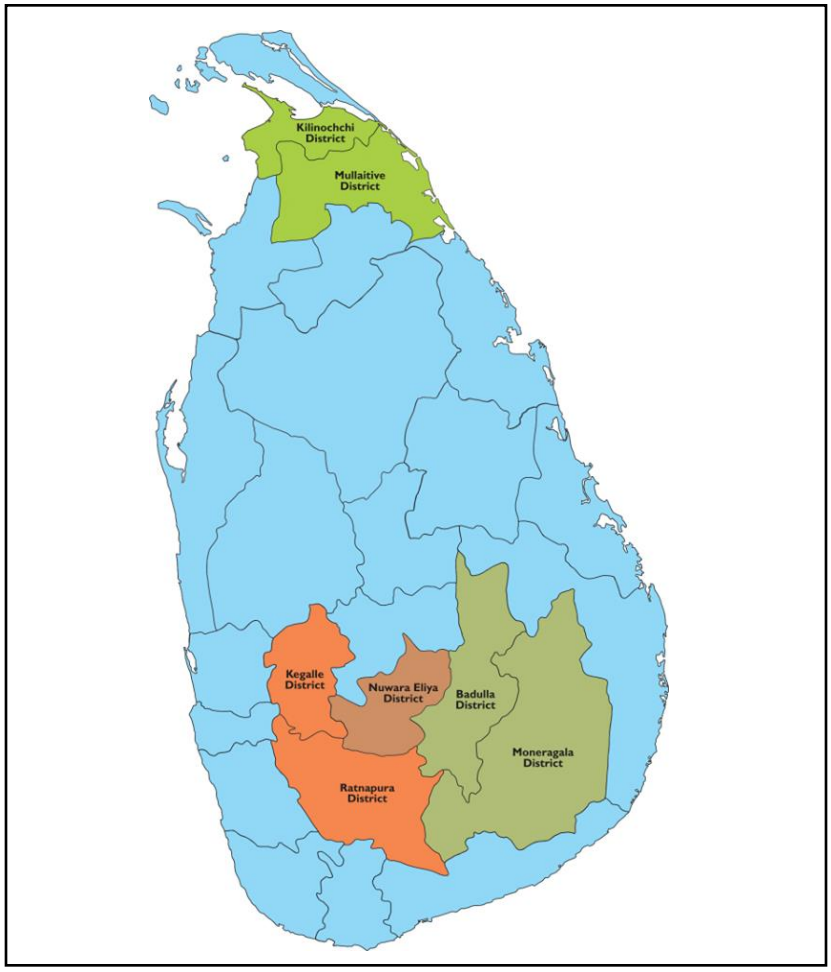
NewTap
Network on Water Technology in Asia and Pacific



LK Water Supply and Sanitation Improvement Project, Sri Lanka

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Summary

Sri Lanka has been making a significant development in terms of economy after a 30-years long civil war. Nonetheless, there are still a majority of inhabitants in Urban Sub-sector (cities/towns), Rural Sub-sector (low density village areas) and Estates Sub-sector (high density cluster communities) where basic infrastructures are still in dearth. One of the lacking infrastructures has been listed as proper drinking water supply and sanitation arrangements. For that reason, the Government of Sri Lanka has collaborated with the World Bank and working in close coordination for upgradation and rehabilitation of supply of drinking water services in seven districts. With an objective to increase the access to piped water services and improved sanitation in the districts of Mullaitivu, Kilinochchi, Nuwara Eliya, Badulla, Monoregala, Kegalle and Ratnapura, the World Bank through International Development Association has agreed to a commitment amount of USD 165 million. Extra financial amount of USD 18.9 million for the project will be supported by the local bodies and the Government of Sri Lanka. The project is expected to benefit a total of at least 420,000 individuals in context of drinking water with approximately 23,600 beneficiary households in Urban towns, 64,900 beneficiary households in Rural areas and 15,800 beneficiary households in Estates. Likewise, in sanitation component, it is expected to have 43,000 sanitation beneficiary families. In addition, the maintenance of service standard of 24 hour water supply, and rehabilitations of infrastructures for water intake, pumping main, conventional water treatment plant and distribution network particularly in urban small towns would increase the water availability and reduce the cost of drinking water delivery. The water supply is expected to be ranging from 80-120 litres per capita per day. Signed on June 24, 2015, the project is expected to be completed by 31 December, 2020.

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Acronyms and Abbreviations

CKDu	Chronic Kidney Disease of uncertain etiology
DNCWS	Department of National Community Water Supply
EAMF	Environmental Assessment Management Framework
EMP	Environmental Management Plans
ERR	Economic Rate of Return
GoSL	Government of Sri Lanka
IDA	International Development Association
lpcd	litres per capita per day
MCPWS	Ministry of City Planning and Water Supply
NWSDB	National Water Supply and Drainage Board
NPV	Net Present Value
SMF	Social Management Framework
TOR	Terms of Reference
USD	US Dollars
WaSSIP	Water Supply and Sanitation Improvement Program

1 Introduction

After a 30 years long civil war, which ended in 2009, Sri Lanka had been growing in its economy at an average of 7.5 percent during 2010 to 2013 (The World Bank, 2015a). There are incidences where a predominantly rural based economy is getting transitioned into the urbanized economy through provision of manufacturing and services. However, being a lower middle-income island in South-east Asia, the nation has been moving towards reconstruction and growth at a slow pace. A number of inhabitants in different districts of Sri Lanka have suffered a dearth of basic facilities such as that of pure drinking water supply. Thus, keeping in view of this fact, the World Bank has approved a financial credit of USD 165 million through International Development Association (IDA) under the name of Water Supply and Sanitation Investment Program (WaSSIP) for increment in access to piped water services and improved sanitation in seven districts of Sri Lanka namely, Mullaitivu and Kilinochchi districts in Northern Province, Nuwara Eliya District in Central Province, Badulla and Monoregala Districts in Uva Province and Kegalle and Ratnapura Districts in Sabaragamuwa Province (The World Bank, 2015b). The selection of these regions have been grounded upon the linkage of poverty with access to safe drinking water which further was evaluated on the basis of percentage of people with access to unimproved and unsafe water, percentage of households with access to non-piped water sources and districts in the dry zones (Water Supply and Sanitation Improvement Project, 2017).

The project has been divided into four major components: the first one is dedicated to improvement in water supply and sanitation infrastructure, the second one focuses on institutional strengthening, the third one is for sectoral technical assistance and the last one aims for project management support. It is expected to have more than 420,000 individual beneficiaries in terms of water supply with at least 23,600 beneficiary households in towns, 64,900 beneficiary households in rural areas, 15,800 beneficiary households in estates, and 43,000 sanitation beneficiary families in terms of sanitation sub-component (Water Supply and Sanitation Improvement Project, 2017). Details of LK WaSSIP has been summarised in **Table 1**.

Table 1: Overview of the water supply project

Items		Description
Project Name	:	LK Water Supply and Sanitation Improvement Project
Type	:	Water Supply/ Water Treatment
Donor Name	:	i. World Bank through International Development Association ii. Local Communities
Project components	:	i. Water Supply and Sanitation Infrastructure ii. Institutional Capacity Strengthening iii. Sectoral Technical Assistance iv. Project Management Support
Project rationale and objectives	:	i. To increase access to sustainable piped water services and sanitation ii. To increase hygiene behaviour as a result of better water treatment
Project Fund	:	Total: USD 183.9 million World Bank financing: USD 165 million
Project Duration	:	From June 24, 2015 till December 31, 2020

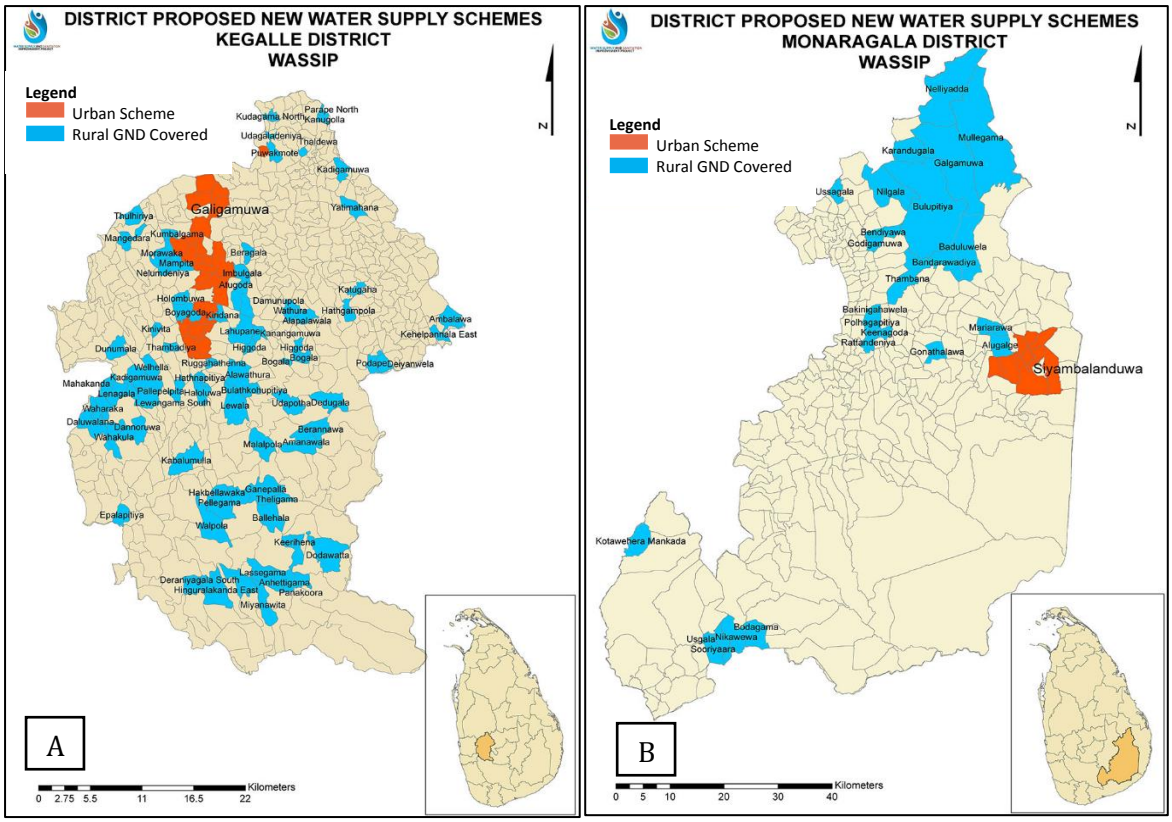

Figure 1: Water supply schemes under WaSSIP in A) Kegalle district B) Monaragala district

2 Technical and Technological Brief

According to the Component 1 of the project, an indicative finance of USD 132 million would be provided for expansion of piped water services with focus on both urban and rural areas of the high water scarcity vulnerable districts. Also, for the urban sector, targets would be set for towns that have already been considered for rehabilitation of existing systems by the Government of Sri Lanka (GoSL). Under the scheme of WaSSIP, a number of water supply and sanitation projects are in progress in Mullaitivu district. The major projects carried out in Mullaitivu district are Thevipuram, Thanduwan, extension of Mallavi, extension of Oddussudan and Puthukudiyirruppu in Batch 1 and Thunukai Rural Water Supply, Ampalawanarpokkanai, Mulaithive 1, 2, and 3, and Ampalpuram Kollaivilankulam in Batch 2 (Water Supply and Sanitation Improvement Project, 2017). Similarly, in Kilinochchi district, the major projects include Krishnapuram, Ambalnagar, Malayalapurnam, Thatuwankuti in Batch 1 while Kovil, Shanthapuram and Iyakachchi in Batch 2. Likewise, in Nuwara Eliya region, the projects run under the name of Pallebowala, Kosgolla, Manthirithenna extension, Galkandapatana extension, Seengama and Rekitipe in Batch 1 while Ruwan Eliya, Upper Suriyagahapathana extension, Watawala, Kalaweldeniya, Kiriwaneliya, Warallapathana extension and Kotambe in Batch 2. Meanwhile, under WaSSIP, in Badulla region, the projects include Kanaweralla West and East, Kahataruppa, Palawaththa, Yalagamuwa, Ambathanna and Nagadeepa in Batch 1, Namunukula, Walasbadda, Wasanagama, Udubadana and Diyathalawa in Batch 2 while Poonagala, Kahagolla, Kandana, Dambathenna and Udakohowila in Batch 3. Accordingly, the projects in Monaregala districts are Nigala, Bulupitia, Mariarawa, Sooriyaara and Keenagoda running under Batch 1, Muthukandiya, Deliwa, Ethimale, Horabokka, Koonketiya and Kahambana in Batch 2 while Karawile, Balaharuwa and Kurugama in Batch 3. Likewise, in Kegalle district, the projects include Amanawala, Malalpola, Ballehela,

Hathgampola, Walpola, Garagoda extension, Hakbellawaka and Ganepalla in Batch 1, Dedugala, Dunumala, Lenagala, Kanugolla, Natuyapana, Welhella, and Haloluwa in Batch 2 and Beragala, Bogala, Kiridana, Atugoda, Hathnapitiya and Boyagoda in Batch 3. Lastly, the projects running under WaSSIP in Ratnapura region are Niralgama, Dippitigala, Sooriyakande, Maudella, Buluwana, Galpaya and Madampe in Batch 1, Madabaddara, Karawita, Batandura, Yainna, Delgoda, Hallinna and Galamuna in Batch 2 while Gileemalee, Thalavitiya, Kiriporuwa, Palawela, Weeragama and Erathna in Batch 3.

All these projects being carried out in different regions of the seven selected districts and focused on the upliftment of piping connections to households. The small town water supply schemes constitute of 10,700 connections in Galigamuwa, 4,800 connections in Pambahinna, 4,110 new connections in Siyabalanduwa, 3,300 connections in Mullaithivu, 2,200 connections in Mullankavil and 4,220 connections in Haldummulla.

Figure 2: Construction of reservoir for Puthukudyirruppu Water Supply Plant in Mullaithivu district

Figure 3: Laying of pipelines under Garagoda Rural Water Supply Scheme as a part of WaSSIP

3 Financial Brief

The total project cost has been estimated as USD 183.93 million of which USD 165 million has been approved to be financed by IDA under the World Bank. Likewise, the Government financing amounts to USD 5.02 million while community contribution accounts for USD 13.92 million. **Table 2** represents the contribution of major donors in LK Water Supply and Sanitation Improvement Program. Accordingly, the credit from IDA has a term with a maturity of 25 years having the inclusion of a 5-year grace period.

Table 2: Contributions of major donors in WaSSIP

Project Components	**IDA Financing (million USD)**	**Community contribution (million USD)**	**Government financing (million USD)**	**Grand Total (million USD)**
Component 1: Water Supply and Sanitation Infrastructure	145.22	13.92	1.10	**160.24**
Water Supply Schemes	116.32	8.46	-	124.77
Sanitation Supports	21.21	5.46	-	26.67
Implementation Support Consultants	7.69	-	-	7.69
Land for Water and Sanitation Infrastructure	-	-	1.10	1.10
Component 2: Institutional Capacity Strengthening	6.43	-	-	**6.43**
Component 3: Sectoral Technical Assistance	6.06	-	-	**6.06**
Component 4: Project Management Support	7.28	-	3.92	**11.20**
Total	**165.00**	**13.92**	**5.02**	**183.93**

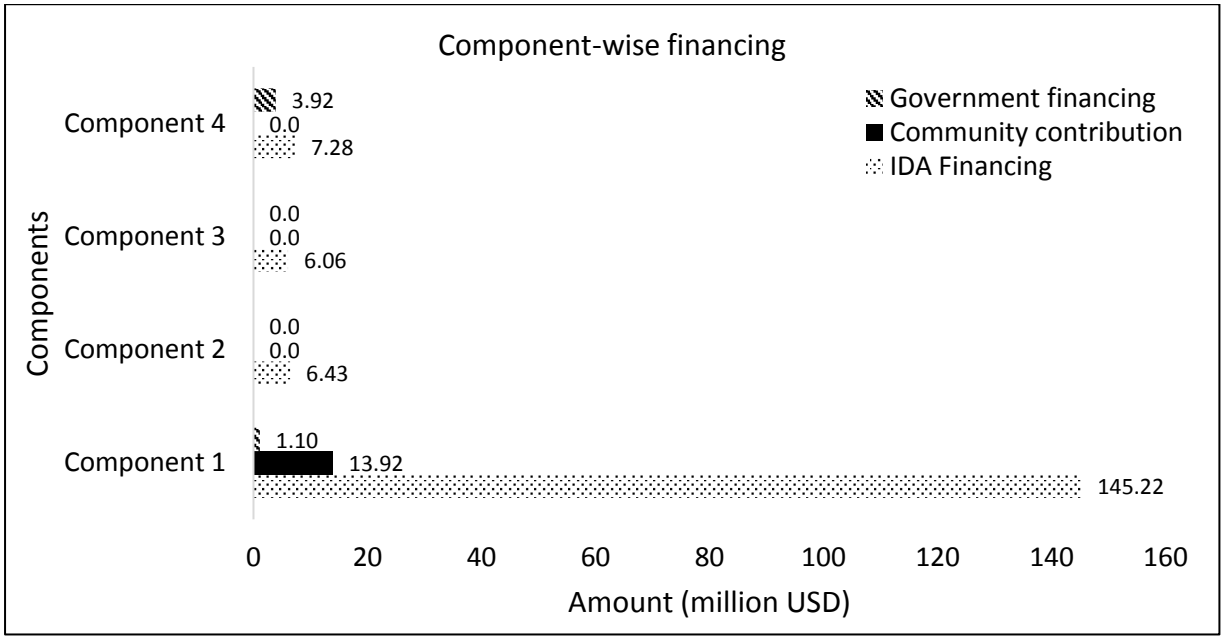

Figure 4: Financing of LK WaSSIP

4 Project Features

4.1 Technical and technological features

The major infrastructural significance grasped by the project include the provision of pipe-borne pure drinking water supply and on-site or decentralized sanitation for urban, rural and estate sub-sectors. Thus, for that purpose, the project is expected to be implemented as per the nation's accepted norms. Technical aspects covered by the component 1 include activities such as source investigation, geotechnical investigations, concept and detailed designs of pipeline layouts, and construction supervision. Moreover, the ultimate provisions incorporate the metered drinking water supply to the beneficiaries. Likewise, for the maintenance of service standard of 24-hour water supply, investments have been made for intake, pumping main, conventional water treatment plant and distribution network, particularly in urban small towns. Depending on the availability and cost-effectiveness of the delivery, the water supply is expected to be ranging from 80-120 litres per capita per day (lpcd). However, in rural and estate scheme design, the metered connections will only be available to those households that have registered to receive water. Thus, the selection of the areas has been based on demand responsive approach and the beneficiaries in these rural areas are expected to receive reliable water supply of at least 80 lpcd. The hydraulic designs necessary for pipeline distributions and connections

Likewise, for sanitation improvement sub-component, the septage treatment facilities would be located at a site for maximal access to a larger population with each plant provided with at least two gully bowsers for the collection of septic effluent. The treatment capacity of the plants are expected to be in the range of 35 to 60 m^3 per day and would be discharged to inland local rivers/streams only after the effluents meet the national standards.

Figure 5: Construction of Rideemaliyadda South Water Supply infrastructures in Badulla District

4.2 Economic and financial features

Apart from the financial support from the World Bank through IDA and governmental assistance, the local community is also directly involved in the progress of the project. The community contribution amounts to approximately 10% of the total contract value which is in the form of labour during most of the trenching and backfilling for the proper networks of water pipes in the rural and estates water supply schemes. In addition to this, the community contribution for rehabilitation and/or expansion of pre-existing rural water supply schemes is expected to be about 30% of the contract/works value either in cash and/or its kind. In this component, IDA is expected to contribute the remaining 70% of the contract value. Similarly, the GoSL have agreements in provision of counterpart funds of approximately 2.7% of the wholesome project costs in the form of staff salaries and allowances who are directly involved in implementation of project or the cost of lands.

Another economic feature associated with the project includes the financial analysis based on benefits to the communities living in project area. The overall Economic Rate of Return (ERR) of the project has been expected to be 21.88%. **Table 3** indicates the ERR and Net Present Value (NPV) represented sub-sector wise. The estimations are based on the costs and benefits associated with construction and rehabilitation of piped water supply and the sanitation facilities such as construction of toilets. The indirect benefits leading to savings in health care costs, reduction in time spent for collection of water, productivity gains and value of incremental water availability for drinking have also been considered for calculation of ERR.

Table 3: Economic Rate of Return – Sub-Sector Wise (The World Bank, 2015a)

Sub-sector	ERR (%)	NPV (USD)
UWSS (Water Supply only)	16.31	34,356,890
RWSS	23.18	61,316,713
EWSS	33.39	22,062,018
Overall Project	21.88	117,735,622

4.3 Social and environmental features

LK Water Supply and Sanitation Improvement Program has come to implementation when Sri Lanka has been facing the challenge of a new disease called Chronic Kidney Disease of uncertain etiology (CKDu) which is supposed to be caused by consumption of unhealthy water. Hence, with

improved access to safe drinking water, this project is expected to benefit inhabitants of those seven districts. Moreover, the reduced time spent in the collection of water by the inhabitants can be used in some productive activities that may enhance the living standard of those people. In addition, the project can also be helpful in reduction of susceptibility of vulnerable groups such as children and elderly to the health risks caused by water-borne and sanitation-related diseases. Apart from these social features, the efforts have been made in maximum utilization of state land for construction of any project related infrastructure. Also, for any additional requirement of land not owned by the State, the GoSL will serve as a major body for funding compensations to the affected ones. However, the initial survey also indicates that in some cases, there are inhabitants who illegally reside in state-owned land. Nevertheless, Social Management Framework (SMF) and Involuntary Resettlement have been prepared so as to provide necessary guidelines which may be helpful in identification of social risks as well as provision of possible mitigating measures and addressing any adverse social impacts caused by the project. Also, the SMF includes the participation of both men and women throughout the project cycle including equal sharing of project benefits, thereby ensuring gender equity.

Similarly, regarding the environmental concerns associated with the project, it has identified and outlined procedures for mitigating the environmental impacts caused during the physical interventions made via expansion of piped water services through Environmental Assessment Management Framework (EAMF). In addition, the EAMF includes environmental assessments, Environmental Management Plans (EMPs), specifications in bid documents as well as monitoring plans that come into play during implementation of project at local level. Also, special studies in the geography of dry zones have been carried out to reduce risk of water source failures. Apart from this, the project is expected to cause no potential threats to significant natural habitats or designated areas of natural importance. Likewise, as per the proposed project interventions during laying of pipelines, no activities in forests or in close vicinity of forest areas have been expected.

5 Project Benefits

The completion of this project is expected to benefit a total of approximately 107,000 households (i.e. 426,000 individuals) with safe piped water supply which consists of 26,300 households in towns, 15,800 households in estates and the other 64,900 households in rural areas (The World Bank, 2015a). This number accounts to about 14 percent of Sri Lanka's national target in increasing the piped water coverage. The GoSL's piped water coverage during 2015 accounted to 45% which is supposed to increase to 60% (with an additional 3 million individual beneficiaries) by 2020 after the successful completion of this project. In addition to this, the expansion of some of the pre-existing water supply and delivery services can benefit approximately 25,800 households. Likewise, from the sanitation component of the project, it is expected to assist approximately 43,000 families of rural areas and estates in the construction of individual latrines. Furthermore, financing to the building up of on-site septic tanks and strategically located septage tank facilities in each of project districts could help in faecal sludge management that would certainly improve sanitation in local people, environmental conditions in catchment areas and reduce the water pollution. Another indirect influences of this project lie on the decline of illness due to provision of access to water and sanitation and reduction of burden of securing daily drinking water needs. Similarly, the project would also help to reduce the gap between poverty-

stricken families and financially able families of rural and estates through provision of sanitation grant for the needy ones in building up of hygienic toilets.

6 Implementation Status of the Project

After the approval of project on June 24, 2015, the financing agreement between the Government of Sri Lanka and the World Bank was signed on November 6, 2015 with a delay of five months resulting from the frequent changes in Government and creation of newer Ministry of City Planning and Water Supply (MCPWS) that holds the functional responsibilities for the project. However, the National Water Supply and Drainage Board (NWSDB) is working under the same ministry and no changes have been made in terms of implementing works.

After this preliminary delay, the construction works held within component 1, i.e. water supply and sanitation infrastructure, are being carried out smoothly. A recorded number of 26 out of 78 rural water supply schemes under Batch 1 and 2 out of 6 urban water supply schemes are under smooth operation and implementation. Likewise, 2 new rural water supply schemes and 2 rehabilitation schemes have been recently developed and accomplished. Accordingly, for the sanitation part, 1 out of 7 septage treatment plant have begun construction. The major challenge, however, for this portion remains the selection of the suitable land site. Likewise, for component 2 i.e. institutional capacity strengthening, there has been the development of strategy papers on roles and responsibilities of different institutions such as NWSDB, Department of National Community Water Supply (DNCWS), NCWS and PMU involved in the project. Similarly, for component 3, i.e. sector technical assistance, terms of reference (TOR) for hiring consultancy firm has been finalized. Thus, all these implementations indicate that the progress has been made in a smooth process apart from the initial delay. In terms of financial disbursements, 27% of the project funds have already been disbursed so far.

7 References

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