

## Annex – 4

### Terms of Reference (ToR)

## Implementation of Grey Water Treatment System (GWTS) and Rehabilitation of Sanitary Facilities in Harir District

### 1. Introduction

The rapid growth of cities has created a shortfall in the supply of infrastructure and services, leading to a deteriorating environment. Today, an estimated two billion people in the world do not have access to 'adequate' sanitation facilities, leading to the degradation of the environment, human health, and aesthetic values. Only 37 percent of urban sewage is treated (23,277 million liters per day)! The disposal of such a huge volume of untreated domestic sewage from cities and towns is the biggest source of water pollution and environmental contamination. Most Indian cities try to handle the infrastructure demands through centralized systems, which not only require high capital expenditures but also cause high operation and maintenance costs.

The existing centralized systems are not able to serve the increasing demand. As a complementary option to the centralized approach, a decentralized waste management system can be an effective solution to tackle pollution in urban areas. Moreover, decentralization helps to increase community participation in the decision-making process, implementation, and maintenance. In this context, there is an increasing need for scaling up decentralized approaches for adequate basic needs services. Decentralized wastewater treatment systems have enormous potential to contribute to the development of sustainable environmental sanitation.

The project “Strengthening Local Structures for Sustainable Sanitation Services in West and Central Asia” aims to have the local authorities contribute to liveable, sustainable, and resilient communities, as well as to the protection of natural resources and adaptation to climate change in KRI. The project is funded by the Federal Ministry for Economic Cooperation and Development (BMZ) with the overall goal of developing and implementing improved solutions for wastewater treatment and faecal sludge management, thus contributing to better living conditions and improved resilience for the host communities in KRI.

The project is being implemented by BORDA (Bremen Overseas Research and Development Association) KRI, which is a non-profit civil society expert organization headquartered in Bremen, Germany, that provides innovative, demand-driven support in wastewater management and integrated urban planning.

## 2. Description

The Grey Water Treatment System (GWTS) to be implemented in Harir is designed to efficiently manage local wastewater treatment needs in a sustainable manner. This system will be modular, integrating sedimentation, anaerobic digestion, aerobic treatment, and filtration processes within a unit. The treated wastewater from the GWTS will be utilized for irrigating trees in a public garden, contributing to the enhancement of green spaces in the community. The project will also include the rehabilitation of a drip irrigation system to ensure efficient water usage.

## 3. Scope of Work

### 3.1. Constructing GWTS Components

- Construct the main GWTS components, including settlers, anaerobic filters (AF), and a collection tank.
- Install necessary pumps, flow meters, and monitoring equipment.
- Ensure proper connections between components for efficient flow and treatment.

### 3.2. Rehabilitating the Irrigation Network

- Improve the drip irrigation system to distribute the treated wastewater to trees planted in a public garden. The system should include all necessary piping, valves, and emitters to ensure efficient water distribution.
- Connect the irrigation system to the GWTS treated water output and ensure proper functionality.

### 3.3. System Commissioning and Testing

- Commission the GWTS system by conducting necessary tests, including hydraulic and performance testing.