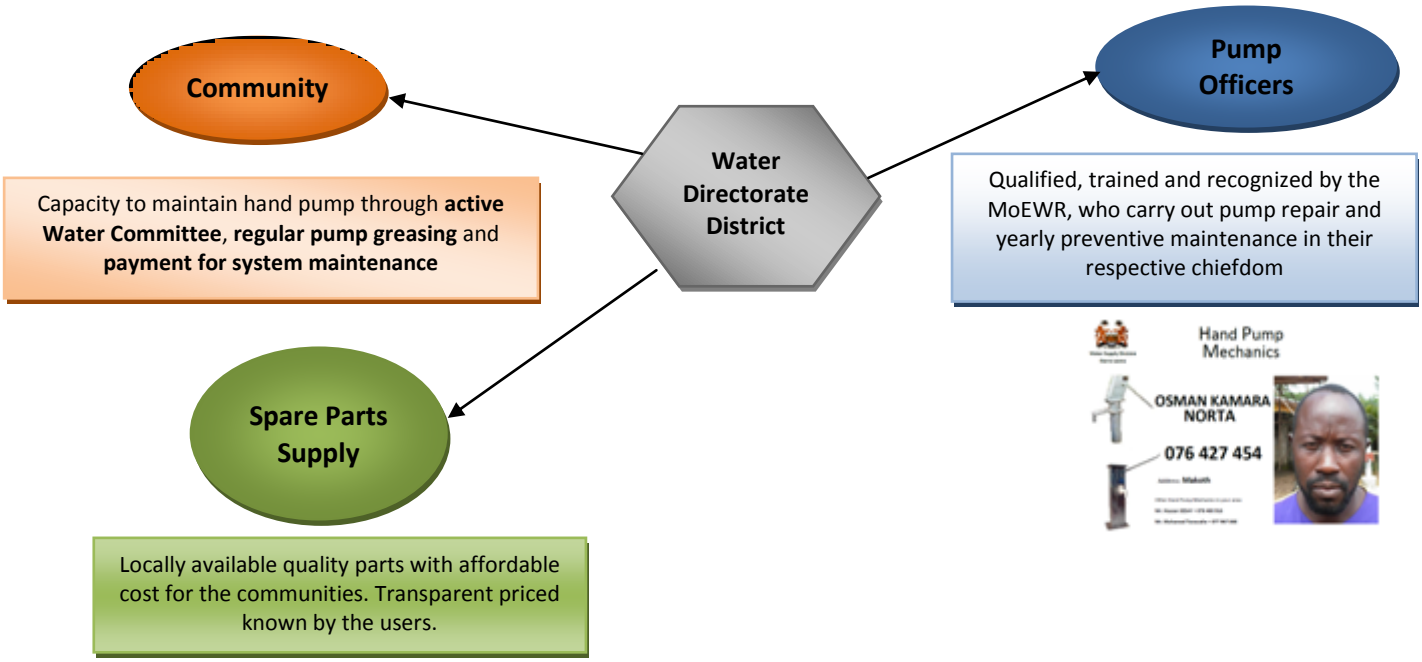
Strategy

The objective of the project is **to build the capacity of local communities and the public and private sector to maintain hand pumps in order to sustain access to safe water in Bombali District, Sierra Leone**.

Schematically, the project aims at setting up an efficient maintenance scheme relying on the following actors:



At community level, the project **prepares and develops the conditions to enable a durable maintenance of the pumps**. It concerns access to reparation services in case of breakdowns but overall, the entrance of the communities into a cycle of yearly preventive maintenance of their system. For that, sensitization and training is organized to mainly ensure that:

- An active Water Committee represents the users and organizes the management of the water point;
- Users understand the need of maintenance and pay for it;
- A pump caretaker greases the pump twice per month.

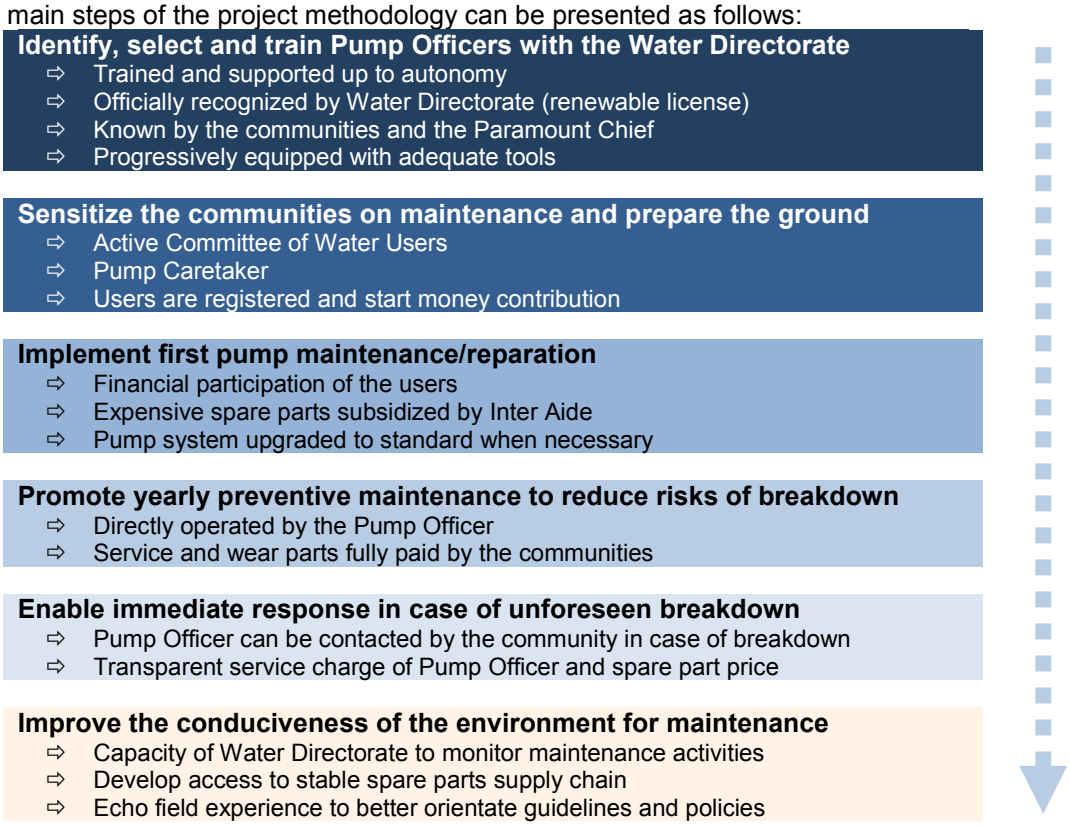
The Pump Officers provide an immediate and local response to the communities in case of breakdown. Through yearly maintenance campaigns, they also operate a complete diagnosis and preventive maintenance of the systems. For that, the Pump Officers are involved during all stages of the project in order to help them becoming progressively autonomous for all future maintenances, of which the community is responsible for paying full cost.

By fostering the demand and the service, it then gradually allows to develop the **access to stable spare parts' supply chains** (wear parts and more heavy parts)

In the project methodology, a particular attention is paid to reinforce the capacities of the **Water Directorate and Local Authorities** to check the quality of the Pump Officers work, to give continuous technical training, and to support the Pump Officers in making sure communities respect regular pump maintenance. It implies to create communication channels and basic reporting between the different actors (communities represented by a Committee of Users, Pump Officers, section and paramount chiefs, Water Directorate District and Private Suppliers).

Methodology and stages

The main steps of the project methodology can be presented as follows:



1. Identify, select and train Pump Officers with the Water Directorate

The Pump Officers are selected based on their technical and pedagogical skills as well as their knowledge of the communities and the Local Authorities (Paramount Chief). Depending on the number of umps and the accessibility, there are between 1 and 3 Pump Officers per chiefdom. They are involved throughout all processes of the project in order to familiarise with their job and to progressively become autonomous.

2. Sensitize the communities on the notion of maintenance and prepare the conditions for a durable maintenance of their pump(s)

Participative sessions are organised to enable the community to understand how their pump works and to introduce the notion of preventive maintenance. A participative diagnosis of the pump is then organised with the community and the presence of the Pump officer. It allows to illustrate the deterioration of the pumps throughout the time, by comparing old spare parts and new one, and to emphasise the need of yearly preventive maintenance.

Preparing the conditions for a durable maintenance of the pumps means that, at the end of this phase:

- A Water Committee is available, trained and in charge of representing the users for the management of the water well
- A Pump Caretaker is active and capable to do regular greasing of the pump
- Users are registered and start to contribute money for the maintenance

3. Implement an initial reparation/maintenance of the pump:

The initial maintenance usually concerns the reparation of the pumps, with a possible upgrade to standards[1]. As some pumps are broken down beyond the community's ability to pay the full cost, Inter Aide only subsidizes this first intervention. Afterwards, the community is responsible for paying full cost of each maintenance type. For this first reparation, the maximum amount to be paid by the community is 300 000 Le, which includes a portion returned back to the community to encourage them to start saving a maintenance fund. It also includes the provision of pump tools to equip the community Pump Caretaker.

[1] upgrade of old PVC or rusted galvanised pipes – riser pipes or cylinders that present a risk of breakdown to stainless

The financial participation of the communities is defined as described in the table below. The project subsidised part of the cost of this first maintenance above a certain threshold. In return, it is asked to the communities to adopt the principle of a yearly preventive maintenance of their (repaired) pump and to organize regular fee collection to finance these maintenances.

	Community Contribution	Description
Pump Officer Payment	**60.000 Le**	Total cost for the service of the Pump Officer for the diagnosis and the reparation/maintenance of the pump
Reparation Parts + Well Chlorination	**Max. 110.000 Le**	The community covers the spare parts needed for the reparation up to 110.000 Le. The remainder is subsidised by Inter Aide. Also include the systematic chlorination of the well done after each intervention
Tools	**70.000 Le**	A tool bag is given to the Pump Caretaker to maintain the greasing of the pump between yearly maintenances[2]
Maintenance Fund	**60.000 Le**	Provision returned back to the community to encourage them to start saving a maintenance fund
	Max 300.000 Le	

During these first maintenances/reparations, the project plays an active role while developing the skills of the Pump Officers by gradually involving them in the conduct of the operations, so that they can be ready to do the future preventive maintenances and reparations.

4. Promote yearly preventive maintenances, directly operated by the Pump Officer.

The objective is that each community conducts a complete diagnosis of their pump on a yearly basis. This is done on the form of yearly maintenance campaigns that are organised and grouped during one quarter, in order to facilitate the interventions and to optimise the movements of the Pump Officers. Some weeks before, the assigned Pump Officer visits his communities, with the support of the project at the beginning, to remind them that it is time to do their preventive maintenance and to collect the necessary contributions. This preliminary campaign can be considered as a "promotion tour" allowing also to take appointment for the preventive maintenances. Then, equipped with the adequate tools and wear parts that are directly purchased by them, the Pump Officers operate the yearly maintenance.

5. Enable local and immediate response in case of unforeseen breakdown:

The Pump Officer is also a competent resource who can be called by the communities to intervene in case of an unforeseen breakdown. In order to increase their visibility among the communities, some promotional means are used such as:

- Radio advertisement to promote and remind the communities the need for preventive maintenance;
- Specific T-shirts for the Pump officers
- Stickers around the pump to clearly display their contacts and phone number
- Promotion to Local & International NGO through WASH coordination meeting

6. Improve the conduciveness of the environment for maintenance

→ **Reinforce the capacities of the Water Directorate to monitor maintenance activities.** To this extent, exhaustive field assessments have been done and recorded in a simple database, which is then regularly updated to give a clear overview of the situation: existing systems, state, recording of the maintenances and reparations operated by the Pump Officers, spare parts used and costs. This comprehensive picture is essential for the Water Directorate and District Authorities to help them knowing the prevailing situation in their district and better pilot water supply and maintenance activities.

→ **Develop access to stable spare parts supply chain**: two channels are considered:

- the wear parts, needed for the yearly preventive maintenances and the most common reparations;
- the heaviest parts (such as the cylinder, the pipes, the connecting rods), mainly used for the first reparation and upgrade of the system when necessary.

[2] For India Mark II (or PB Mark II), the tool bags includes 1 pot of grease, 2 spanners 17 mm + 2 spanners 19 mm, 1 screwdriver. For Kardia (65/2000), it includes 1 pot of grease, 1 spanner 17 mm + 1 spanners 24 mm, 1 allen key 8 mm.

The development of the spare part supply chain partially depends on the demands for these parts. Fostering the demand and the maintenance services gradually allows developing the access to stable spare parts' supply chains. As a first stage, the project will focus in linking the Pump Officers and local suppliers in order to guarantee their restock in wear parts. The project will facilitate the grouping of the Pump Officers' orders based on their estimated needs for the preventive maintenance campaign. These parts will directly be purchased by the Pump Officers and the price will then be fixed and communicated to the users before the campaign. Then, after being evaluated, this mechanism could progressively be enlarged to heaviest parts.

→ **Echo field experience to better orientate guidelines and policies.** It concerns experience sharing and raising of critical operational questions that needs to be addressed by the policies *(how to finance the preventive maintenances of the PHUs, ensure the official recognition of the PO, official licenses for contractors, the definition of construction norms, of pump standards...)*

- Experiences on maintenance is documented and echoed to the concerned institutions.

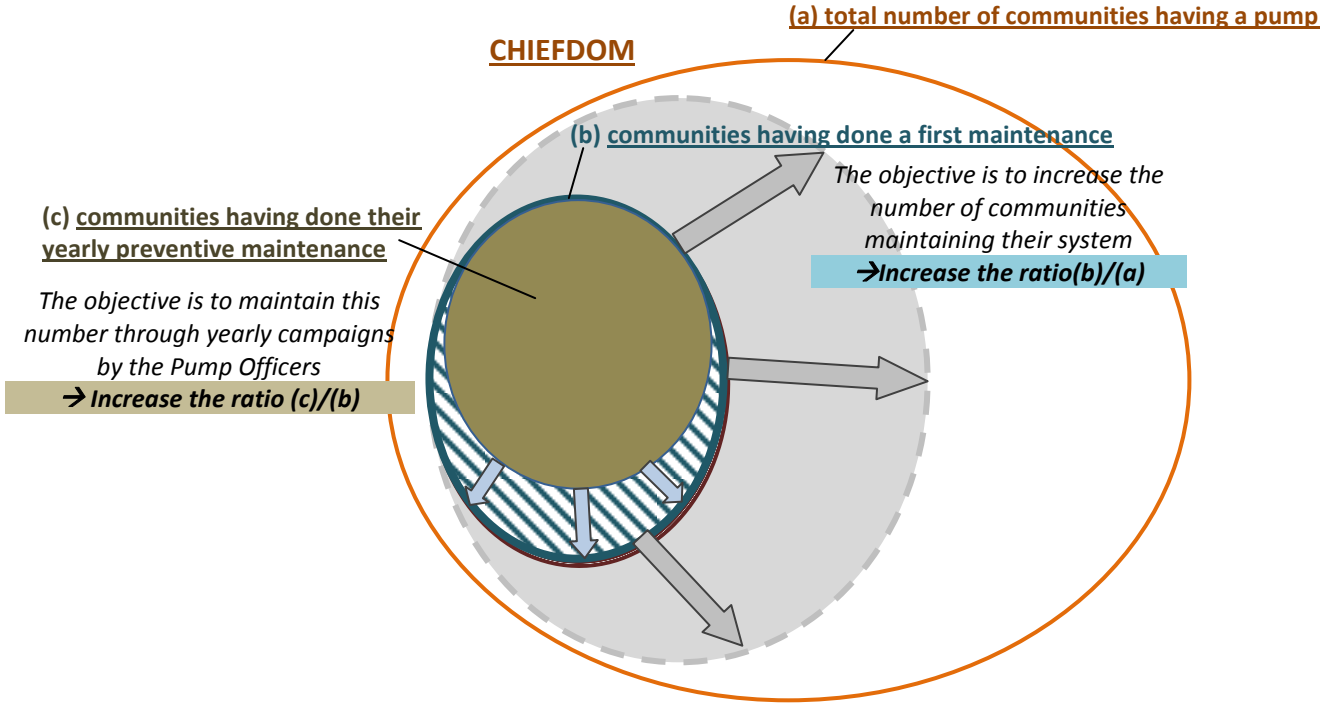
Main indicators

Beyond having an updated picture of the water supply system state per each chiefdom, 3 other indicators are particularly important to monitor how the situation changes as regard the maintenance of the system:

a. total number of communities having a pump
b. number of communities having done a first maintenance/reparation of their pump
c. number of preventive maintenances operated each year
d. number of interventions done by the Pump Officer in response to a demand from the communities due to an unforeseen breakdown (*the sum of (c) + (d) give an overview of the Pump Officer activities*)

⇨ The indicator (b) indicates the communities that are expected to conduct a yearly preventive maintenance. These communities can be considered as having accepted the idea of maintaining their system. But the major stake s then to see if these communities effectively pay for and do their yearly maintenance (indicator (c)). Another stake is of course to progressively increase this number and see how it evolves as regard to the total number of communities having a pump in the chiefdom - ratio (b)/(c). To this extent, the role of the Pump Officer to convince more and more communities to maintain their system is crucial.

⇨ The ratio between the indicators (c) and (b) compares the communities having effectively operated their preventive maintenance (a) with the ones that are expected to do it (b). It shows the adoption rate and the capacity of the Pump Officer to sustain the level of preventive maintenances.



To be able to monitor these indicators, it implies to basically know the initial situation and to obtain regular but simple reports from the Pump Officers. By providing them a simple list of the communities, the Pump officer can then follow the progress of his activities. At project level, a simple database is used to get an updated picture of these indicators and to share it with the Water Directorate and the Local Authorities.

In each chiefdom, the project ambitions to reach between 40 and 60% of the communities equipped with a well involved in the preventive maintenance scheme at the end of the project - indicator (b). The objective is also to have more than 75% of these communities in order with their yearly preventive maintenance – indicator (c).