

RAKHINE STATE

AH NAUK YE CAMP - EMERGENCY WATER SOURCES AND ALTERNATIVES

MARCH 2015

Background and objective

Ah Nauk Ye camp in Pauk Taw Township was created after the intercommunal violence in June 2012, with people from Pauk Taw town. During a later wave of displacement in October 2012, Nga Wet Chaung village (isolated Muslim village in the north of Pauk Taw Township) moved to Sittwe, but a smaller number went to Ah Nauk Ye. The camp is confined in a narrow band between the mountain and the paddy fields close to the river. The closest village is the neighboring muslim “Ah Nauk Ye”.

The water, sanitation and hygiene in this camp is under the responsibility of Solidarités International (SI) since February 2013. Supporting donors over the years include UNICEF, OFDA and ECHO. The CCCM agency is LWF, since January 2015.

The objective of this factsheet is to inform about the current solutions to address the needs of water in terms of quantity in Ah Nauk Ye camp and provide an overview of alternatives.

	Number of Households	Population	WASH	Camp Management
Camp	1147	3970 <i>85% from Pauk Taw town 15% from Nga Wet Chaung</i>	SI <i>since February 2013</i>	LWF <i>since January 2015</i>
Village	350	1802	SI <i>since March 2014</i>	-

Water related context

Water supply for the camp

For the needs of water in the camp, where international minimum standards of WASH services apply, rain water collected in ponds does not respond to the safe water supply need on its own and are to be considered as a source of raw water – treatment systems (emergency or semi-permanent) disinfecting the water prior to delivery are mandatory. Therefore, SI operates a water treatment station that treats and disinfect the raw water from ponds prior to distribution, ensuring the provision of safe drinking water for the IDP population.

Estimated direct cost of water treatment station: 1 000 USD/month, operates all along the year

Environmental conditions and available water sources

Although in depth exploration of underground water has not been done, the analysis of the surrounding environment suggests that, if there is water underground, it is not accessible with local means. Indeed, vegetation is short, sparse and seasonal only, there are very few trees that are known to have deep roots and the soil is composed of a layer of clay with a rock bottom. There is neither boreholes nor wells in the area. In some locations, where deep holes have been dug, salty water has been detected, indicating a possible underground connection to the river. Similar environmental conditions are found on the other side of the mountain, in the area of Kyein Ni Pyien camp.

Therefore, the only known source of fresh water available in the area is rain collected in ponds. This traditional method is widely used in the area, for drinking, domestic and farming purposes.

According to the strength and duration of the previous rainy season, in Ah Nauk Ye camp, most ponds are empty between late February and mid-March. All of them are empty by end of March until late June or July.

Previous years intervention in the camp aimed primarily at increasing the pond storage capacity, through direct support from SI, spontaneous mobilization of the IDPs and through external private support. The number of ponds has increased progressively from one (March 2013) to four (March 2014) and to six (March 2015) and their depth has been increased as well (**Error! Reference source not found.**). The quantity of rain water retained by a pond over the dry months is heavily reduced due to evaporation and slow infiltration. Mitigation measures have been tested with limited success and require further exploration.



Figure 1 – Fresh water ponds built in Ah Nauk Ye camp: Green March 2013, Blue March 2014, Yellow March 2015

During the rainy season, when there is plenty of water and quantity is not an issue, IDPs have unlimited access to safe drinking water distributed at tap stands all along the day. In average, 5 liters/person/day¹ of drinking water are collected, and unlimited domestic water can be fetched at various ponds. During the dry season, however, all the ponds become empty and the only source of water is through emergency water transport that targets 5 liter/person/day.

In order to save water, at the end of the rainy season (December) the distribution of drinking water is controlled and IDPs collect twice a day only; this is usually implemented in agreement or even upon request by the camp population very aware of the risk of scarcity. In parallel, IDPs spontaneously dig holes at the bottom of the empty ponds to gather some liters of water released by the wet mud. Nevertheless, the quantity of water available does not satisfy the need of the camp population for the whole dry season. The neighboring village faces a similar challenges, and the existing ponds in the village are jealously protected. IDPs may access some of these ponds on very specific occasions with strict limitation of quantity and, probably through payment.

Emergency water supply for the camp since March 2013

At the end of the dry season, when the amount of water available on site does not allow the coverage of basic needs, water is transported by boat from other locations, Sittwe Township in most of the cases. The duration of the emergency water supply varies, depending on the strength of the previous rainy season, the storage capacity on-site and the date of the first rains.

Prior to the arrival of the IDPs to the area, one pond existed in the area where the camp was installed. In 2013, SI run water boating for 14 consecutive weeks for the first time, bringing water from a pond located in Byen Pyiu, a

¹ WASH Cluster 4W from September 2014

small village near Sittwe. This pond was later that year connected by the Department of Rural Development (DRD) through a network supplying Sittwe town and Set Yo Kya 1&2 camps.

In April 2014, just after the March riots in Sittwe, the access to the field was not possible for UN/INGOs. Therefore, DRD, with financial support from SI, implemented the emergency water boating from a pond located in Ohn Taw Gyi area (Sittwe) or alternatively from Sin Ni Pyien (Pauk Taw) during 10 consecutive weeks. This same strategy is currently being implemented since the 16th march 2015, with in addition to the financial support from SI, a clear task sharing - transport is ensured by DRD, treatment and distribution is managed by SI.

Estimated direct cost of emergency water boating: 32 000 USD/month (estimated duration for 2015 14 weeks).

Alternative solutions

Rain Water Harvesting System



Figure 2 – RWHS just installed and some days after the end of the rainy season

An individual rain water harvesting system was installed to reduce the pressure on the water ponds. As soon as the rain stopped, the IDPs dismantled the whole system and used the different items for other purposes. The water quantity stored in the system only covers the needs for some days, therefore having a negligible impact on the water ponds. The efficiency of this alternative was therefore questionable.

The solution was abandoned.

Mountain dam and pond

Current September 2013, the IDP supported financially and with manpower the construction of a dam between two hills some 1.5 km south from the camp. This spontaneous community project was led by the leader of Ah Nauk Ye village and was meant to be used by both the camp and the village (Figure 3 and **Error! Reference source not found.**).

During early 2014, SI intended to reinforce the dam to guarantee durability and quality and use this water to refill the ponds both in the camp and in the village. The project could not be achieved as tensions among the IDPs and the village increased reaching critical levels that could not be dissolved as the March 2014 events in Sittwe restricted access for UN/INGOs to the area for several weeks. Emergency water supply was used instead.

The dam today requires reinforcement and the overall area needs to be reworked to ensure adequate quantity of water to be stored. In addition, the installation of a piped network and its operation are required, should this solution be sought. During the last months, SI has deployed also number of actions and interventions in the village as well as in the camp.

This alternative remains the most immediate technically viable solution to create a water source large enough for the camp and the village. The risk of communal tensions experienced in the past remains however high, in particular when related to water. Should this solution be deployed, the involvement and support from the authorities is necessary, in addition to a highly efficient community mobilization and communication strategies.

Estimated direct cost: 15 000 USD for infrastructure installation and 10 000 USD/dry season for operation and maintenance.



Figure 3 – Dam and Pond – Left December 2013, right march 2015



Figure 4 – Camp, Village and mountain ponds: In purple, village ponds, in general not accessible to IDP or very exceptionally. Other non-drinking ponds (salty) exist and are used for farming, irrigation and cattle (not highlighted above). Mountain dam – in red the estimated surface of the pond

Deep ground water

The existence of fresh ground water in Sin Tet Maw area (5km south of Ah Nauk Ye camp) indicates that, although the geology of the area is complex, there is may be a possibility of deeper fresh water aquifers.

With the aim to develop the understanding of the area and guide the intervention, the support of hydrogeology specialist is needed in the first stage. Should this exercise provide indication of durable alternatives, the implementation of such solutions would require the mobilization of drilling machinery not immediately available in Rakhine state.

The WASH Cluster initiated in 2014 collaboration with “Hydrogeology without Borders” to provide preliminary guidance on the possible alternatives for Rakhine state. The outcomes of such a collaboration, are however, not expected until the end of the year. In all cases, and besides of the technical or financial feasibility of this alternative, the required timescale to complete it is not compatible with the seasonal needs of the IDP population in Ah Nauk Ye.

Estimated direct cost: 70 000 USD (assumptions: hydrogeology study suggests availability of fresh water, appropriate machinery is available in country and can be transported to Ah Nauk Ye camp).

Desalination

The solution considering river or ground salty water to be desalinated has been also considered. The required equipment is however highly technical and requires a level of operation and maintenance not compatible with the capacity, materials and skills in country. The introduction of such complex technology has an extremely high cost.

Estimated direct cost: 190 000 USD for installation, maintenance cost not evaluated

Summary of alternatives

Solution	Estimated direct cost	Remarks
Water treatment station	1 000 USD/month	Operates all along the year, disregards of the water source
Emergency water boating	32 000 USD/month 112 000 USD/year	Estimated duration for 2015 14 weeks
Rain Water Harvesting System		Inefficient solution. Abandoned.
Mountain dam and pond	25 000 USD the first year 10 000 USD/dry season	High risk of communal tensions. Involvement and support from the authorities necessary
Borehole and/or well	70 000 USD	Availability of fresh ground water, appropriate machinery is not guaranteed Possibility of transport to Ah Nauk Ye is not guaranteed
Desalination	190 000 USD	Cost for installation only Maintenance cost not evaluated