



An elevated view of Mbawa IDP camp, from the water tower. Benue, Nigeria

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SWOT FIELD IMPLEMENTATION REPORT

Mbawa Camp, Benue State, Nigeria
Médecins Sans Frontières (OCA)

JUNE 2021



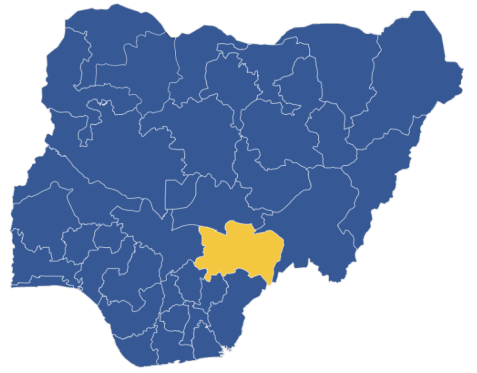
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Benue State, Nigeria

BACKGROUND

Conflict between farmers and herders in Nigeria's 'Middle Belts' states has been increasing since 2013, exacerbated by the declining access to resources, including water and land in the region. In 2018 an escalation in violence led to the displacement of at least 160,000 people in Benue state

MSF started working in Mbawa, and other locations across Benue State, in 2018 in response to this crisis.

THE SITE

Mbawa IDP camp is one of two formal settlements hosting IDPs in Benue where MSF is providing primary healthcare, shelter and WASH services. It is a formal but spontaneous site located in the town of Daudu, about 20km North of the State Capital, Makurdi. Home to over 9,000 people, living conditions are hot and crowded, with residents using emergency shelters constructed of wood and plastic sheeting. Most IDPs living in Mbawa were displaced from their homes in other parts of the state.

Water is supplied to a network of tapstands from a water tower filled from a borehole fitted with a solar pump. Batch chlorination happens in as this water tower is being filled using a 1% stock solution of HTH. Prior to using the SWOT, the WatSan team were dosing to achieve a 0.5mg/l FRC at the tapstands after 30 minutes of contact time. There was no household testing of FRC before starting data collection for the SWOT.



Mbawa IDP Camp

270 $\mu\text{S}/\text{cm}$

Mean conductivity

30.7 $^{\circ}\text{C}$

Mean water temperature



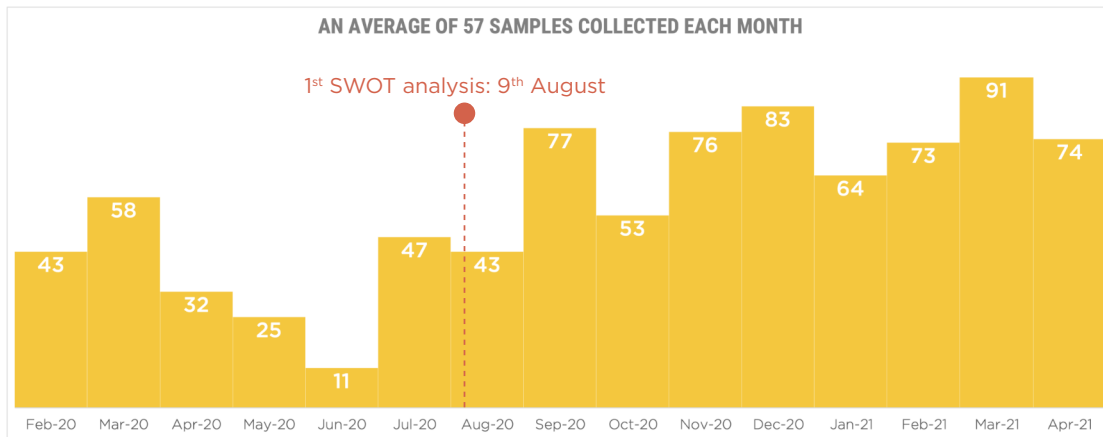


Figure 1: Number of paired samples collected per month

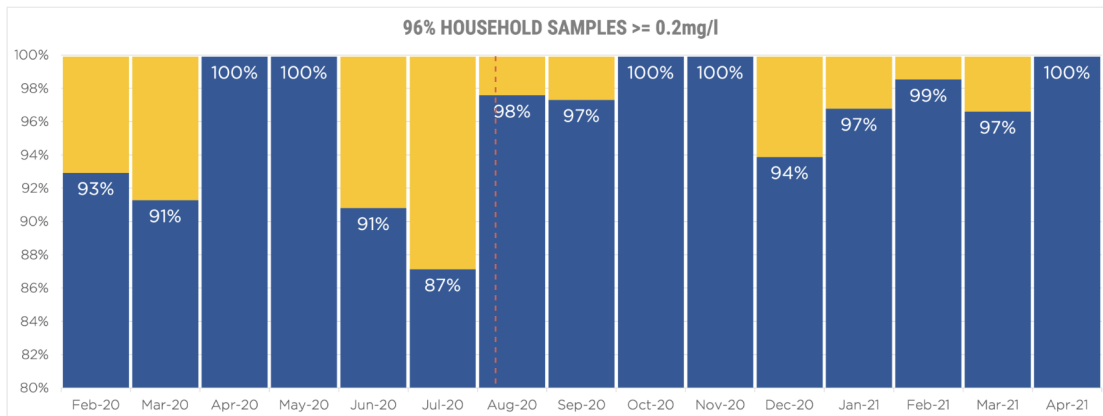


Figure 2: % of household samples with a protective level of FRC

DATA COLLECTION

Data collection started in February 2020 and is ongoing as of June 2021. To date a total of 855 paired samples have been collected, an average of 57 per month with the 100th sample being recorded on day 47.

MSF used a single enumerator to collect the paired samples as part of their ongoing water quality monitoring. FRC measurements were made using a pooltester and results recorded by hand before uploading to the webtool.

The first analysis was conducted in August 2020.

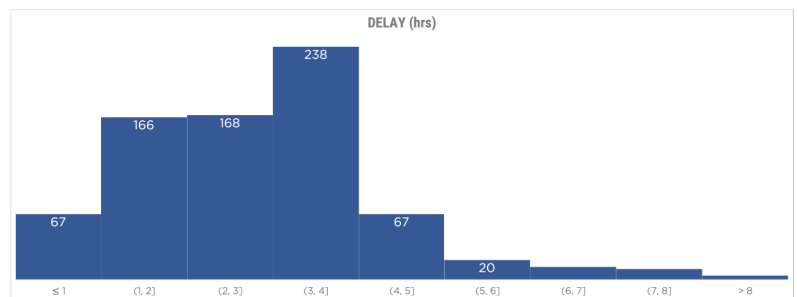


Figure 3: Delay between tapstand and household samples



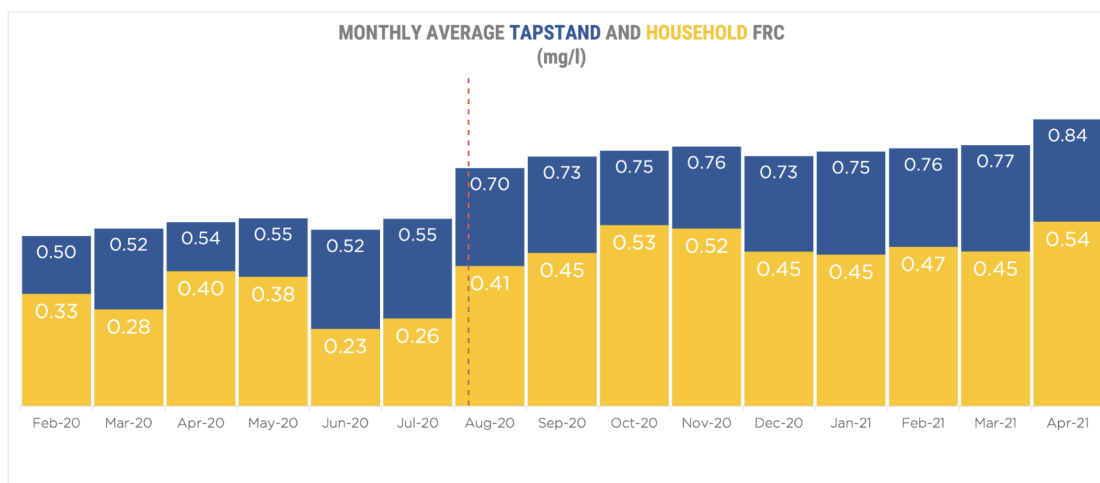


Figure 4: Average FRC results at tapstand and household, by month

RESULTS:

For a 6-hour duration of protection, the SWOT generated a tapstand FRC recommendation of 0.90mg/L. Figure 5 depicts a retrospective empirical analysis comparing the SWOT recommendation to the Sphere FRC target (i.e., 0.2 – 0.5 mg/L) with respect to ensuring household water safety (i.e., FRC > 0.2 mg/L) in data where household follow-up occurred between 6 +/- 3 hours post-distribution (n=460, average post-distribution time: 3.8 hours).

The SWOT FRC recommendation outperformed the status quo Sphere FRC target recommendation and improved the household water safety rate from 82.6% to 100% at 6 +/- 3 hours follow-up. The success rate of the Sphere FRC target was already quite high as the follow-up time period was extremely short. We need to discuss why such a short period of household storage time was being used for optimization.

LESSONS:

Field user set the desired follow-up time to 6 hours. Follow-up time in the dataset was extremely short (most samples <3 hours). Need to follow-up with and clarify to field user on how to select the typical maximum typical duration of household storage/use.

USER FEEDBACK:

MSF provided extensive feedback based on

SWOT Engineering Optimization Model - Empirical Back-Check at 3-9h follow-up (average 3.8h, n=494)
Dataset: Mbawa_WYpC_MbawaCamp_20210624T074000000Z_6_optimumDecay
Code Version: 1.6

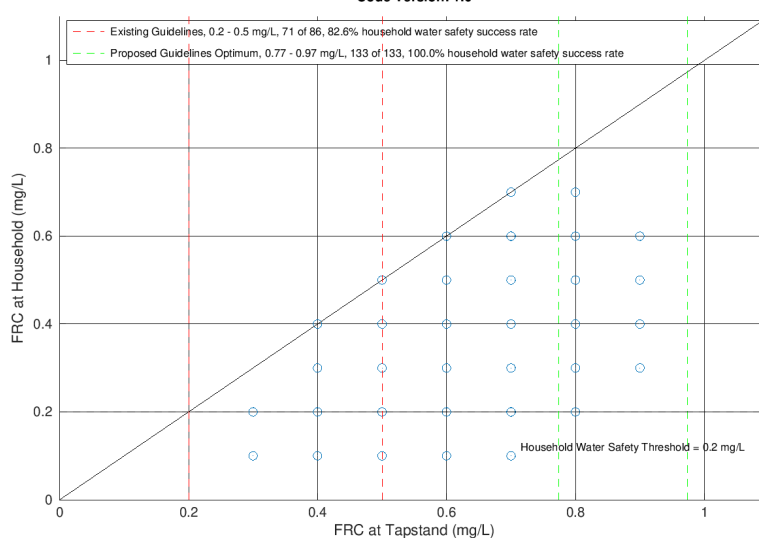


Figure 5: Empirical back-check of the SWOT results

their experience using the SWOT in Nigeria and this has been instrumental in identifying updates and improvement to the tool and supporting materials.

NEXT STEPS:

MSF will hand over the Mbawa project to a local organization, the State Emergency Management Agency (SEMA), in summer 2021 (TBD). We have asked our MSF contact to put us in touch with SEMA when handover occurs so that we can follow-up to encourage continued use of the SWOT at Mbawa.

