Cruz Roja Panameña

Results of Practical Tests

GRIFAID FAMILY FILTER

Description: GRIFAID filter test with water from Rio Chucunaque, Darien.

Place of implementation:	Temporary Reception Station for Migrants (ETRM) in Lajas Blancas, Darién
Implementation period:	August, 2024
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OVERALL IMPLEMENTATION

1: Context

The province of Darien, in the far east of Panama, is a region characterised by dense geography, tropical rainforests and dispersed communities, which has made access to safe drinking water a historical challenge. Many of the communities do not have a reliable supply of drinking water, as existing infrastructure is inadequate and in some areas water sources are contaminated by human activities such as logging and agriculture. In these rural areas, rivers and streams are the main sources of water, although in most cases these waters are not treated, putting the health of the population at risk.

The Panamanian government, together with international organisations, has implemented several projects aimed at improving access to drinking water through the construction of aqueducts and treatment plants. However, the geography of the area and the dispersed nature of the communities complicate full coverage, leaving many areas without adequate access. The Panamanian Red Cross, through the support of various donors, intervenes in communities that have been directly or indirectly impacted by the flow of migrants and makes adjustments to ensure access to safe water, adequate sanitation and good hygiene practices.

2: Exercise

At the Lajas Blancas Temporary Migrants' Station, an effectiveness test was carried out using GRIFAID family filters to evaluate their performance in providing safe drinking water. These tests were carried out under the supervision of staff trained in water, sanitation and hygiene actions of the Panamanian Red Cross, who monitored the process to ensure that the filters met the necessary standards of quality and safety for human consumption.

3: Objectives

- **EVALUATE** The ability of GRIFAID filters to provide safe and efficient drinking water in an emergency and high demand environment.
- **DETERMINE** The ease of use and maintenance of the filters by staff and beneficiary communities, ensuring their sustainability in long-term situations.
- **IDENTIFY** Possible improvements or adjustments needed in the implementation of these filters within the water, sanitation and hygiene programmes of the Panamanian Red Cross to optimize their impact in future operations.

4: Filter Description

Grifaid Family Filters

Brand	Grifaid
Product dimensions:	16" long x 8" wide x 4" high
Type of installation:	Manual
Model name:	Family Filter
Flow rate:	2 litres per minute*.
Ultrafiltration filter capacity:	200,000 litres*
Service life:	5 years*
Retention of bacteria and viruses:	99.9999%
Manufacturer:	The Safe Water Trust Ltd

**Depends on the maintenance and quality of the feed water.*

5: Methodology

1. **Location**

The tests were carried out at the Temporary Reception Station for Migrants in Lajas Blancas in Darien.

2. **Source of water used**

Water from the Chucunaque river was used in 3 stages.

i. Water directly from the river
   a. Turbidity: 400 NTU
   b. pH: 6.0

ii. Water treated with flocculant (aluminium sulphate)
   a. Turbidity 20 NTU
   b. pH: 6.0

iii. Clean water stored in plastic tanks
   a. Turbidity 0 NTU
   b. pH: 6.0

3. **Number of users involved:**

- Panamanian Red Cross technical staff (3)
- Panamanian Red Cross volunteer staff (7)

4. **Climatic conditions**

- Sunny weather. Testing was not affected.

5. **Duration of tests**

- 1 month

6. **Steps followed**

a) Technical staff familiarised themselves with the use of the GRIFAID family filter by reading the instructions collectively.
b) Technical staff put on gloves to ensure that there was no additional contamination of the filtered water.
c) Tests for turbidity, pH and coliforms were taken from each of the water sources.
d) Water was drawn from the Chucunaque river and storage sources directly into the container where the GRIFAID family filter would be placed.
e) The filter was fitted according to the instructions.
f) Water was filtered from each of the sources
g) New turbidity, pH and coliforms tests were taken for each of the filtered sources.
h) Technical staff and volunteers tested the filtered water.
i) Two filters were kept in operation for one month in the Red Cross staff rest area.

6: Results

i. Water directly from the river

Parameter	Formerly	Then
Turbidity	400NT	<5 NTU
pH	6.0	6.0
Total Coliforms	Positive	Negative
Faecal Coliforms	Positive	Negative

Use of GRIFAID family filter with raw water from the Chucunaque River (left) and rapid coliform tests performed on the filtered water (right).

pH tests carried out on filtered water. At the bottom of the Chucunaque River.

ii. Water treated with flocculant

Parameter	Formerly	Then
Turbidity	20 NTU	0 NTU
pH	6.0	6.0
Total Coliforms	Positive	Negative
Faecal Coliforms	Positive	Negative

Sampling of pre-treated water with aluminium sulphate for GRIFAID filter tests (left) and subsequent practical test (right).

iii. Clean water stored in plastic tanks

Parameter	Formerly	Afterwards
Turbidity	0 NTU	0 NTU
pH	6.0	6.0
Total Coliforms	Negative	Negative
Faecal Coliforms	Negative	Negative

GRIFAID filter test on water stored for consumption.

FILTRATION CAPACITY:

- Volume of water filtered per minute: 2.2 litres

EASE OF USE:

- Assembly: Easy
- Maintenance: Easy
- User comments: backwash recommended at the end of each day.

CHALLENGES IDENTIFIED:

- Backwash instructions can be confusing. It is recommended to use pre-filtered water.

7: Challenges and Recommendations

1. **Widespread implementation**: Given the success of the tests conducted, it is recommended that these water filters be implemented in communities that do not have access to safe drinking water. Furthermore, due to their ease of use and maintenance, they could be distributed at the household level, ensuring that every household has a device available.

2. **Use during emergencies**: These filters are ideal for use in emergency situations or during travel, as they do not require an external power source and can filter large amounts of water in a short time. This makes them a crucial tool for humanitarian aid contexts.

3. **Minimum training**: Due to the simplicity of the device, minimal training of local personnel is recommended to ensure proper use and prolong the life of the filter. The use of simple, visual materials will facilitate the understanding of the operation of the equipment.

4. **Regular maintenance:** Although the filter has a long service life, regular maintenance according to the manufacturer's instructions is recommended to ensure that it continues to operate efficiently and to guarantee the safety of the water.

5. **Continuous monitoring**: Regular monitoring is suggested to ensure that filters maintain their efficiency and effectiveness in removing bacteria and viruses, especially in areas with poor water quality.

8: Conclusions

Tests carried out with the filter provided by Logística Humanitaria have been successful. The equipment has proven to be efficient in removing coliforms, does not alter the taste or odour of the water, and no illnesses were reported after use. In addition, the device has been shown to be easy to use, maintain and understand by staff, which ensures its proper implementation.

Therefore, it is concluded that this water filter is an excellent tool to ensure access to safe drinking water in vulnerable areas or areas without adequate infrastructure, and is ideal to keep in every household without safe access to drinking water or in contexts of travel or emergencies.

CONTACT INFORMATION

9. Contact information

For more information about this activity, please contact: Panamanian Red Cross

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