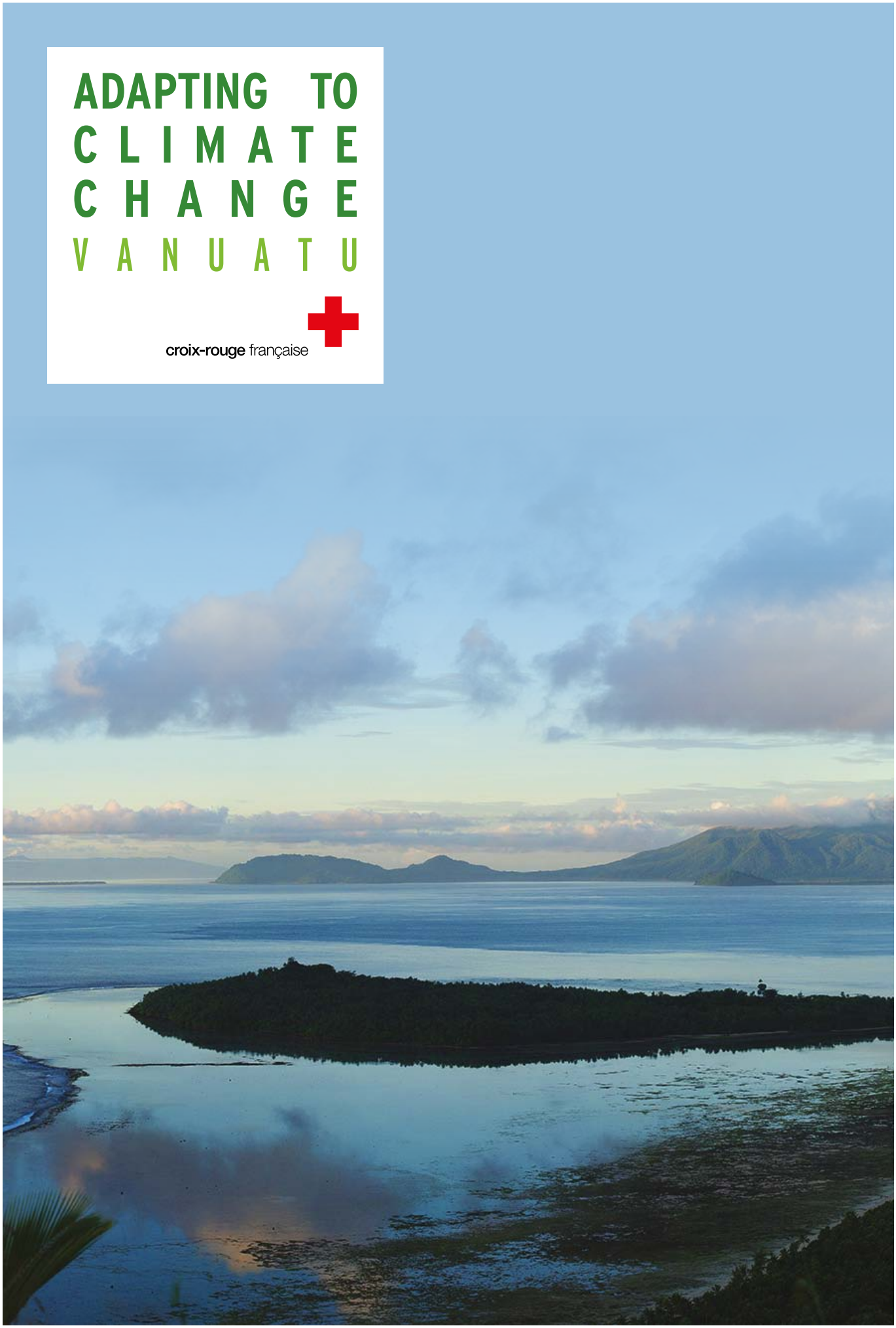
ADAPTING TO CLIMATE CHANGE

VANUATU

croix-rouge française



COPING WITH WATER SHORTAGES IN VANUATU

VANUATU, AN ARCHIPELAGO EXPOSED TO CLIMATE VARIABILITY: THE EL NIÑO AND LA NIÑA PHENOMENA

Pacific countries are exposed to large-scale climate features, resulting in dry seasons being repeatedly drier and wet seasons wetter. The main factors of climate variability in this region are the El Niño and La Niña phenomena. In Vanuatu, El Niño episodes tend to engender a delayed start in the rainy season as well as reduced rainfall and cooler conditions during the dry seasons. Opposite impacts are usually observed during La Niña episodes. There are no regular patterns to either El Niño or La Niña, previously occurring roughly every 3 to 7 years and sometimes lasting for up to a year or more.

In addition to the fact that the El Niño phenomenon is intensifying, Vanuatu is also facing the consequences of other climate change patterns: heightened air temperature (minima and maxima), rising sea water temperatures since 1950's, rising sea levels (approximately 6 mm per year in Vanuatu compared to a global yearly average of 3.1 mm) as well as specific changes in rainfall. All these changes lead to a decreased availability of drinking water, obligating the population to identify further adaptation mechanisms.

> *Climate change affects us all, but it does not affect us all equally. Those who are least able to cope are being hardest hit. Those who have done the least to cause the problem bear the gravest consequences.*
>
> **Ban Ki-moon**
> UN Secretary General

MOTA LAVA: A REMOTE ISLAND FACING INCREASED WATER SCARCITY

In Vanuatu, as 80% of the population live **subsistence lifestyles**, these changes pose a significant risk to vulnerable people's health, safety and livelihoods. The Island of Mota Lava belongs to the Torba Province, the furthest from the capital city, with low access to public services and development. Mota Lava is particularly confronted with amplified **natural risks and climate challenges**, amongst which water scarcity is one of the most worrying.

Every year Mota Lava is subject to a severe period of water shortage due to limited rainfall. The communities living on the island have experienced heightened periods of water scarcity from August to October in 2010, 2011, 2012 and 2013. The population mainly relies on rain water during the rainy season, while relying on stream and spring water collection during the dry seasons. During this dry period, all Rain Water Harvesting Systems (RWHS) are empty and the communities have to walk up to 3 kilometers to reach the closest spring to collect drinking water, that is 3 times the distance compared to the rainy season. The intensification of the El Niño phenomenon is further deteriorating the situation. In the Torba province, ¾ of the schools close during several weeks due to the lack of water.

COMBINING LOCAL, HUMAN AND NATURAL RESOURCES TO FIND LONG-TERM WATER SOLUTIONS

THE PROJECT

The Vanuatu Red Cross Society (VRCS) started Community Based Disaster Risk Reduction activities with the support of the French Red Cross (FRC) in 23 Torba Province communities, in 2010. Within the scope of these activities, communities have developed action plans to mitigate the impact of disasters, with water access being one of the major priorities.

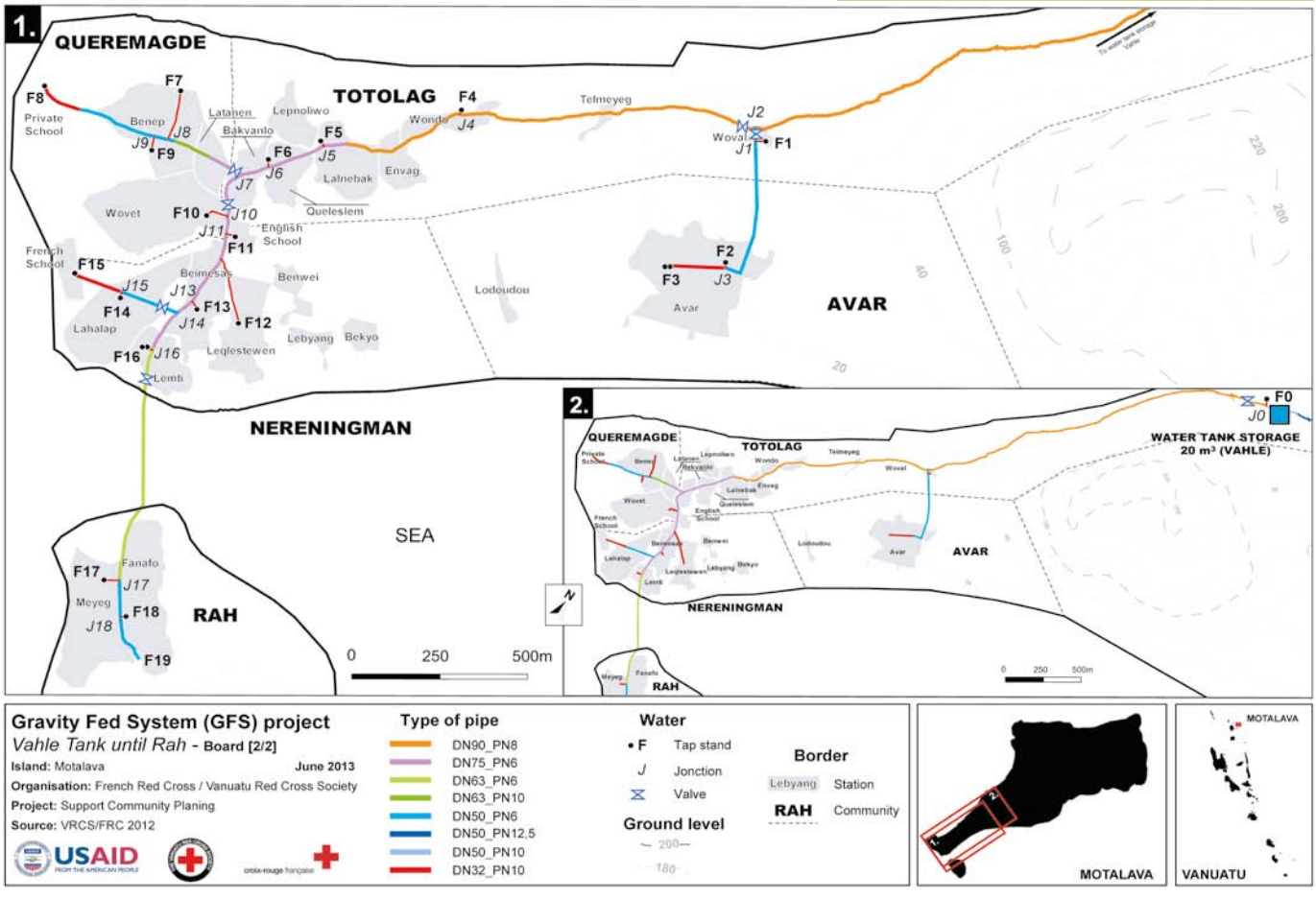
In July 2012, VRCS/FRC started an 18 month project (funded by the OFDA, Office of U.S Foreign Disaster Assistance) aiming at supporting the implementation of community action plans in 12 communities. In Mota Lava, water was considered a priority issue as communities experienced two periods of drought in 2012, a yearly and problematic occurrence. VRCS/FRC committed to improving access to drinking water in 5 communities situated in the South west of Mota Lava Island (Queremagde, Totoglag, Nereningman, Avar and Rah Island), representing over 1,450 people.

SECURING ACCESS TO WATER ALL YEAR LONG

In order to adapt to the effects of climate change concerning the uncertainty of water resources it is essential to develop alternative water supply solutions. The initial technical survey carried out by project experts confirmed the pertinence and feasibility of setting-up a 10 kilometer Gravity Fed System (GFS) to bring water to the villages in Mota Lava as the most appropriate system to address the needs of the local communities. The analysis of previous failures with other GFS set-ups in Mota Lava, coupled with the FRC's extensive experience in water supply, have enabled the creation of a system with limited operational costs (low fuel consumption) with simple maintenance requirements specifically adapted to local capacities.
Moreover, further Rain Water Harvesting Systems (RWHS) (private and collective) were built or rehabilitated in order to diversify water resources. Some private and public wells and sources close to the sea were also ameliorated to provide the community with clean fresh water (mainly for domestic purposes). The quality of drinking water was also improved by equipping the rain water harvesting systems with 'First Flush' devices, which aim to reduce undesirable waste delivered to the tank.

In order to improve the population's knowledge and practices on hygiene and access to safe drinking water, specific activities focusing on hand washing, personal basic hygiene and water management were implemented, based on the Participatory Hygiene and Sanitation Transformation (PHAST) methodology.

The 9.5 kilometers water supply network in Mota Lava



THE GRAVITY FED SYSTEM

- 1 450 **beneficiaries**
- 5 **communities**
- 45 **liters per day per person**
- 22 **taps for 20 tap stands**
  - 1 tap = 100 persons
  - 1 tap for each security evacuation points
  - 1 tap per school
  - 1 tap per Health Centre
- 9,5 **km of pipes**
- 20,000 **L Tank**
- **Lagoon cross section:** 300 **meters**
- **Material budget:** 100,000 **€ - 200 m³ of material**
- **Estimated valorization of community participation in GFS construction:** 60,000 **€**

COMMUNITY INVOLVEMENT AND IMPROVED WATER MANAGEMENT

The construction of the Water Gravity Fed System mainly relied on the involvement of Mota Lava communities. They provided free labor, while VRCS/FRC provided technical support and non-local materials. The community contributed a total 450 days of skilled labor and 4,200 days of unskilled labor. They also collected and transported (on foot) 85 m^3 of sand and 50 m^3 of gravel for concrete. Without this significant contribution, the cost of the GFS would have increased by 50%.

Thanks to the involvement, the training and the empowerment of the communities during the entirety of the project, they are now able to maintain and repair the system. Sub-Water Committees were set up in the 5 communities supplied by the GFS. One representative of each sub-committee is a member of the Water Committee, which enables the coordination and eventual conflict management between users. All water and sub-water committee members have been involved in the realization of the GFS and attended training courses on technical operations and financial management in order to ensure the sustainability of the system. The committees are in charge of maintaining the GFS (regular maintenance operations take place every 3 months complemented with awareness sessions on water management) and collecting water fees. Families using the water from the GFS pay 20 vatu (0.16 €) per month, a contribution which everyone paid in 2014 (after the project completion).

THE IMPACTS ON THE COMMUNITIES

1/ During the 2015 El Niño episode there was **no water shortage** in Mota Lava. According to the water committee, water is available all year long for drinking, cooking and personal hygiene.

2/ The GFS significantly reduced water scarcity by providing each community member with **45 liters a day**. 2 years later all the taps are still working.

3/ Improved schooling: The Principal of St Peters School said that in 2013, prior to the GFS set-up, the school had to reduce schooling to half days due to water shortages, resulting in a shortened curriculum.

4/ Improved health: Mota Lava nurses reported a high incidence of respiratory illnesses during dry periods due to dehydration, as well as a high number of diarrhea cases due to the lack of clean water. The lack of clean water to wash instruments and clean the health clinic was also highlighted. These issues have been addressed by the GFS which supplies directly the health clinic.

5/ Improved conditions for women: The President of the Mota Lava Committee Against Violence Against Women (CAVAW) said that during acute water shortages women had to travel further to find water, reducing time for other tasks (such as preparing food) resulting in resentment from husbands and increased violence. By facilitating water collection, the GFS system is, as a positive consequence, addressing this issue.

6/ Improved livelihoods: The excess water from the storage tank is used by local communities to irrigate gardens, since the GFS installation communities have begun cultivating water taros, previously impossible for years.

RECOMMENDATIONS

THINK LOCAL:
in the specific context of remote islands, where provincial and regional authorities have more difficulty getting involved, it is essential to rely on local committees to think and manage their own water resources.

PROVIDE ADEQUATE AND ACCESSIBLE KNOWLEDGE:
to communities to avoid technical mistakes, especially concerning construction techniques. The training should not only target skilled people but also the less skilled/educated yet motivated as they will be more involved in the running and maintenance.

BE HOLISTIC TO INCREASE RESILIENCE:
the project started by multi-sector community capacity and vulnerability assessments to evaluate peoples' priorities and create sustainable and dynamic projects.

EMPOWER THE COMMUNITY AND GIVE IT THE LEAD:
the key prerequisite in the participatory planning is investing in community capacity-building to effectively and equitably take part, and take control, in the building processes.

ENSURE APPROPRIATE INFORMATION SHARING TO DEVELOP OWNERSHIP:
the project should be clearly and continually explained to communities and leaders during meetings. Displaying information in public places through notice boards and community meetings are good ways to improve the spread and sharing of key information.

Charles Aurouet
Technical advisor Water, sanitation and construction
Email: charles.aurouet@croix-rouge.fr
Tel.: +33 (0)1 44 43 32 07

David Bridier
Head of Delegation in Vanuatu
Email: hod-vanuatu.frc@croix-rouge.fr
Tel.:+678 77 47 330

Croix-Rouge française
98 rue Didot
75694 Paris Cedex 14
www.croix-rouge.fr

Croix-Rouge française, novembre 2015.

PARTNERS

This publication is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of the French Red Cross and do not necessarily reflect the views of USAID or the United States Government.

This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of the French Red Cross and can in no way be taken to reflect the views of the European Union.

COP21
LA CROIX-ROUGE S'ENGAGE

croix-rouge française