

Sustainable WASH Services for Complex Emergency Countries: Approaches from the Central African Republic

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Abstract/Summary

Water for Good is an international NGO with 12 years of experience in the water, sanitation and hygiene (WASH) sector in the Central African Republic (CAR). This paper aims to highlight a practitioner's approach for reliable WASH access and services for rural water users in a complex emergency context. Specifically, Water for Good has developed a circuit-rider model for integrated monitoring and post-construction support. This approach to rural WASH services can be an effective, affordable, and appropriate response to conflict and humanitarian crisis. This paper aims to illustrate what is possible in difficult conditions, including protracted civil conflict. In spite of the instability that CAR has experienced, over one quarter of the country's rural water points are regularly maintained with functionality rates over 85%.

Introduction

The rural people of the Central African Republic (CAR) are among world's most vulnerable populations. In the last three years the county suffered a coup 'd'état, resulting in an unprecedented displacement crisis and humanitarian disaster. Even before the recent conflict, CAR suffered insecurity and low levels of water sanitation and hygiene (WASH) access.

Water for Good highlights sustainable WASH activities that have proven effective in the midst CAR's complex emergency. Specifically, this paper examines the effectiveness of the circuit-rider model for integrated maintenance, repair, and monitoring services for existing infrastructure.

The Central African Republic may seem like an edge case or unfit context in which to develop models for sustainable WASH services. However, the international community has committed to universal WASH access and the Sustainable Development Goals, necessitating strategies to creatively engage with people and governments facing complex emergencies. This paper aims to illustrate what is possible in difficult conditions and the preliminary results are promising. Water for Good's circuit-rider program in CAR reaches over one quarter of the country's rural water points are regularly maintained and electronically monitored, with functionality rates over 85%.

Water for Good has the unusual perspective of a locally staffed, private, international non-profit with a long-term presence in CAR. This organization has had to adapt to the fluctuating international NGO/humanitarian interest in CAR, as the situation changed from chronically under-resourced and unstable country to a crisis/conflict zone. Water for Good can speak to the changes in operational realities and the changes in the NGO/funding ecosystem in CAR over that period. Ultimately, Water for Good

advocates for increased international interest in CAR’s recovery process and, broadly speaking, for investment in sustainable WASH services across Sub Saharan Africa and other complex emergency countries.

Context, aims and activities undertaken

About Water for Good

Water for Good submits this case study from the perspective of a non-profit organization with the mission to create viable private sector solutions to water infrastructure problems in complex emergency countries. Water for Good has 12 years of experience in the Central African Republic, focused on borehole drilling, private sector supply chain development, professionalized hand-pump maintenance services, and WASH training.

Currently, Water for Good has the capacity for rural water provision (borehole drilling) and service delivery (through a circuit rider program) in the Central African Republic. In addition, Water for Good collects electronic functionality data from a network of over 1000 hand pumps.

CAR Context

To briefly describe the operating environment, the CAR conflict and ensuing humanitarian emergency escalated in December of 2012 when rebels from the north threatened to take the capital city. By March of 2013 the rebels successfully led a coup d’état, which quickly devolved into widespread looting and violence against civilians. The rebel groups leading the coup were majority Muslim. In response, starting in Jan 2014, self-defense groups and militias from the majority Christian/non-Muslim population led indiscriminate attacks against Muslims civilians and combatants. Religious identities became a common fault line for violence, approaching the severity of an ethnic cleansing of Muslims from the country.

The impact has been that roughly 20% of the population is still displaced and over half of the population is in need of immediate humanitarian assistance (UNOCHA CAR, 2016). However, it is important to remember that baseline access to water and sanitation was very low before the conflict—already at crisis levels (AMCOW Country Status Overview, 2011).

Main results and lessons learnt

Within that context, Water for Good has pursued a circuit-rider model for monitoring and maintenance of existing rural WASH infrastructure. This approach is described in greater detail, with the major emphasis on the electronic functionality data from the circuit rider program. There is also a discussion of Water for Good’s forthcoming strategy to expand professionalized post-construction support to all rural water users in CAR.

Circuit rider model for maintenance of existing WASH infrastructure: Program Description

Water for Good operates a large-scale circuit-rider model for hand pump maintenance across the southwestern regions of CAR. The program started in 2004 and was expanded to currently cover seven prefecture. Electronic reporting started in 2012. At its current scope, four professional teams travel predetermined routes that reach all pumps enrolled in the program, aiming to visit each water point twice per year. Communities in the seven prefecture where we operate are given the opportunity to enroll in the service after Water for Good rehabilitates or installs their hand pump. Communities with pumps installed by other organizations can also enroll. Each team includes three staff members: a technical lead, a technical assistant, and a community trainer who meets with well committee members and completes the iPad based reporting on-site. Staff members travel together in trucks, transporting a large stock of typical pump replacement parts. This, each team functions as a mobile supply chain of both replacement parts and expertise.

Once on site at a community hand pump, the teams complete performance checks and provide repair services, monitoring the functionality of the pump on arrival, the parts used (if any) and the pump functionality upon their departure. Communities pay a monthly fee of 8.00 USD for maintenance services, however at the height of the conflict, Water for Good halted all fee collection. In 2016 teams expect to collect 11,500 USD.

Water for Good monitors program activities utilizing electronic, on-site reporting, completed during each maintenance visit. Maintenance teams travel with iPads and they enter the required data into the customizable i FormBuilder™ reports (Zerion Software, Inc., Herndon, VA). Reports automatically record GPS locations and require teams to collect photographic evidence of work, details on repairs, community survey responses, and interviews with community leaders. This data is either uploaded back at operational headquarters or real-time when GSM coverage is available. This process allows for multiple reports and surveys to be completed offline and stored on the device. Once the team reaches a wireless connection, they upload all reports to a cloud-based server, allowing for rapid access and analysis of the data. This data is all linked to the community record and sorted automatically into our database. All trip plans and completed trip reports are submitted to the CAR government agency, ANEA, and the WASH Cluster.

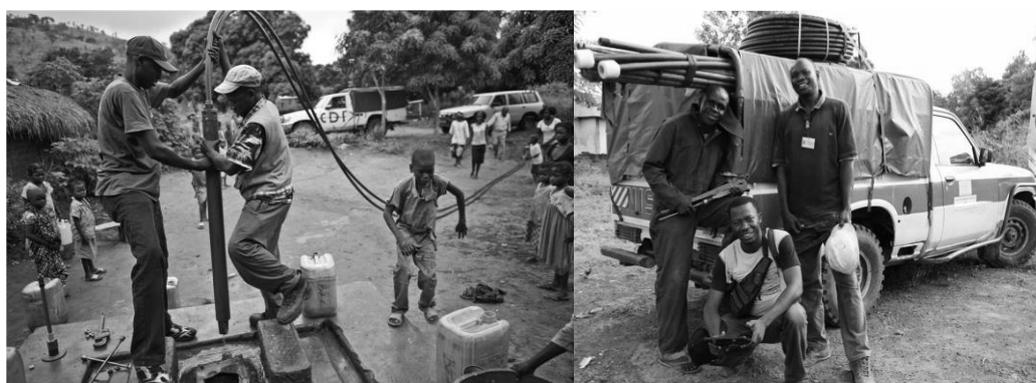


Figure 1. Above left, circuit-rider team pulling a pump out. Above right, circuit-rider team members with their truck, stocked with hand pump replacement parts.

Program Results

The maps and charts below demonstrate the program scope, costs, and results illustrated through summary of the data collected with the iPad based reports.

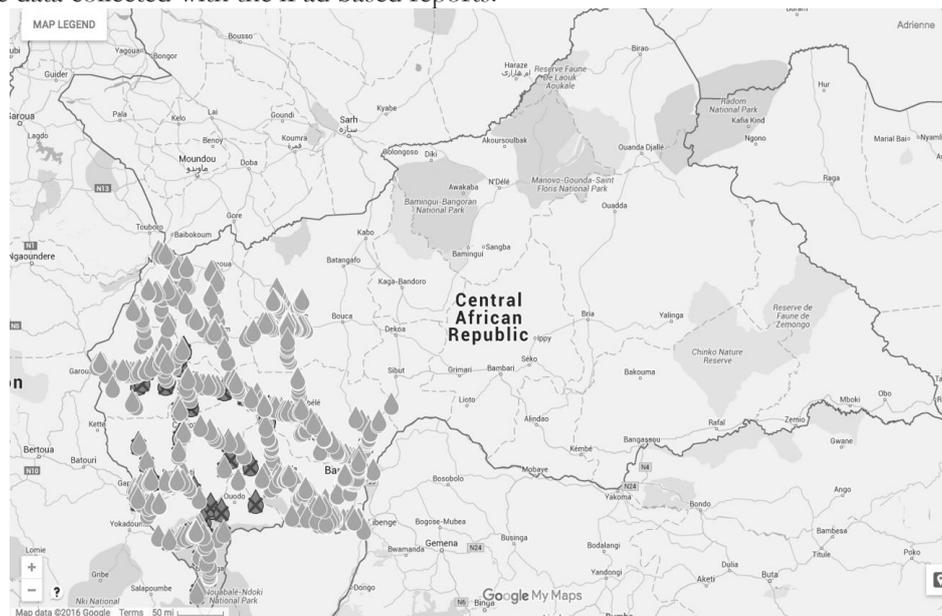


Figure 2. Map of the Central African Republic highlighting the locations of all the hand pumps Water for Good's circuit-rider program has serviced in the last 12 months.

Costs (all currency USD)

- 2015 total circuit rider program costs - \$209,566
- 2015 number of people reached - 673,083
- 2015 number of wells maintained - 1,115
- 2015 cost per water point - \$187.95 per year
- 2015 cost per person - \$0.31 per year

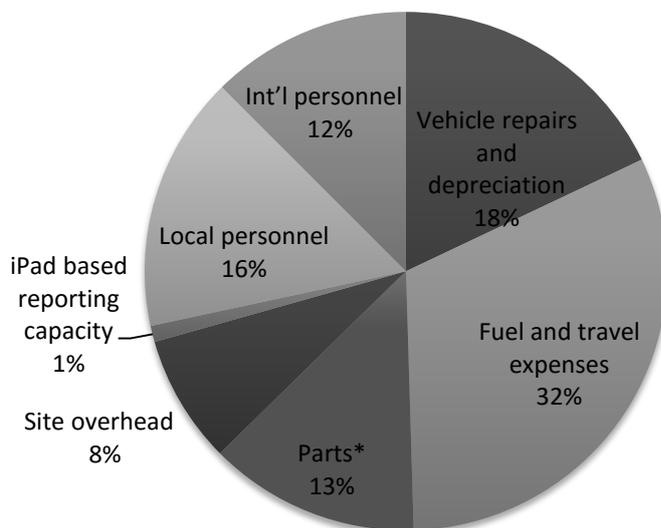


Figure 3. Cost Drivers

*Parts expense in 2015 are lower in this graphic than actual use. Parts inventory carried over from the previous year.

Table 1: Circuit Rider Program Results 2012-2015

Year	Number of Sites	Number of Visits	Functional on Arrival	Functional on Departure
2012	863	959	86%	93%
2013*	687	921	82%	94%
2014*	893	1446	88%	94%
2015	1115	1953	88%	93%

For all results above, the data are pulled from electronic field reports completed by Water for Good maintenance staff, on-site, at the time of the maintenance visit. “Functional on Arrival” refers to the condition on the hand pump upon the arrival or Water for Good maintenance teams. “Functional on Departure” refers to the condition of the pump after the service visit and captures whether or not any non-functional pumps are repaired during service visits. Functionality on departure is not 100% for two main reasons: 1.) There are a set of pumps in the dataset that are non-repairable through the maintenance program interventions. By the end of 2016 we plan to scrub those sites from the program and slate them for decommissioning or rehabilitation. 2.) Teams occasionally lack the parts required to make repairs due to an underestimate of part needs in their trip preparations or delays in part orders (all replacement parts are imported into CAR).

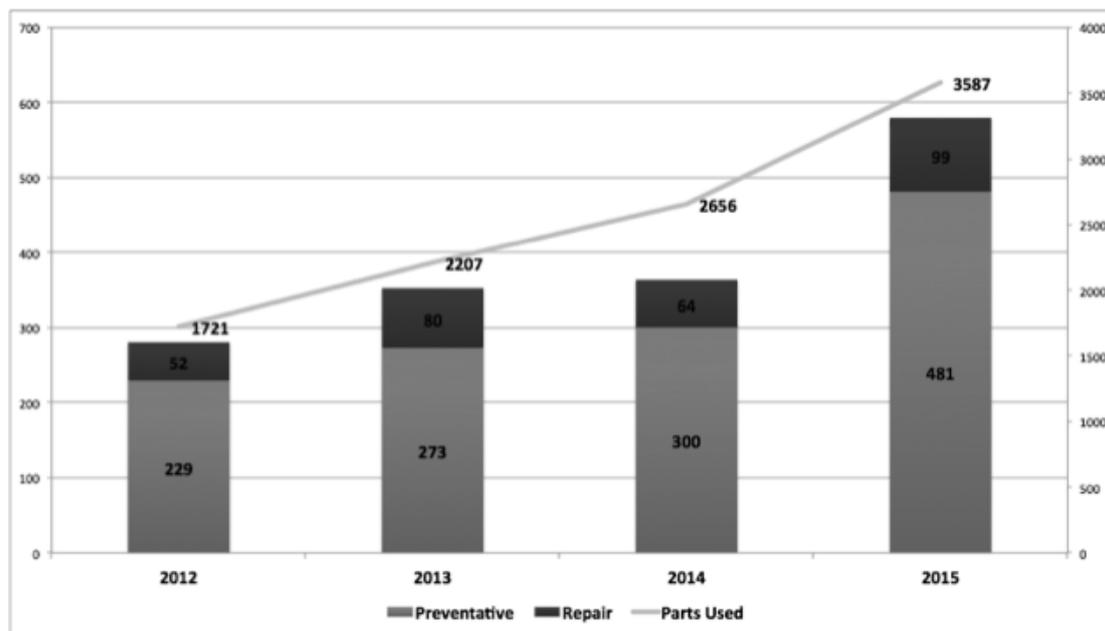


Figure 4: Visits Resulting in Preventative Maintenance vs. Repairs

Table 2. Visits Resulting in Preventative Maintenance vs Repair. The electronically collected field reports are the source of this data. “Parts used” refers to any pump part used during a given field visit. Visits are considered “Preventative Maintenance” if the pump is functional on arrival and departure. Visits are considered “Repair” if the pump is non-functional on arrival and functional on departure. Pump types are majority Vergnet foot pumps and a smaller proportion India hand pumps.

2015 Cost-Recovery

- Communities making a payment - 21% (233)
- Total community contributions - \$8,450 USD
- Percent of program costs covered by communities - 4%
 - The program is subsidized by philanthropic funding. Currently charity: water, based in NYC, USA and Living Water Interantional, based in Houston, TX, USA are the major contributors to this program.

Program Impact

The maintenance visits have had a substantial impact on functionality, with rates well above regional averages and expectations (RWSN, 2009). Furthermore, the impact of this work is magnified in the midst of conflict; many of these pumps are located in “host communities,” where people fleeing conflict (IDPs) have relocated. As populations shifted in the conflict, water points would come under increased stress from IDPs. Water for Good helped keep pumps working, assisting host community resilience.

Conclusions and Recommendations

Evaluation and Future Plans

Water for Good is in the process of developing a Theory of Change (TOC) and five year strategy to expand and adapt the model and institutionalize post-construction support for rural water users in CAR. The Theory of Change aims to chart a path forward that is less dependent on unilateral/direct NGO service provision. The strategic development in this direction is in part a response to the research and advocacy in the sector, including the Triple S Initiative and the Agenda for Change with a focus on country-wide harmonization and scale, calling on NGOs to engage governments at all levels (IRC, 2015, Agua-Consult, 2015).

Currently, four areas of activity are identified that will be critical for long-term sustainability:

1. **Develop a scalable service model.** As stated above, Water for Good already operates a circuit-rider model for post-construction support that covers over one quarter of the country’s rural water points. Going forward, this model needs to be vetted for scalability, informed by a proof of concept in one prefecture (i.e. state), Mambere-Kadei. The proof of concept that Water for Good is designing aims to expand access and services to 100% of residents in that region by 2020. The long-term goal is the expansion of reliable post-construction support (through blended circuit-rider models and artisan repair activities) to all rural water users in CAR.
2. **Incubate private sector supply chain and service providers.** The long-term sustainability of a system for rural water access and services will depend on local access to replacement parts and water sector expertise. Water for Good has historically served as a proxy-private water well driller and parts supplier in CAR. Water for Good has owned and operated multiple field offices/properties, trained and retained drilling staff, and managed the importation of drilling assets, supplies, and manual pump parts. In 2015, Water for Good initiated the first phase of a long-term exit strategy that builds the capacity of the local private sector. This started by establishing a locally owned, for-profit drilling operation in partnership with a former staff member and lead driller. Water for Good has been incubating his company, Marcellin African Drilling. The next phase will include the incubation of a local pump parts distributor.
3. **Harmonize sector activities and evaluation standards.** UNICEF and the national rural water agency aim to coordinate humanitarian and development actors in the WaSH sector. There is still low capacity. Since Water for Good currently has the largest scope of post-construction support and monitoring, it is imperative that the role of information-sharing increase, helping build the capacity of the sector in CAR to harmonize field assessments and activities.
4. **Institutionalize support and financing for rural water services.** In order to institutionalize any of the progress made in the provision of post-construction support for rural water points in CAR, Water for Good will work to increase capacity to advocate within the humanitarian sector and the public sector at national and regional levels.

Conclusion

This paper has aimed to provide insight into the opportunities for effective, sustainable WASH services, even in the challenging, emergency circumstances. Water for Good invites critique and inquiry regarding the current structure and proposed future direction of the circuit-rider model rural water services in the Central African Republic.

In conclusion, Water for Good advocates for your concern and desire to work in hard to reach places like CAR. In order to achieve the sustainable development goals – to **“leave no one behind”** – WASH practitioners have a clear mandate to develop strategies that will work to reach remote, conflict-affected communities.

Acknowledgements

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While many communities pay a fee for maintenance services, the bulk of the program’s funding is subsidized through philanthropic partnerships: charity: water, Living Water International, and Water for Good’s supporters.

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