

# Sustainable development, water and health: experience of WaterLife in Cameroon

John Oldfield, WaterLife, USA

The Millennium Development Goals commit to halving the number of people in the developing world without access to safe drinking water and basic sanitation by 2015 [1]. These are impressive commitments, and cannot be taken lightly: For each day over the next 13 years, approximately 300,000 people will need sustainable access to drinking water, and 400,000 people will need access to improved sanitation. Over 80% of this need occurs in rural communities. This brief article seeks to lay out general guidelines for successful water-related projects in rural communities in the developing world, highlighting a WaterLife Foundation project in Cameroon as a recent, ground-level example.

The timing for a global push into water, sanitation and hygiene is perfect. Recent meetings, including the World Summit on Sustainable Development in Johannesburg, the World Water Forum in Kyoto, and the Commission on Sustainable Development meetings in New York City, have all stressed that water should receive first priority in the pantheon of development opportunities. Even with our successes over the last two decades, 1.2 billion people still lack sustainable access to improved water supply, and 2.4 billion lack improved sanitation [2].

It is now recognised and widely agreed by most stakeholders that two efforts are needed:

- 1) advocacy which results in heads of state in the developed and developing countries committing to water as their most urgent development priority; and
- 2) project sustainability at the local level, reducing the dependency of the developing communities on external stakeholders.

Working effectively with water in the developing world is as sensitive and exigent as dealing with primary healthcare issues. The immediacy of water, its sacred and cultural qualities, and the fact that water is predominantly a gender issue, all make working with water, sanitation and hygiene a very delicate matter. Water-related development work is not inherently more prone to failure than other development initiatives, but it is quite unforgiving if one underestimates the importance of the local context in which the work is undertaken.

Unsafe water is the source of 80% of illness in the developing world, and at any given time, 50% of the children



Figure 1. The completed well. It is sealed off with plaster to prevent contamination and people from easily removing the lid and tampering with the system. The pipe (now buried) extends from the well to the top right corner of the photo, toward the health centre.

in the developing world are suffering from one of a number of waterborne diseases. Encouragingly, however, Gro Brundtland, departing Director General of the World Health Organisation, said recently:

“Clearly, a problem of this magnitude cannot be solved overnight, but simple, inexpensive measures, both individual and collective, are available that will provide clean water for millions and millions of people in developing countries – now, not in 10 or 20 years. We do not have the luxury of waiting around for large infrastructure investments to provide water supplies and basic sanitation services for all who need them. It makes no sense, and it is not acceptable, to ignore the immediate priorities of the most needy.” [3]

Many of these diseases caused by or related to unsafe water can be minimised or eliminated by concerted, collaborative water supply, sanitation and hygiene initiatives. There are many multilaterals, bilaterals, governments and other stakeholders active in this fight currently,

but the situation clearly requires capable leadership on the local level and additional financial and technical resources from both governmental and external stakeholders.

## Cameroon

What was then French Cameroon achieved its independence in 1960. Eleven years later, British-controlled Southern Cameroons opted for federation, forming a single republic in 1972. Both English and French remain official languages. With a relatively stable socio-economic and security environment, Cameroon lends itself nicely to development work in general, and water and health in particular. Its cultural diversity includes over 250 ethnic groups, 200 local languages and various religious affiliations.

With respect to water and health, Cameroon continues to suffer from poor coverage in safe water supply and sanitation, especially in the rural communities. In 2001 [4], only 39% of rural communities had improved access

TABLE 1. CAMEROON GENERAL STATISTICS

Total Population	15.2m
Population growth	2.1%
Gross National Income (GNI)	\$8.7b
GNI per capita	\$580
Illiteracy total (age 15 & above)	27.6%
Female illiteracy	34.9%
Agriculture as % of GNI	42.7%
Fertility (births per woman)	4.7

Source: World Development Indicators database, April 2003

TABLE 2. CAMEROON WATER AND HEALTH STATISTICS

<b>Drinking water supply coverage (%2000):</b>	
Rural	39
Urban	78
<b>Improved sanitation coverage (%2000):</b>	
Rural	66
Urban	92
Child mortality (per 1000, m/f)	150/141
Life expectancy at birth (m/f)	49/51
Total Health Expenditure (% of GDP)	4.3

Source: WHO/UNICEF, Access to Improved Drinking Water Sources, Cameroon, September 2001, and WHO, Selected Health Indicators

to drinking water (78% in urban areas), and only 66% of rural communities had improved access to sanitation (92% in urban areas). This situation has contributed to high infant and child mortality rates, high incidence of diarrhoeal diseases, and other detrimental health, environmental and social impacts.

## WaterLife Foundation

The WaterLife Foundation ([www.waterlife.org](http://www.waterlife.org)) is a non-profit organisation whose singular mission is to engage the global corporate sector in sustainable drinking water, sanitation and hygiene projects throughout the developing world. WaterLife has just completed a privately-sponsored small-scale project in Cameroon, which illustrates a number of these challenges and highlights solutions, which we hope will prove sustainable.

This project was designed to meet the drinking water needs of the village of Bapa, near Bafoussam in western Cameroon, and the drinking water needs of its health centre. The need in Bapa was undeniable, and WaterLife



Figure 2. The 4,000 litre drinking water reservoir, painted white to minimise heating of the water by the sun. The pump is turned on once or twice a week to fill the reservoir. When the reservoir is full the pump shuts off automatically. This system decreases the frequency with which the pump will operate, thereby increasing its longevity and avoiding the problem posed by the previous system. The pump should last between five and seven years, when it will need to be replaced. The electricity is paid for by the state and as monies are collected from patients and other users, over time there should be enough money for a replacement pump.

engineers reported that it was hard to imagine how the village health centre (serving over 3,500 people) had been able to function effectively before it had sustainable access to safe drinking water.

## Getting started

No matter how important decentralised decision-making is in development, top-down support always increases a project's chances for success. WaterLife's project in Bapa has benefited from the beginning from a very supportive village leadership, including Village Chief David II Simeu, a university graduate in computer science. WaterLife also helped to form a village Water Committee, consisting of six women and three men, and a Hygiene Committee (all women), and meets with both committees weekly. The Water Committee has led and continues to manage every step of the process, including:

- site selection for the water point (incl. rehabilitated well and electric pump);

- selection of the local technician (the Water Committee accepted and evaluated bids from three technical contractors);
- collecting funds for the upkeep/upgrade of the well and pump; and
- ensuring the water site is protected.

Additionally, WaterLife's engineers have also held a number of village meetings (typically once a week), informing the villagers about the project and answering any questions. Water Committee and Hygiene Committee members are responsible for ensuring that each family in their neighbourhood understands the water and sanitation initiatives, and the role each family must play in making these advances sustainable. WaterLife also uses these meetings to promote a number of hygiene activities.

It is widely recognised as best practice that water-related projects must tackle not only the technical water supply challenge, but also incorporate



Figure 3. In the foreground, the technical team for the project, including two members of the Bapa Water Committee. Behind, the Centre de Santé Intégré de Bapa.

TABLE 3. IS MY PROJECT DESIGNED IN A SUSTAINABLE FASHION?  
TYPICAL QUESTIONS:

- Are women adequately represented on local water, sanitation and hygiene committees?
- Will local communities have the technical training and financial resources to maintain any equipment (e.g. pumps, filters)?
- Do local communities acknowledge the positive health impacts to be accrued from frequent hand-washing?
- Is there a local demand for pit latrines, or at least a growing awareness of their importance to local health?

from the earliest phases of a project the social aspects of water: sanitation and hygiene. Only this concerted, three-pronged effort will have any chance of being sustainable and of true benefit to the local community. Sustainable design is vital to the overall, long-term success of any water and health project.

### Sustainable design

The nature of the individual water project determines precisely what combination of local and external inputs will make that project sustainable. There is always a focus on technical sustainability, but to achieve the greater health and social benefits which can lead to an effective water project, emphasis needs to be placed on social sustainability and financial sustainability as well. The long-term benefits which might be missed by projects that are only technically sustainable may include reduced infant mortality due to unsafe water, fewer incidents of diarrhoeal diseases, higher levels of access to education (especially for female children) and a myriad of others.

There are three sides to the sustainable design debate: technical, social and financial.

#### Technical

On the technical side, WaterLife's

project faced some severe challenges because the previous system was too technical. The Bapa community was skittish, and unwilling to invest their human or quite limited financial resources in any technical solution they deemed inappropriate.

In the field of water, high technology (e.g. desalination, high-powered pumps) is very seductive. Technology certainly does have an important role to play in meeting the world's water needs, but it needs to be used appropriately. WaterLife calls this our "barefoot

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mechanic" approach, whereby we implement only those technical solutions which can be installed and maintained locally. We insist that not only do local technicians have the

financial resources to troubleshoot and solve problems, but also that they know either how to make the defective part (or at least how to source it), and replace it when necessary.

Many of the villagers shared their concerns with WaterLife before we began the project. Many were discouraged by the failure of the previous water project, which involved a technically inappropriate design and overly-complicated and expensive filtration and purification system. The current technical solution in Bapa is a simple, rehabilitated well and electric pump, with a 4,000 litre reservoir and a gravity feed to the Bapa health centre. WaterLife worked with four engineers from Engineers Without Borders – Canada to implement the project on the ground, with guidance throughout from our Chief Technical Officer Susana Sandoz.

#### Social

Before WaterLife's arrival, the Bapa community had never been made aware of the importance of social sustainability to the long-term success of the project. Bapa was accustomed to strictly technical solutions, and had never been informed of the positive, (and sometimes almost immediate) healthcare impact of basic sanitation and hygiene services. As counter-intuitive as it may seem, from a healthcare intervention standpoint, sanitation and hygiene are more important than a safe water supply. For example, the Lancet Infectious Diseases Journal recently reported that 42-47% of all diarrhoea could be prevented by simply hand-washing with soap [5]. The Water Supply and Sanitation Collaborative Council has published numerous similar findings, and has mounted an impressive advocacy effort to raise awareness of this issue [6].

However, the situation on the ground in Cameroon is not so clear-cut.

Initially, the only thing that the Bapa community wanted was water supply.

WaterLife's goal was to get their commitment to pursuing sanitation and hygiene objectives concurrently with the water supply effort. This article cannot possibly do justice to the cause of social marketing [7], but WaterLife always seeks the communities' commitment to all three aspects of a water project before we begin. Typically, as is the case in Bapa, we start with the water supply and hygiene activities, then move into social marketing programs for sanitation.

Any attempt to discuss best practices in water and development is incomplete

without a significant reference to water as a gender issue. Gender is of primary concern, because women continue to do most of the work related to water, regardless of numerous sensitisation/awareness programs targeted at men. Women are also the primary care-givers in the community, and are most responsible for the health of the community. Our job in development is to “work ourselves out of a job,” and the best way we have found to do that, by ensuring social sustainability is to give local women more comprehensive leadership roles throughout the project. As noted above, women are the majority on the Bapa Water Committee, and it is typical to only have women as members of the Hygiene Committee.

### Financial

In development work, we are all constantly struggling against the temptation to simply “give away” goods and services. In Bapa, the village had never been expected to contribute financially to any of its development projects by prior donors. One of the most challenging aspects of any development project, especially considering how the international community has been implementing them for years, is this culture of donations and handouts. In many cases, local communities not only expect the assistance to come at no cost to them, but they also expect that as soon as anything goes wrong, that the donors will immediately come back to fix the problem.

Thus, Bapa was ill-equipped to manage the water project from a financial standpoint, and had a difficult time both raising the money for their upfront financial contribution to the project, and collecting periodic revenues for the upkeep and upgrade of the system long after WaterLife is gone. WaterLife always makes every effort to decentralise the decision-making process, and makes sure that project ownership lies 100% in the hands of the local communities. Before we commenced work in the village of Bapa, WaterLife insisted on a financial contribution from the households in the community totalling almost 20% of the costs of the hardware needed for the project. (Typically, local financial contributions range from 5-20%.)

Yes, insisting on a financial contribution from some of the poorest people in the world may strike the observer as counter-intuitive and unproductive. However, everyone in the world is already paying for their water, and most often the poorest people not

connected to the water infrastructure pay more (certainly as a percentage of their income, but often in real dollar terms), than the wealthier people on the grid. Even the poorest households in the developing world can afford to contribute financially to their water projects, and this is truly the most essential part of sustainable design.

The importance of sweat equity cannot be overlooked in development work, and was key to the Bapa project. However, without a financial contribution both to the initial and ongoing water supply effort, the ownership of the initiative will never truly be local. The village of Bapa's financial contribution to their project went directly for the well rehabilitation and water pump, i.e. hardware which they see every day. The village Water Committee collects fees on a periodic basis, for the maintenance of the well, pump and holding tank. These fees, once they accumulate, will also allow Bapa the opportunity to upgrade to a more advanced system should they choose to do so, or initiate a micro-credit scheme for village entrepreneurs, or other development opportunities.

### Lessons learned and next steps

Will WaterLife's Bapa project be successful? Will water-related death and disease decrease in the area? Will WaterLife and its sponsors be able to leave the project entirely in the hands of the local communities? It is too early to know for certain, but WaterLife is confident that by using the principles of sustainable design concretised by numerous international and local stakeholders through the years, this project has a better chance at sustainability than prior technical efforts to bring safe water to Bapa.

Key to sustainable design is simply local context. If the project fails to take into account the local context, its design is most likely unsustainable technically, socially and financially. The village of Bapa now has a sustainable, safe source of drinking water for its citizens and their health centre. Word has spread about the success of this project, and WaterLife is reviewing proposals in over 12 more villages in the area for water, sanitation and hygiene.

There is never a guarantee that a development project will be successful. In Bapa, WaterLife is confident that the population's financial and social commitment to the project and the villagers' understanding of the importance of water for health will make this project a long term success.

### REFERENCES

- [1] [www.developmentgoals.org](http://www.developmentgoals.org), The World Bank Group.
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- [4] WHO/UNICEF, Access to Improved Drinking Water Sources, Cameroon
- [5] “Effect of washing hands with soap on diarrhoea risk in the community: a systematic review,” by Val Curtis and Sandy Cairncross, *The Lancet Infectious Diseases Journal*, <http://infection.thelancet.com>.
- [6] [www.wsscc.org](http://www.wsscc.org).
- [7] For an in-depth look at the impact of social marketing on development, please research the work of Population Services International, at [www.psi.org](http://www.psi.org).

### ABOUT THE AUTHOR

John Oldfield is President and co-Founder of the WaterLife Foundation ( [www.waterlife.org](http://www.waterlife.org) ), a philanthropic organisation whose mission is to partner with the global corporate sector to support sustainable drinking water projects in small communities throughout the developing world. John is also currently Senior Associate, E-Business Initiatives, at The Conference Board, a New York-based global business membership and research network. He has several years of international experience leading USAID-funded projects, including training programs for election officials and foreign media, as well as civil/military communication projects in post-conflict countries.

### ENQUIRIES

John Oldfield  
President  
WaterLife Foundation  
New York, NY  
USA

Tel: +1 (212) 712-1404  
E-mail: [joldfield@waterlife.org](mailto:joldfield@waterlife.org)