

NOTRE DAME  
INITIATIVE FOR  
**GLOBAL**  
DEVELOPMENT

# Clean Water Wells

Building and evaluating the impact of wells in Burkina Faso

2014-2015



## FACTS AT A GLANCE

**PROJECT NAME**  
Clean Water Wells

**CITY / COUNTRY**  
Burkina Faso

**REGION**  
West Africa

**IN-COUNTRY COMMUNITIES**  
Bama  
Dorona  
Faramana  
Kimi  
Koundimi  
Sogossagasso  
Soumousso  
Yelentouta

**PROJECT DURATION**  
2014–2015

**SPONSOR**  
Madden Family Foundation

**NOTRE DAME PRIMARY**  
Notre Dame Initiative for  
Global Development

**NOTRE DAME FACULTY**  
William N. Evans, Economics

**PARTNERS**  
Accedes  
Clay United Methodist Church  
Clean Water in Africa, Inc.  
Engage Burkina

**TOTAL PROJECT COST**  
\$50,000

**TOPICAL AREAS**  
Global Health  
Human Development  
Infrastructure

## Clean Water Wells

### Building and evaluating the impact of wells in Burkina Faso

#### SUMMARY

This Notre Dame Initiative for Global Development (NDIGD) project enabled nine wells to be dug in eight western Burkina Faso communities in 2014. These areas were in dire need of clean water, and NDIGD worked with local leaders to determine which communities should receive the new wells. Throughout the project, NDIGD conducted research to measure the economic and health impact of the new wells in the eight villages.

Burkina Faso is one of the poorest countries in Africa, ranking 181st out of the 187 countries on the United Nation Development Programme's Human Development Index (2015), showing little improvement in recent years. 44.6 percent of the population live below the poverty level, on less than \$1.25 per day (World Bank, 2013).

#### IMPLEMENTATION

Notre Dame partnered with South Bend, Indiana-based Clay Church and two partners based in Burkina Faso—Engage Burkina and Accedes—to dig nine clean water wells. The wells were dug in eight communities in western Burkina Faso in the first half of 2014.

Clay Church and Clean Water in Africa, Inc., have been working with Engage Burkina and Accedes to dig wells for several years in Burkina Faso. Both nongovernmental organizations work to improve the well-being of rural communities by helping to dig hundreds of wells, which increases the availability of water during the dry season. The wells are deep, and protected through a concrete sleeve on the inside with a cap on top to prevent contamination from wandering wildlife. NDIGD worked directly with Accedes to collect data before and after the construction of the wells to evaluate the impact of accessible, clean water.

#### THE WELL-DIGGING PROCESS

The process to dig a well begins with a pick to chip away the dirt and a bucket to carry the dirt away. Because of the hard ground and rock, only about three to four feet can be dug daily. As the digging moves deeper, a tree limb with a pulley is put in place at the top of hole so that a bucket can be lowered to remove the dirt. A stick, the length of the diameter of the well (1.5 meters, or about 5 feet), is twirled by the digger as he progresses down to make sure the well stays the exact same diameter all the way down to the water. The wells are dug in the dry season (December through May) so they can be as deep as possible. If the wells dry up during this time, they are dug deeper.

The next step is to sleeve the inside of the well, beginning at the bottom, using brick molds to make bricks from concrete gravel and sand. While some wells in the area were built using concrete sleeves, these wells used bricks because they can be laid and cemented as long as there is daylight. The bricks are laid to a height of one meter above the ground.

Metal caps are secured to the top of each well in the final step. These caps have a lid hinged in the middle so that the sides can be lifted, and people can simultaneously attach their containers to the rope and drop them down to retrieve water. The water can be used for drinking, cooking and bathing.

This type of well can easily last 20-30 years. After reaching the water level below ground, the digger will continue to pull out as much dirt as possible for the greatest depth; the nine wells last year ran from 39 to 225 feet deep. The local people were employed to dig the wells, and were thrilled to be paid for this work. Because the work is done by people in the community, they take great care of the wells after completion.

Sites for the wells were selected based on village requests; Accedes and the villages decided where the wells should go. This process was negotiated by the chiefs and religious leaders in the various communities.

### IMPACT

Prior to digging the nine wells, Dr. Juan Carlos Guzman, NDIGD Director of Monitoring and Evaluation, traveled to Burkina Faso in December 2013 to conduct a community-level, baseline survey in communities that were selected to receive the wells. Dr. Guzman's research looked at the current status of aspects related to water access in the communities, including health, distance traveled to obtain water, and economic activity. All survey data was collected using smartphones and GPS devices. Dr. Guzman returned to Burkina Faso in December of 2014 to assess the newly completed wells and to conduct an endline survey to evaluate the impact. Through this process, approximately 100 of the same households in Burkina Faso were surveyed. Notre Dame's Keough-Hesburgh Professor of Economics William N. Evans served as an advisor on this project.

Nine wells were completed as planned by July of 2014 in eight communities, and as of the last survey all are functioning.



*An older well, located outside a mosque in Bama*



*Community members in Kimi*



*Well locations in eight communities*



*Digging a well*



*Dr. Juan Carlos Guzman speaking with community members in Bama about the impact of a new well*



*A new, functioning well in Sogossagasso*



*Water from a new well*

The impact of these wells on the nearby residents is considerable. The new wells have reinforced social cohesion, in that quarrels of women over the few overcrowded water spots have subsided. Increasing access to wells also allows people to spend more time working; among those who accessed the new wells, the proportion of water collectors who reported spending time on their job increased by 34 percentage points, as compared to those who didn't access the new wells.

More broadly, the new wells allow easier access to drinking water for approximately 3,000 people and 7,000 cattle, thus facilitating the daily hygiene, drinking, and household needs of the local population, as well as the hydration of animals.

It is important to note that community-level surveys can be challenging to use in measuring impact, because they are relatively broad. Due to the substantial need for access to clean water in Burkina Faso, organizations are digging wells in many areas of the country. As a result, the impact of these nine wells is most significant within certain areas of the villages, and that impact is diluted when broader surveys such as this one are conducted. Future surveys targeted more specifically within the communities could potentially show additional and more specific impact.

## LESSONS LEARNED

In addition to documenting the impact of the wells in the community, we have identified areas where local partners might be able to enhance the benefit that they are providing to these communities in the future. In light of our evaluation results, we have identified several lessons learned that will influence future projects and will be shared with all partners:

- **Education and communication:** Adding a communications component to the project can assist in growing the number of people who are aware of the construction of new wells. This would require more funding, but could make a significant difference in the number of people who are aware and able to use the new wells. In our survey, 51% of the households did not know a new well had been built in the community. Knowledge of the new well correlates with the size of the community; smaller communities (up to 1,500 households) have more knowledge of the well and larger communities having less.
- **Site selection:** The sites for the wells were chosen from village requests, which ensured buy-in from the villages. However, the impact could be increased if the requests are then evaluated in more detail by experts who determine locations within the community in which more households can have access. This might require additional time and resources in planning efforts on behalf of an entire community, not simply an isolated neighborhood.
- **Water systems:** Finally, investigating other types of water systems may be particularly advantageous to be sure that wells are the most effective solution for a specific community. Some survey responses indicated that installing boreholes or piped water could provide a more impactful solution in the future. These types of water systems are typically more expensive than hand dug wells.