

**Water Distribution System for Nkuv, Cameroon**  
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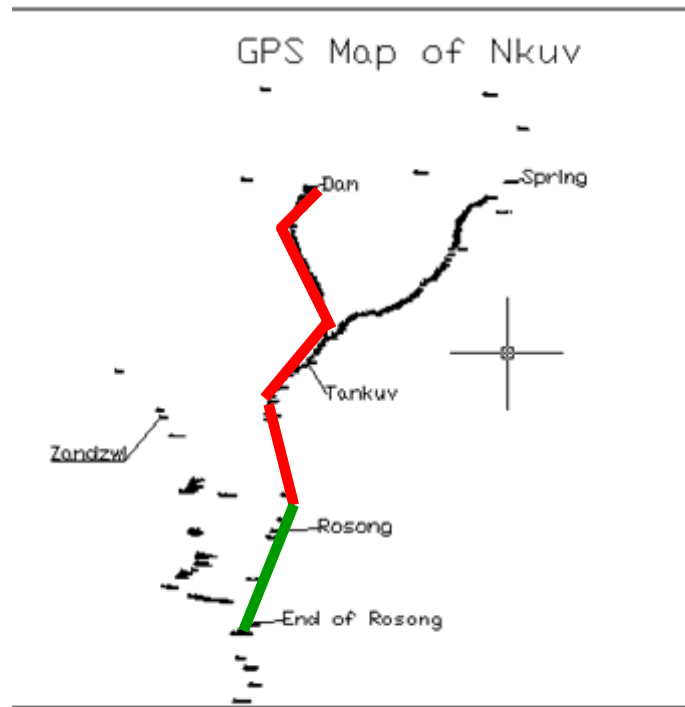


Figure 1: GPS and piping path.

Figure 2: Photograph of preliminary dam constructed in May 2007.



**Summary:**

The village of Nkuv is located in the rural Northwest province of Cameroon, West Africa. Hope College Engineers Without Borders (EWB) began working in the village of Nkuv in March of 2006 to provide clean drinking water for the community. Bio-sand filters have been successful to purify the water and improve the health of the village. However, many people still walk long distances to carry water one bucket at a time from the river to their homes. This project designs a water distribution system to pipe water through the village closer to homes and schools.

The principle requirements are that the system deliver enough water for the village, be safe for people and animals, constructed with locally available equipment and supplies, and work entirely without electricity. Different concepts were considered to provide water for the community, including deep and shallow wells, rooftop water collection, and different piping layouts through the village. One option considered was piping water from a spring located far above the village at the river's source. This would require a storage tank to supply enough water for the village. The final design instead uses a dam to create a still pool of water in the river. The favored dam location, which was chosen by EWB in May 2007, is closer to the village than the spring. This design does not require a storage tank; instead, the still pool of water created by the dam acts like a storage tank and the water is piped directly downhill through the village, driven entirely by gravity. 13 taps located throughout the village provide access to the water that can be used for cooking, washing, and cleaning. However, because the water is not clean enough to drink, it must still be filtered using the bio-sand filters before drinking. The design also includes clean-out ports to clear out any debris in the pipes and control valves to regulate the flow before each tap in the system.

The result of this project provides completed calculations and designs for the construction of the water distribution system in Nkuv. The initial implementation is scheduled for May 2008. This will include constructing the dam in the river and beginning to lay the piping. However, laying the 3 kilometers of pipe through the village is a long process that will require effort from the community after Hope's EWB team leaves. The piping plans will be explained and left to a team in the village to continue and take responsibility for the project. In the end this project will provide access to water much closer to homes to improve the health and hygiene of the village and increase their quality of life.