The Niger REFRESH borehole project: a paradigm change

Jean-Yves Nuttinck¹, Mamadou Zongo¹, Guy Faure², Huggins Madondo¹, Rafael Van den Bergh¹, *Peter Maes¹

¹Médecins Sans Frontières (MSF), Brussels, Belgium; ²Idées-Eaux, St Lupicin, France

*peter.maes@brussels.msf.org

Background
Water is one of the main health determinants in MSF-supported contexts. In the Guidan Roumdji district of Niger, water scarcity is common since its supply is largely dependent on often-dysfunctional boreholes. MSF has run an outpatient therapeutic feeding programme in the district for the past 3 years; the quality and quantity of village water supply are important influences on the length of stay of outpatients. Borehole construction is expensive, time consuming, resource demanding and not always successful. As an alternative, MSF has collaborated in the diagnosis and regeneration of existing boreholes with the Ministry of Health, Niger Water Bureau, and Idées-Eaux, a hydrogeological engineering consultancy firm. The aim of this innovative project was to improve access to safe drinking water and save costs and resources by repairing and re-using rather than discarding and rebuilding.

Project
Started in March 2013, the project is targeting all boreholes surrounding MSF-supported health centres in the Guidan Roumdji district over 3 years. A restrained emergency diagnostic and regeneration kit was developed. Among other activities, borehole diagnosis involves specialist interpretation of images and data obtained with a specialized camera and data logger. Regeneration involves a wide range of approaches using a large variety of context-specific tools often developed on site using locally-available resources. The overall average cost per borehole sunk is about $US15,000, whereas regeneration can be implemented with simple, cheap materials and rented tools once the problem is diagnosed. A regeneration kit costs around $US100,000 and will last for >15 years with intensive use. An example of one regeneration case is a borehole that was blocked since it was close to a school and children loved to drop stones inside it. The diagnostic kit identified the problem and the stones could in principle be blown out using a rented air compressor in a few hours.

Outcomes/lessons learned
So far a total of 40 boreholes have been diagnosed and 12 boreholes regenerated. A simplified emergency camera diagnostic kit (23 kg hand carried) was developed and has since been used in several other MSF contexts.

Conclusions
This approach has been acknowledged across MSF and the other main water and sanitation agencies in humanitarian relief projects as being highly innovative. A public/private approach to funding borehole reconstruction is being conceptualized to enable more in-depth support where required.