

New droughts forecasting models could help mitigate their consequences on African countries

April 24 2013, by Koen Mortelmans

Many African regions are prone to droughts. Advances in forecasting and early warning for these phenomena are now becoming available to help mitigate their consequences on vulnerable societies. The [Dewfora](#) project, funded by the EU, is the fruit of collaborations between ten African and nine European partners. Project coordinator Micha Werner is a senior hydrologist at independent institute for water, subsurface and infrastructure research institute Deltares and an associate professor at Unesco-IHE, an institute for water education, in Delft, the Netherlands. He tells youris.com about this research consortium's ambitions in redressing the balance by mitigating consequences for these countries.

What is the purpose of the project?

We try to identify the characteristics of upcoming [droughts](#) and to understand their consequences on various countries. We are developing a framework for monitoring, predicting, timely warning and responding to droughts, in line with [seasonal variations](#). This work is designed to be applicable within the institutional context of African countries by focusing on various case studies.

In the long run, the project will also contribute to improve the identification of vulnerable regions and develop adaptation measures. These are not limited to Africa. This knowledge will also be valuable for coping with drought risk in other parts of the world.

What is more, for the next step, we have submitted a grant proposal to receive EU funds to use satellite information in support of drought forecasting systems.

Did you observe large differences between the various cases studies?

We deliberately chose cases in different African regions. There are large differences in climate, but also in culture and politics between for instance Mali and South Africa. El Niño for example is has an impact in southern and eastern Africa, but has no effect in for example Morocco. In some cases we faced difficulties. For the moment, the civil war in Mali is a big impediment for our local partner. Even our first meeting in Egypt was difficult, because of the fall of the Mubarak regime, the same week. Another meeting, in South Africa, went smoothly, despite 15,000 crocodiles having escaped from a nearby farm at that time.

How do you intend to achieve drought forecasting?

We analyse data, made available by existing forecasting institutions and other data providing organisations. In this project, we do not do measurements or collect data ourselves. But some research partners are integrated in a forecasting organisation. The research teams also are testing and fine tuning mathematical models for forecasting.

The difference between the African and the European partners is that the African team also take care of the communication with the local stakeholders. It is not an easy task to translate complex scientific models into ordinary attitudes.

What kind of improvement could the project bring?

Lots of institutions are collecting data and publish forecasts. Regional networks use these data to forecast droughts. To name only two [examples](#), there is the Southern African Regional Climate Outlook Forum (Sarcof) and the Greater Horn of Africa Climate Outlook Forum (Ghacof). We feel that they can benefit from improved understanding of seasonal predictions we are developing within our project.

We also identified some lacunas. Several existing data collection networks involve few, geographically not well spread out stations. Often, their operational continuity is not sure, because of unstable funding by some governments. In other cases, data and information are available, but not easily accessible. The cause of the inaccessibility is not only commercial, but also political. Sometimes the communication channels are too complicated.

We also look at long term prospects: what would be the effect of the changing climate on the occurrence of drought after about fifty years?

What kind of challenges have you encountered?

One of the main issues encountered is that many institutions across Africa are dealing with the mitigation of drought effects, rather than adaptation. Our approach is rather preventive, finding measures to avoid the negative effects.

What is more, existing systems only provide forecasts, without giving advice to specific users how to use them. Such an advice could be, for example, to change the crops. In many African

regions, corn is traditionally dominant. But this crop is very sensitive to droughts. It can be wise to plant other crops if a drought may happen that will result in a maize harvest failing.

Worldwide, lots of organisations collect and analyse data for weather forecasting. Combining and more intense analysing those data can improve the quality of forecasts. This can become an important factor in taking preventive actions towards drought periods in Africa and elsewhere.

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