



Issue 02/ 2012

Dear Reader,

Welcome to this second issue of the DEWFORA newsletter. DEWFORA is about improving drought early warning and forecasting to strengthen preparedness and adaptation to droughts in Africa.

In July 2012, the DEWFORA project will be halfway through its three years time span, with mid-term reporting to the EU taking place. Since the previous newsletter our second General Assembly took place in Sharm-



DEWFORA Consortium, Sharm-El-Sheikh, February 2012

Halfway down the project lane!!!

El-Sheikh (Egypt) in February. We were fortunate to welcome some members of our advisory board to this meeting, including Avinash Tyagi (ICID), Jonas Bogardi (Global Water System Project) and Denis Hughes (Rhodes University). Their input to this General Assembly was greatly valued. At that meeting, progress and results since March 2011 were discussed and plans were elaborated for 2012 and 2013.

About ten documents reporting on the project results are now ready, including recently a white paper on the definition of drought vulnerability across Africa, as well as the inception reports of each case study. Some of these reports are already available on our website at www.dewfora.net/Publications.

Until our next newsletter, please visit our website regularly to keep track of project's progress, new and interesting results available for you to use in your research for example.

Micha Werner & Sophie Vermooten (Project Coordinators)

Picture showing drying water point



Latest news from the Basins

Stakeholder engagement in the Limpopo Basin

Field work has been ongoing in the Limpopo Basin since the inception of the project. The current update from the meetings held with stakeholders and water users in the basin show that their broad requirements for meteorological and hydrological drought early warning include: lead times of 3 to 5 months by some users such as crop producers, users want forecasts at a



local scale instead of maps that show the forecast for the entire basin, forecasts should consider rainfall variability within the basin, they want a tool that will translate the forecasts into information on availability of water in rivers and dams, prediction of long dry periods and information that is easy to understand and a clear layout of the risks associated with forecasts and how these risks can be included in the user's risk management framework.

The stakeholders engaged in the meetings included the Limpopo River Basin Commission, USAID, World Vision International, Weather Services, Municipalities, Water Users Association, Large Water Users, Water Managers from Departments of Water and Agriculture.

Forecasts in the region are provided by institutions such as South Africa Weather Services, SARCOF, SADC Climate Services Centre and FEWSNET. The Limpopo Basin is characterised by extreme climate variability leading to severe droughts in the region.



Mutale WUA, Thohoyandou

Findings from the Niger River Basin presented in Vienna, Austria

A presentation was made during the EGU general assembly on the different climate products that were analysed to validate the reproduction of drought from meteorological to hydrological responses in the Upper Niger Basin using the ecohydrological model SWIM.

The STAR scenario, developed in the study, suggested a rather critical future for the Inner Niger Delta's ecosystem and the riparian population.

With the combination of a predicted drier future, the control and construction of reservoirs in the Niger and Bani headwaters, and the extension of irrigated agricultural areas in the Upper

Niger Basin, the peak discharges into the Inner Niger Delta, required to inundate the temporary wetland area, are decreasing substantially impacting all the water uses essential to meet regional food security and political stability.

Given these predictions, short and long term climate and hydrological forecast-



ing can support drought adaptations in regional development strategies. This could abate potential conflicts resulting from increased competition between upstream and downstream water users among vulnerable local stakeholders i.e. rain fed and controlled irrigation farming, nomad pastoralism and traditional fishing.

Mali succumbed to the effects of a great drought in the region that spanned from 1970 to 2002 and it largely affected regional food security, human societies, economic development and the ecosystem functions of semi-arid and wet ecosystems.



DEWFORA
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Preliminary Results & news from the Basins

Data and methods for Drought Forecasting now released!

Meteorological forcing and hydrological models form an intrinsic part of any forecasting system. In this regard, results from work package four show that the seasonal forecasting system, produced by the European Centre for Medium Range Weather Forecast (ECMWF) is a viable seasonal forecast system which can be used in DEWFORA. Furthermore, even though several hydrological models are available, most of these are likely to fail to represent the water balance components that are relevant in arid and semi-arid basins in sub-Saharan Africa. DEWFORA scientists conclude that 5 hydrological and land surface models (out of 16 models reviewed) show high potential to be

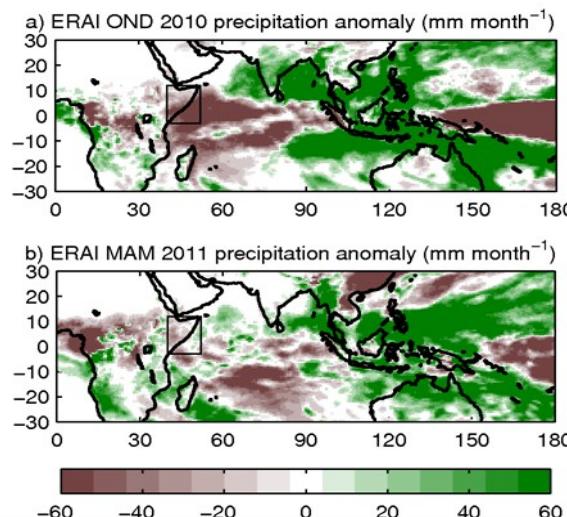
used for forecasting hydrological droughts: PCR-GLOBWB, GWAVA, HTESSEL, LISFLOOD and SWAT.

The models were reviewed based on the following criteria:

1. The representation of the processes that are most relevant for simulating drought conditions such as interception, evaporation, soil moisture and surface water-groundwater interactions.

2. The capability of the model to be downscaled from a continental scale to a large river basin scale model.

3. The applicability of the model to be used operationally for drought early warning given the data available in the region.



Medium range forecasts in the Oum Er Rbia Basin

In the first quarter of 2012, an approach that would be followed in the Oum Er Rbia case study was developed. The approach focuses on the improvement of agricultural and hydrological drought management, tailored to the needs of rain fed and irrigation agriculture.

Medium range (monthly) weather forecasts; indicators and outputs from hydrological, agricultural models and from agricultural drought vulnerability assessment



studies will be combined and transferred to drought warnings and will be used to reinforce drought adaptation.

Irrigated areas in the basin rely on the main dams in the basin. Thus the use of medium range forecasts will allow for the optimisation of releases to irrigators while taking into account the current weather conditions.

In rain fed areas, there is limited decision making to be made by the farmers once the crops have been planted and hence farmers have to make decisions on the timing of planting of crops at the onset of the rainy season.

Currently, farmers plant once they have received the first rains. Information in advance on when the rains are expected at

the medium range could be useful in planning the planting process. Therefore medium range forecasts providing an indication of duration and severity of expected dry-spells could be useful to the farmers in these areas.



Events and Announcements

DEWFORA

Regional workshop in Eastern Africa (Nile Basin Case study) 5-6 September 2012.

Regional workshop in Southern Africa (Limpopo Basin Case Study) 27-28 August 2012.

Regional workshop for West and North Africa (Oum Er Rbia & Niger basins case study) October 2012.

General Assembly and Management Team Meeting 1-4 February 2013, South Africa.

Others

Earth summit conference, 16-22 June 2012, Rio de Janeiro, Brazil.

Stockholm World Water week, 26-31 August 2012, Stockholm, Sweden.

Waternet/WARFSA/GWPSA symposium 30 October to 2 November 2012, Johannesburg, South Africa.

Drought Dialogue Forum, 30-31 October, Nicosia, Cyprus

Others

International Conference - Fresh water Governance for Sustainable Development, 5-7 November 2012, Drakensberg, South Africa

UNFCCC conference of the parties COP 18, 24 November-7 December 2012, Doha Qatar.

American Geophysical Union (AGU) fall meeting, 3-7 December 2012, San Francisco, USA.

Discover the DEWFORA consortium: for each issue of the Newsletter two partners will be presented

Partners Profile 3: GFZ (Germany)



The GFZ is the national research centre for Earth Sciences in Germany. The object of research of the GFZ is the Earth System and the many interactions which exist between the various parts of the system, the geosphere, the hydrosphere, the atmosphere and finally the biosphere.

For the DEWFORA, GFZ will be involved

in the development of meteorological drought forecasting models at continental and regional scales. This will include includes the definition of appropriate drought indicators, advanced statistical correlation analysis and the exploration of the use of the correlations in seasonal drought forecasting.

More info: www.gfz-potsdam.de

Partners Profile 4: ECMWF (UK)



The European Centre for Medium-Range Weather Forecasts (ECMWF) is an inter-governmental organisation supported by 34 States, based in Reading (United Kingdom). Its primary mission is to provide operational medium- and extended-range

forecasts. In the DEWFORA project, ECMWF will contribute to the assessment of climate impact on the frequency of occurrence and severity of droughts in Africa. ECMWF will develop in partnership new methods in the analyses of meteorological

and hydrological drought hazard using seasonal forecasts. ECMWF will also be conducting training on forecasting.

More info: www.ecmwf.int



Building capacity for Water Resources Management in Southern Africa

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