



Issue 1/ 2013

The right project in the right time !

DEWFORA, the collaborative project for Improved Drought Early Warning & Forecasting To Strengthen Preparedness and Adaptation To Droughts in Africa has matured in 2012 and 2013 considerably towards its conclusion. The General Assembly, held in early February in South Africa was not only an impressive show of interesting results and discussions, but also the proof of the feasibility

of large, multistakeholder collaborative projects. DEWFORA demonstrates the efficiency of active scientific/professional communities rallying to solve, or at least to mitigate urgent problems, like the recurring droughts in Africa.

As a member of the Advisory Board of the Project I left the General Assembly with many positive impressions. Knowing how much could go wrong in complex projects where a work package depends on the timely delivery of results of a previous one I consider DEWFORA remarkably successful in this regard.

A few days after the General Assembly of DEWFORA, on 11th February 2013 the International Year of Water Cooperation was inaugurated at the UNESCO Headquarters

in Paris. The International Year of Water Cooperation was decided by the United Nations General Assembly in December 2010 (Resolution A/RES/65/154). On 22nd March we commemorated World Water Day. Obviously the main theme was water cooperation. For most people water cooperation is closely related to transboundary water sharing, potential conflicts and to the efforts to strengthen the cooperation potential associated with water. Beyond these obvious facets water cooperation has many more dimensions. Sharing water can be rights-based, but realizing rights needs active solidarity. Solidarity, on its own turn, is crucial when we deal with water hazards and their consequences. Sharing water in times of shortage is even more essential than sharing the abundance. Helping to share losses is not only an act of solidarity, but also the basis of recovery. Droughts, especially in Africa with its heavily agriculture-based economies are permanent threats. We expect more frequent and larger extremes –floods and droughts- as climate change unfolds. But potential losses increase also due to growing population, its exposure and vulnerability.

Forecasts and the issuance of potential early warning signals, which might be triggered by the identified locality, severity and duration of the expected hydrological phenomena, are only one part of the early warning chain. The signals must reach authorities to trigger actions, but also to be heard and understood by those who might be negatively affected. Only if early warning signals are translated into appropriate measures can we claim success. Thus early warning is not only hydrology, meteorology and agronomy. It is also communication, solidarity and assistance. This so called "last mile" of early warning should be walked together by scientists, authorities and the affected public.

Transdisciplinarity in research may sound like an exotic requirement; in case of early warning it is a must. With its research components to analyze vulnerability and governance DEWFORA renders invaluable service to strengthen transdisciplinarity in early warning.

As drought risk is expected to increase in most parts of Africa the DEWFORA project is not only very timely, but in the same time an important contribution to water cooperation within the continent, but also with partners from the EU countries.

Water cooperation, especially in transboundary context needs time, the readiness to talk and to develop trust. DEWFORA does not only demonstrate this trust but proves that within a fairly short time span of a project one can do things together: sharing knowledge and data, building capacities, developing preparedness. Yet, we have to acknowledge that these results and the spirit of DEWFORA will last only if the community forged by this project (and those who are interested to join it) will be able to cooperate beyond the present phase of project funding. It might have been unintended coincidence, but DEWFORA is a valuable contribution to the International Year of Water Cooperation. It would be more than desirable to ensure the sustainability of this cooperation.

Janos J. Bogardi (Member of the Advisory Board of DEWFORA)



Latest news from the Basins

Oum er Rbia case study End-users workshop

The Oum er-Rbia case study focuses on the improvement of agricultural drought management on both the rain fed and irrigated agricultural sectors of the basin. Thus, it aims to provide and test medium range and seasonal weather forecasts in order to implement effective drought warnings, better plan sowing dates and irrigation schedules and also conduct drought vulnerability analyses in order to identify and implement the more suited adaptation practices.

In order to get the feed-back from the basin end-users regarding the proposed objectives, methodologies and results expected from this case study, and also to present and discuss some preliminary results, an end-users work-shop was co-organised by Institut Agronomique et Vétérinaire Hassan II and the Mediterranean Agronomic Institute of Zaragoza (IAMZ-CIHEAM) at IAV Hassan II, Rabat (Morocco) on the 7 & 8 November 2012. This workshop involved participants from the main institutions and ministerial departments involved in drought and water resources management at the basin and national levels, farmer's representatives and some of the Dewfora Consortium Partners. It also knew the participation of experts from other north-African countries with similar drought problems (Algeria and Tunisia) in order to share experiences and also disseminate the Dewfora project at a regional level.

The first session of the workshop was a plenary session dedicated to the presentation of the Dewfora project, its general objectives and its specific objectives for

management approach to a risk management approach.

The needs for medium range and seasonal forecasts for predictions and planning in the agricultural sector (irrigated and rain-fed, crops and livestock, without forgetting forestry sector)

The needs to consider the great variability of agro-ecological conditions and production systems in the basin for drought vulnerability assessments.

The dissemination of the results of the Oum er-Rbia case study and the Dewfora project to other Moroccan basins and other north-African countries.



the Oum er Rbia case study. In that session, some experiences on drought monitoring, forecasting and early warning from experts non belonging to DEWFORA were also presented (Horn of Africa, Djelfa-Algeria and the remote sensing drought monitoring of the CRTS in Morocco). Then, three working groups were constituted.

The groups carried out a debate on their corresponding topic following guiding questionnaires. They provided a very interesting and useful assessment of the current drought management situation and also important comments and suggestions on what they do expect from the Dewfora project.

Highlights include:

The needs for an early drought warning system allowing to implement effective and efficient drought mitigation practices and move on from the prevailing current crisis

Thus, the workshop had a significant impact on the improvement of the Dewfora outcomes and helped in refining the overall proposed methodology of the case study.

In addition, the great participatory spirit and the true implication of the participants revealed their deep interest for the objectives of the Dewfora project and overall for the thematic of drought management under the context of Climate Change



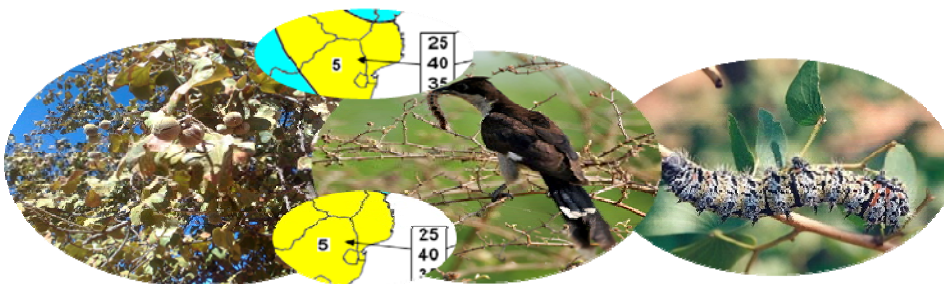


Latest Results & news from the Basins

Insights from WRNA in the Limpopo

Research on technical and institutional improvements on drought monitoring, forecasting and early warning system in the Limpopo basin is being conducted through the following activities at WRNA:

(i) Improved SPI-NDVI methodology on the Limpopo Basin in South Africa working with the South Africa Weather Services, CSIR, the Agriculture Research Council and users.



(ii) Linking indigenous knowledge to formal forecasting methodologies on the Limpopo Basin in Mozambique and Zimbabwe, working with communities and national and local meteorological services and users.

(iii) On the institutional framework WRNA is providing input on drought monitoring, forecasting and early warning system to improve flow of information. This work has just started and it will involve Southern Africa Regional Climate Outlook Forum (SARCOF), LIMCOM, MET Departments, Agriculture, Water Management, Disaster Management, System Operating Fora and other stakeholders.

Some events which have taken place since July 2012 related to the above activities include (i) the SARCOF meeting which was held in Harare, (ii) field visits to the Mzingwane catchment, (iii) presentations to the Polokwane System Operating Forum and (iv) presentations at the WaterNet/Warfsa/GWPSA symposium. The SARCOF came up with a consensus seasonal fore-

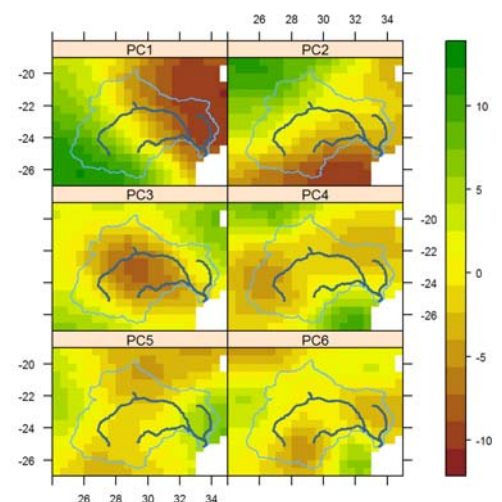
cast for the region which is available from the WRNA web page <http://www.wrnyabeze.com/downloads>. The forecast using local indigenous knowledge at three sites in the Limpopo River Basin predicts a "wet" season while SARCOF forecasts higher chances of normal to below normal rainfall for the whole basin. Monitoring and validation is in progress!

Monthly regional outlooks are available from the SADC web page: <http://www.sadc.int/themes/meteorology-climate/>. The South Africa Weather Service also distributes seasonal (3-month seasons) forecast overviews by e-mail which are updated every month.

Drought Variability and Climate anomalies

Spatial variability of drought was analysed by performing principal component analysis on the standardized precipitation evapotranspiration index of the Limpopo basin. The spatial precipitation anomaly field was dissembled into dominating spatial patterns. The dominating spatial patterns in rainfall anomalies can be reduced to five patterns which still account for 74 % of the total variation. The results of correlation analyses indicate that no spatial pattern can be linked directly to a specific climate anomaly. Further work on

statistical forecasting will build on promising Sea Surface Temperature regions in the Indian Ocean, Atlantic and Pacific, which were identified in this study as potential predictors. The temporal variability was analysed based on meteorological and hydrological data. The analysis of the Limpopo wide standardized precipitation provided a large scale perspective of temporal variability. The large scale perspective was contrasted with standardized runoff in smaller subcatchments. The study shows the shared properties in the frequency domain of these drought signals with climate anomalies. In general, both precipitation and runoff share signal properties with the El Nino southern oscillation in frequencies between 2 and 16 years. The analyses present a picture of complex spatial and temporal variability and relationships. Prediction models have to be able to deal with nonlinear and interacting relationships with climate anomalies. Neither could certain anomalies be associated with spatial patterns nor could certain important climate anomalies be isolated. It is very likely that every drought event is affected by unique combination of different anomalies.



Events and Announcements

DEWFORA

Training courses (2013):

1. Drought vulnerability and risk in Africa
2. Drought forecasting and its use in informed decision making
Place and dates: Zaragoza (Spain), 23-27 September 2013. More information at: <http://www.iamz.ciheam.org/ingles/cursos13-14/dewfora-13-publishing.htm#anchor1>

DEWFORA and Partners

3. Implementation of drought early warning systems and developing the institutional framework for effective response in Africa

[EGU General Assembly](#): Vienna, Austria
7-12 April 2013

[14th WaterNet/WARFSA/GWPSA symposium](#) 30 October to 2 November 2012, Dar Es Salaam, Tanzania.

Others

[Water and Environmental Dynamics - VI International Conference on Water and Environmental Research](#): 3-7 June 2013, Koblenz, Germany

[3rd Southern African Regional Biennial YWP Conference](#) 16th - 18th July 2013 : Music Conservatorium, University of Stellenbosch, South Africa

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

Partners Profile 7:



The Great Horn of Africa is known to be prone to extreme climatic events like droughts and floods. These natural disasters have a disastrous effect on many of the economic and healthcare infrastructures of the region. The ICPAC strives to monitor impending climatic disasters so that countries and communities can take precautionary measures against the consequences of a climatic catastrophe. The ICPAC aims to improve healthcare against tropical diseases by improving interaction between healthcare and meteorological departments through workshops and team building exercises.

It also aims to work together with partners to identify climate sensitive diseases and map these diseases to determine risk zones. This will help identify safer areas for affected people. In the DEWFORA project ICPAC contributes to work conducted in the Eastern Nile as ICPAC's regional outlook predictions are used as a reference point. More info: www.icpac.net

Partners Profile 8:



IAS Hassan II provides three integrated basic tasks namely: Training, research and development. It has become a multidisciplinary center of experts, it provides training and continued education for fellows with interest in earth sciences and technologies. The Institute contributes actively to the effort of modernization of agriculture through innovative research programs in order to meet the needs and expectations of an ever-changing world of agriculture.

IAS leads the case study of the Oumer-Rbia Basin in Morocco with a strong focus on agricultural droughts preparedness and adaptation in the context of Early Warning and Forecasting.

More information about the institute can be found on <http://www.iav.ac.ma>



Building capacity for Water Resources Management in Southern Africa

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