

Conclusions and Recommendations of the Meeting

Conclusions

1. The meeting concluded that climate information required for agricultural activities vary from one application to another and sometimes from one region to another. The required information at the farm level include: the onset and cessation of rains, amount of rainfall, duration and distribution of wet, dry, cold/warm spells, mean, maximum and minimum temperatures and other extreme weather/climate events. It was noted that farmers are very conscious of their needs and that they always take advice to their advantage. However, they do not take advice or messages when the risks involved are high or the messages are in a form not acceptable to them.
2. The meeting agreed that seasonal forecasting is in high demand. However, so far, it is not widely used by farmers because such forecasting is at an experimental stage and there is no appropriate link with early warning systems and farmers. It is used only by decision-makers in some countries. Most of the methods for rainfall prediction in Africa have not addressed the important issue of the onset of rainfall and do not give consideration to the first few weeks after sowing or planting, which are extremely critical for crop growth and establishment. The capability to predict the cessation and, hence, length of the rainy season, the expected annual or seasonal and monthly rainfall amount as well as the dry spells between rainfall episodes is currently very limited. The meeting noted that most of the models used in Africa are largely statistical and efforts to develop the capacity of National Meteorological and Hydrological Services (NMHSs) to use these statistical models in the subregions of Africa have been undertaken by ACMAD and the DMCs within the framework of the regional climate forums.
3. It was recognized that dynamical models are often very complex and require very high computing power. These models, including regional models, are available at few climate centres of the advanced countries. Apart from South Africa and a few others, many countries in Africa rely largely on the advanced centres regarding GCM products. There is inadequate capacity to interpret and verify the skill of such models in the Region. This is a serious challenge to ACMAD and the DMCs, and other regional centres. The meeting was informed that DMC-Nairobi is currently running some trial dynamical models in conjunction with IRI through support by USAID.
4. The meeting noted the difficulty to come up with user-tailored or specific forecast due to different needs of farmers and encouraged efforts to develop new products. It agreed that for Africa, one should make use of the farming systems database on the techniques used by farmers. Existing projects such as the CLIMAG being implemented in West Africa should also be exploited.
5. The meeting expressed its satisfaction with the implementation of the Mali pilot project and noted that it was a success story because all stakeholders of the process deriving and using the agrometeorological information/services were involved at all stages of the project. It also enjoyed continued donor support. The rural population was very organized and the coordination of the process was not interrupted.
6. Climate forecasts and agrometeorological information are only useful if the recipients of the information use it to improve their production and operations. The information should be disseminated using all means possible so that it reaches all the users and with enough lead-time to influence decision-making.
7. The meeting discussed the Ranet project, designed specifically to address information access and support for rural communities. It is intended to improve technical capacities

and networks of national hydro-meteo service and extension agencies so as to provide vital information to farmers in local languages. The Ranet system disseminates information and products in audio, graphics, text and video form (i.e. multi-media). It is a new information and communication technology for the rural areas, which is now being tested in pilot projects in Senegal, Niger, Chad, Uganda, Zambia and Kenya. The meeting took note of the positive results so far obtained in these projects and felt that continued efforts should be made to introduce Ranet to the other countries in Africa.

Recommendations

The meeting took note of the advances made in the science of climate prediction and agrometeorological science and discussed the challenges facing Africa to translate these opportunities into real benefits for the farming and local communities. In order to meet the challenges and pave the way forward, the meeting made the following recommendations, directed mainly to WMO, NMHSs, Specialized Climate Centres (SCCs), Scientists, Universities/Research Institutions (U/RIs) and donors:

- i. Build regional capacity for climate modelling and prediction, especially the downscaling of information for agricultural uses and addressing issues related to dynamical and probabilistic products, especially with respect to the specific requirements of users such as amount of rainfall, onset date, wet/dry spells etc. that are required by many users. Promote the development of climate/weather-agro models and new products of climate forecast, bearing in mind the needs expressed by farmers; (Action: WMO, SCCs, NMHSs, U/RIs)
- ii. Encourage the merging of various methodologies such as those presented by Maracchi, Omotosho and Baddour to advise the farmers on the onset of the growing season, the sowing date, the rainfall distribution and amount and the length of growing season through the combination of various tools, crop models, seasonal predictions, climatic analyses, ITCZ position, etc.; (Action: SCCs, U/RIs, WMO, NMHSs)
- iii. Promote the use of these methodologies through the utilization of the data and products available on the Internet and also through the Website of CAgM for the Agrometeorological Bulletin. Validate the methodologies within the context of activities of CCI and CAgM and particularly in the OPAGs on agrometeorological and climatic information applications; (Action: WMO, SCCs, NMHSs, U/RIs)
- iv. Provide the results from models or researchers to users and involve them in the validation, verification and evaluation processes. Adaptation strategies should be developed for the provision and practical use of seasonal forecasts, and meetings should be organized to encourage the exchange of experiences on these issues; (Action: SCCs, NMHSs, U/RIs)
- v. Test the accuracy of the seasonal forecasts for agriculture and analyse the positive and negative effects. Give technical support to ACMAD Centre, DMCs and other centres to test methods of climate forecasting (dynamic and hybrid) before adapting them to particular conditions of the African climate; (Action: SCCs, NMHSs, U/RIs, WMO)
- vi. Reduce uncertainty by performing several forecasts starting from the same initial time but using slightly modified values of the parameters of the simulation; looking at the dispersion of the parameters as a function of the time integration and describe the encountered value distribution rather than the values themselves; using confidence indices with a more or less high value; and including the uncertainty inside the statistical tools; (Action: SCCs, NMHSs, U/RIs)

- vii. Conduct surveys to identify specific products tailored to users. Only very specific forecasts geared to the actual conditions and the most serious problems of farmers, and delivered in plain and simple language, have a chance to be accepted and used by farmers; (Action: SCCs, NMHSs)
- viii. Encourage a regional approach for the development of effective agrometeorological services and ensure that adequate consideration of policies in favour of local communities is given. It is crucial to take into account the conditions that actually shape the livelihood of farmers and the local adaptive strategies; to make the right choices in the use of contemporary science and to understand the overwhelming effect of inappropriate policy environments; (Action: WMO, SCCs, NMHSs)
- ix. Promote the merging of the best practices and methodologies of the current Early Warning Systems (AP3A, FEWS, GIEWS, WFP, SISP, ZAR), taking into account the needs of decision-makers and the operational limitations such as data, personnel, financial resources; (Action: SCCs, NMHSs, U/RIs)
- x. Improve the algorithms of rainfall estimation by satellite and put them at the disposition of national meteorological services to complete the data gaps to run the models and for the monitoring of the cropping season; (Action: SCCs, NMHSs, U/RIs)
- xi. Promote the use of geographical information system (GIS) and the development of new remote sensing products, taking into consideration the needs of end users. Ways and means should be studied on how to adopt in other countries risk zone determination models and vegetation monitoring developed in Senegal by the Ecological Monitoring Centre (CSE); (Action: SCCs, NMHSs, WMO)
- xii. Introduce training on seasonal forecasting in the programmes of meteorological and hydrological schools (IMTR, AGRHYMET, EAMAC, etc) to develop and sustain the competence in the meteorological services and improve the training activities also under the RMTTC on the best utilization of the data and related methodologies on Internet; (Action: SCCs, U/RI, NMHSs, WMO)
- xiii. Create a Multi-disciplinary Working Group in each country to analyze the meteorological information before its distribution to end-users. Invite intermediaries such as rural journalists, extension workers and representatives of farmers associations to expert meetings on the applications of climate forecasts. Appropriate feedback mechanisms should be designed regarding the implementation of the advisories given; (Action: NMHSs, WMO)
- xiv. Develop partnerships with users and identify or form a network of stakeholders in the agricultural production chain as a way of adding value to the advisories. Crop, animals, fisheries, construction, health, water, transport, marketing and other sectors that identify with the products need to be linked; (Action: NMHSs, WMO)
- xv. Carry out a massive awareness campaign targeted at the public, policy makers, politicians and, above all, the front line agricultural worker and the peasant farmer. Carry out self-evaluation/assessment and try to achieve excellence by improving and introducing better products and encouraging continuous change; (Action: NMHSs, WMO)
- xvi. Develop a strategy of targeting students from an early age; primary schools are an ideal entry point. The pupils are the farmers of tomorrow but they also speak daily with their farming parents; (Action: NMHSs, WMO)

- xvii. Consider the possibility of launching a pilot applications project, funded by international/national institutions dealing with the application of climate forecasts to agriculture in order to address the challenges regarding the effective use of all the methodologies already existing; (Action: WMO, Donors, SCCs, NMHSs)
- xviii. Since Mali was a success story, the group strongly recommended that a post-evaluation of the Mali experience be made to:
- Identify key areas of success in terms of scientific, structural, organizational, economical and societal aspects;
 - Identify difficulties encountered during different stages of the project;
 - Build a database designed for capitalizing on the experience.

The outcome of the post-evaluation will serve as inputs for the development of scenarios for projects similar to that of Mali to be implemented in other African countries. The post evaluation will not re-evaluate the direct outcome but rather the lessons derived and capitalize on the experience; (Action: WMO, Donors, SCCs, and NMHSs)

- xix. Encourage the active participation of the intermediaries in the implementation of pilot projects on the applications of climate forecasts and agrometeorological information to agriculture; (Action: NMHSs)
- xx. Develop an African training programme on communications to get the best products to the end users. The target communicators (intermediaries) include journalists, meteorologists, and agriculturists, extension agents and NGOs; promote the most feasible means of disseminating information and products including radio, television, and newspaper to the rural communities giving special emphasis to new and affordable technologies such as Ranet (Action: WMO, Donors, SCCs, NMHSs).

Closing Remarks

by

Momadou M. Saho
(Agricultural Meteorology Division, WMO)

Mr Chairman,

The Permanent Secretary, Department of State for Agriculture,

Mr Bubu Jallow, Permanent Representative of Gambia with WMO,

Distinguished Ladies and Gentlemen,

We have now come to the end of five days of constructive discussion on the state-of-the-art of current scientific advances in climate forecasting and on the various types and methods that are presently being utilized in Africa. The participation of experts from the Region, especially those from the media and user groups has contributed significantly to the debate and discussion that helped in identifying the forecasting needs, the optimum means of the forecasts and the means of achieving a better recognition of the value and benefits of agrometeorological information disseminated to the users.

Indeed the brainstorming we had during these days has enabled us to develop appropriate recommendations on how the most suitable forecasting tools that are readily available could be effectively applied for agricultural production in Africa. The Proceedings of the Meeting, including contributions from the participants and the conclusions and recommendations, will be published by WMO. This volume would serve as a major source of information to all NMHSs and other agencies involved in preparing and disseminating agrometeorological information and advisories in the Region.

Mr Chairman, on behalf of the Secretary-General of WMO, I would like to thank Her Excellency the Minister, and through her, the Government of the Republic of the Gambia for hosting the meeting and for providing excellent arrangements and facilities to ensure its success. We are thankful to Mr Bubu Jallow, the Permanent Representative of Gambia with WMO, for the dedicated services rendered to the meeting and for the warm and generous Gambian hospitality.

Let me also extend the sincere appreciation of WMO to all the experts, some of whom have travelled very long distances to come and impart their knowledge on scientific issues that are crucial to the sustainable development of the African. WMO will make sure that the end of this meeting would not be end of the process initiated here in the Gambia. Be sure that you will be called again and again to contribute to the implementation of the recommendations agreed here in the Gambia.

I once again thank you all and wish those travelling, bon voyages.

Closing Statement

by

Permanent Secretary, Department of State for Agriculture

Mr Chairman
Representatives from WMO, Mr B. Nyenzi and Mr M. Saho
Distinguished Experts
Ladies and Gentlemen

On behalf of the Permanent Secretary, Department of State for Agriculture, it is my pleasure to be accorded the responsibility to deliver the closing statement for this important Expert Group Meeting.

I was present at the Opening Ceremony of this Meeting when the Secretary of State for Fisheries, Natural Resources and the Environment, The Honorable Susan Waffa Oggo in her opening statement expressed the national concern of the erratic rains that have resulted in crop failures and food shortage experienced this year. In addition, this year, the country is experiencing unseasonal rains at a time when crops harvested by farmers are still in the field.

Mr Chairman
Distinguish Experts

The Department of State of Agriculture being mindful of the plight of Gambian farmers and the economy, that are to a large extent dependent on rain fed agriculture, sees the Gambia's hosting of the Experts Group Meeting for Regional Association I (Africa) on the Application of Climate Forecasts for Agriculture as timely.

The active participation of the line department i.e. the Department of State for Agriculture, at this five days meeting has further contributed to the capacity of the services to have first hand knowledge in inter-annual climate variability and how it affects crops, livestock and households. The knowledge acquired will help participants to understand and use Climate Forecasts to manage their operations to enhance food security and poverty reduction.

The participation of the local media in this Meeting is also noted with pleasure. It is through collaboration with such vital institutions, which in my view are the visible vehicle of information transmission, that the forecasts and advisories can reach the grassroots level and in retrospect obtain the feedback for fast evaluations of accuracy and timeliness, and of course impact.

Mr Chairman
Distinguish Experts

On behalf of the Gambia Government, I wish to express our sincere gratitude to the Secretary-General of WMO, Professor G.O.P Obasi for allowing The Gambia to host such an important meeting. Also to our visitors, we are quite happy for having you with us and please make some time to visit again, the Smiling Coast of West Africa.

As you come to the end of these five days of intensive deliberations, I do hope you were able to have some experience of our local Gambian environment, if not please try to do so before your departure.

On a final note, on behalf of the Permanent Secretary, Department of State for Agriculture, I wish all of you a safe journey back home and I now declare the WMO Regional Association I Expert Group Meeting on Climate Forecasts for Agriculture closed.

Thank you for your kind attention.
