



**REPORT**

**ON**

**FIRST RANET-KENYA  
WORKSHOP ON DISSEMINATION  
OF VALUE-ADDED CLIMATE  
INFORMATION TO RURAL AREAS**

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**NAKURU, KENYA**

**10 TO 13 DECEMBER 2001**

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**RANET SUPPORTED BY:**

**USAID  
NOAA-OGP  
WMO  
CIMMS  
UNIVERSITY OF OKLAHOMA  
UK-MET OFFICE  
WORLDSPACE FOUNDATION  
CFAR**

## RANET-KENYA PROJECT

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**FOREWORD BY THE DIRECTOR OF THE  
KENYA METEOROLOGICAL  
DEPARTMENT**

The Kenya Meteorological Department (KMD) is greatly honoured to be among the first six countries in Africa where the RANET project is to be established in collaboration with the African Centre of Meteorological Applications (ACMAD). The potential of this project in contributing to national production of Kenya is indeed great. This is because the project has recognized a gap in the climate information flow to farmers and pastoralists in the rural areas of Africa and has designed simple, practical and cost-effective solution.

The ACMAD has recognized some of the latest technology of WorldSpace, Wind-up radios, Suitcase radio transmitters and Internet to come up with a solution to an acute problem. The KMD is profoundly grateful to be part of this effort right from the inception of the idea, through seconding officers to ACMAD to assist with its development and project formulation and training.

The KMD has embraced the project and is now involved in training and educating vital sectors of the economy on its implementation and utility. This is the primary goal for which the first RANET-Kenya Workshop was held in Nakuru from 10 to 13 December 2002. We have designed RANET to fit the Kenyan situation in which the already existing infrastructures such as the media network are included in the project. I am glad that at these early stages, we have detected potential support of many organizations and individuals. We are especially keen on developing ownership of the concept by the end users and beneficiaries in the rural areas. We are also keen on developing a wide base of partners and collaborators in Kenya such



*Dr. Joseph Mukabana, Director of KMD talks to the participants during the workshop*

as NGO's and Government organizations so that value-added climate products reach rural Kenya efficiently and in a timely manner.

As we march forward with confidence in implementation of RANET-KENYA, I am sure that RANET will gain commitment and ownership of all players in the project. Meanwhile, I would like to express my gratitude to the Director General of ACMAD and all the partners who have contributed their resources and expertise. In this regard I wish to thank USAID, NOAA-OGP, U.K Met Office, CIMMS, the University of Oklahoma and CFAR for their support to RANET in Africa in General and for their direct or indirect support to RANET-KENYA. I also wish to extend my gratitude to local organizations such as the KBC, ILRI, ICIPE, IGAD project, PUMA, KMS, KARI, Museums of Kenya, MOARD, OP, Faida Seeds, UoN, Nation Newspapers, The Standard Newspapers and KEMRI for their participation in the workshop.

**Dr. Joseph R. Mukabana  
DIRECTOR KENYA METEOROLOGICAL  
DEPARTMENT AND PERMANENT  
REPRESENTATIVE OF KENYA WITH  
WMO**

## INTRODUCTION

RANET-Kenya is a component of RANET Africa initiated by the African Centre of Meteorological Applications for Development (ACMAD) in Niamey, Niger. It has been adopted to fit the Kenyan situation.

The First RANET Workshop on Dissemination of Value-Added Climate Information to Rural Areas was held in Nakuru, Kenya from 10 to 13 December 2001. This was an important activity of the calendar of RANET-KENYA project that seeks to ensure development of weather and climate products and their dissemination and applications to the country and especially to the rural areas. The greatest limitation to the use of Weather and Climate Product are inaccessibility, timeliness, and poor reliability. Enhancement of communication and understanding between producers and users of climate products is highly important. Transmission of the information in an understandable and relevant form to the users requires the concerted effort of experts in various disciplines such as the media, health, agriculture, water resources etc. and requires involvement of the planners, public workers, NGOs, development services, farmers, herders etc. The workshop brought together actors from these fields to chart out ways in which the project may be implemented.

### Workshop Objectives

1. To discuss with experts in relevant fields and policy makers the potential applications of weather forecasts and climate predictions, how they may be value-added and be disseminated to rural areas using new technologies such as WorldSpace, Baygen wind-up radios, etc.
2. To identify members of the National RANET team and gain their commitment.
3. To finalize a national RANET implementation plan.

4. To formulate a catalogue of specialized products for the project, agree on product contents and on modalities of producing them on an operational basis.

### Participants

Participants were drawn from the rural farming and herding communities, local leaders, local administration, health experts, agricultural experts,



*Participants to the First RANET-KENYA workshop. They represented a multidisciplinary cross section of professionals and rural people.*

hydrologists, meteorologists, agrometeorologists, NGO's, the media, partner organizations etc. The list of participants is attached to the report.

### Workshop Programme

The workshop programme was planned for presentation of papers to initially shed light on the status of advancement in weather forecasting and climate prediction and the potential of application of the forecasts and the input that can be expected from other disciplines. It then provided a forum of interaction between the multidisciplinary experts on the one hand, and users of value-added products at the rural areas on the other. Practical demonstration of equipment used in RANET was done. The complete programme is attached.

**S. W. Muchemi**  
**RANET-KENYA CO-ORDINATOR**

## ACRONYMS

ACMAD	African Center of Meteorological Applications for Development
KMD	Kenya Meteorological Department
USAID	United States Agency for International Development
CIMMS Research	Cooperative Institute for Mesoscale Meteorological
KBC	Kenya Broadcasting Corporation
ILRI	International Livestock Research Institute
ICIPE	International Centre for Insect Physiology and Ecology
IGAD	Intergovernmental Authority on Development
PUMA Africa	Preparation for Use of METEOSAT Second Generation in
KMS	Kenya Meteorological Society
KARI	Kenya agricultural Research Institute
MOARD	Ministry of Agriculture and Rural Development
OP	Office of the President
UoN	University of Nairobi
KEMRI	Kenya medical Research Institute

## **SESSION 1: PRESENTATION OF RANET**

**CHAIRMAN: W. NYAKWADA - KMD**

**RAPPORTEUR: S.M. MALEMBWA - KENYA**

### **PARTICIPANTS**

**S.W. Muchemi - KMD**

**Dr. J.R. Mukabana - KMD**

**Peter Mutai - KMD**

**Milton Waiswa - KMD**

### **RANET-KENYA: - S. W. MUCHEMI, Kenya Meteorological Department**

The status of implementation of RANET-Kenya was presented. It was pointed out that RANET-Kenya is a Rural Communications Programme that seeks to transmit vital weather and climate information to Kenya rural communities using Internet, rural solar/wind-up radios and multimedia WorldSpace satellite technology. The African Centre of Meteorological Applications for Development (ACMAD) initiated it. It is currently under implementation. Products consisting of seasonal climate predictions and value-added shorter-term weather forecasts that include agricultural, hydrological, health and other advice will be transmitted through RANET. Integrated in RANET is the possibility of transmitting and receiving information in form of text, graphics, video and audio using a free channel donated and reserved by the WorldSpace Foundation for this purpose.

### **OBJECTIVES OF RANET-KENYA**

#### **Overall objective**

To establish a mechanism for enhancing dissemination of value-added weather and climate prediction information to rural areas while maximising on existing communications systems network in order to improve food security, health and quality of life in rural areas of Kenya.

### **IMPLEMENTATION STATUS**

#### **RANET-Kenya Team**

1. A team of five Meteorologists and one Engineer has been formed. The team has held many meetings so far and has already initiated interaction with other organisations such as the Media, the Kenya Agricultural Research Institute (KARI), Ministry of Agriculture, Ministry of Health, Kenya Meteorological Society (KMS), World Vision, ICIPE, ILRI, IGAD, FEWS, local leaders from local participating communities and administration from local participating communities.

## Equipment

The bulk of the equipment is to be supplied by the ACMAD. The Kenya Meteorological Department has also committed resources to the project through the supply of computers. Additional computers are under departmental budgetary consideration. Below is a summary of the status of equipment supply.

EQUIPMENT	SOURCE	STATUS	REMARKS
20 PCs	KMD CONSORTIUM	5 Computers availed by KMD  5 Computers under KMD budget consideration  10 Computers to be requested from members of consortium	
1 LAP TOP	ACMAD	To be supplied	
3 FM radio transmitters	ACMAD	To be supplied	Delay caused by need to ensure smooth clearance at airport
500 Free play radios	ACMAD	Supplied	KMD spent US\$ 8000.00 for clearance and demurrage charges
	KMD		
28 WorldSpace receivers	ACMAD	8 supplied 20 to be supplied	
28 Modems	ACMAD	8 supplied 20 to be supplied	

## **Broadcast on WorldSpace**

A web page has been established. Long-range weather forecast is uploaded. Other value-added products are under development. WorldSpace receivers have been set up in various places, notably In the National Meteorological Centre where demonstrations have been held for the senior officers of the department, the forecasters and meteorological officers. Student groups comprising about 50 students from across Kenya per week are having the system demonstrated to them. Other places are the directorate, the Institute for Meteorological Training and Research (IMTR), the KARI station in Mtwapa at the Coast, Eldoret Airport Station, and others were under installation in Garissa in North Eastern Kenya and Katumani in Eastern Kenya.

## **Products**

### ***Provincial Forecasts***

In order to ensure more detailed weather forecasts, we have started province-based weather forecasts that resolve the country more finely. Hence KMD will issue forecasts that will be more geared to local areas. In this respect, teams of meteorologists are running models based on eight provinces that form the country. Preliminary results of this approach have already shown promising results. This departmental effort will avail a good input into RANET.

### ***Local Languages***

We have already started translating forecasts into local languages. In this regard, meteorological staff translates the climate outlook forecast. Where a particular language (or dialect) has no speaker in the Department, we have collaborated with the Kenya Broadcasting Corporation (KBC) to have them done by professional journalists at no cost to the Department. We have already uploaded forecasts in Kiswahili on RANET. Other languages to follow.

## **Partnership**

Locally, partnership within RANET between the KMD and KBC, the Kenya Meteorological Society (KMS) and WorldSpace is going on well. The KMS has offered its support in the realization of the First RANET-Kenya Workshop.

## **Conclusion**

The goals and objectives of RANET Kenya have been well received. Institutional support demonstrated by the Kenya Meteorological Department, the ACMAD and other partners would ensure its growth.

**KENYA METEOROLOGICAL DEPARTMENT NATIONAL WEATHER AND CLIMATE PRODUCTS: - Dr. Joseph Mukabana, Kenya Meteorological Department**

The presenter remarked on the changes that the Department has made recently to ensure that the users of Meteorological Information access information. Previously there was emphasis of using government ministries to disseminate the information but this was found not to be effective. Currently the media has been drawn on board and it is proving more effective.

Collection of data and the communications system in place were mentioned. Relationship of meteorology to religion was addressed and shows that there was no competition with religion but rather an attempt to explain the works of God and make projections otherwise known as forecasts.

These were presented as marine forecasts, aviation, public forecasts for 24-hours, four-day, weekly, monthly and seasonal forecasts.

Specialized forecasts are also issued on request.

The utility of the forecasts and their applications for development and for prevention of loss of life and property was tackled.

An explanation of rainfall seasons in Kenya was done. Products such as onset and cessation of rains, etc. were mentioned.

The presenter pointed out the fact that Kenya Meteorological Department archives a wide-ranging cross section of data for use in advising users as to the best weather-related activities in different parts of the country.

It was concluded that climate products are available to users and that they can be applicable to enhancement of food production, planning of economic activities and improve users' economic base.

The Ranet program was identified as an emerging technology that could provide a necessary tool for bridging up the gap in accessibility of climate information to rural/marginal areas.

In the session it was also pointed out that the KMD issues daily, 4-day, weekly, seasonal, aviation, marine forecasts, climatological advisories, climatological data for risk mapping, together with specialized forecasts.

## **RANET UGANDA PROGRAMME.**

**Milton Michael Waiswa**

The presenter gave a brief history of the formation of RANET-UGANDA. He pointed out that training in ACMAD was instrumental to the establishment of the programme. Currently products are uploaded to the World space Multimedia Satellite, Afristar.

These products are decadal bulletins, Agrometeorological bulletin and Seasonal forecasts.

Mobilization of RANET local partners was done and many partners were brought on board. They include the Uganda National Farmers Association, Lutheran World Federation and World Vision. Ten operational sites already established.

## **PRESENTATION OF TECHNOLOGY EMPLOYED IN THE RANET**

**Peter Mutai**

The equipment and networking utilized in the RANET was presented. The use of the World space technology was explained. It was explained that with the use of a WorldSpace radio receiver, a PC card and a computer, it is possible to download information from the World space Afristar satellite in form of website i.e. in full multi media [Text, Sound, video and Pictures]. The Worldspace radio can be replaced with a computer card.

The utilization of the Wantok briefcase radio station was explained as well as the BayGen Wind-up radios. It was indicated that this equipment formed a vital link with rural areas.

It was recommended that while this technology may be employed, we should continue to utilize the already established media network in the RANET-Kenya Project.

## **DISCUSSIONS**

During discussions, the participants stressed the need for timely accessibility of these products to the local user community in a manner and language that can promote their usefulness.

The participants were informed that Ranet was free and not just limited to climate information, provided the information is not-for-profit, religious or political.

The KMD Ranet team laid down its immediate aims as

- Training
- Establishing a pilot project
- Strengthening the capacity of KMD stations.

The participants underscored the need to extend training to the local community particularly the farmers, local administration and the extension staff.

## SESSION 2: METEOROLOGY METEOROLOGICAL FORECASTS AND HOW THEY ARE REALIZED

CHAIRMAN: WILLIAM NYAKWADA – KMD  
RAPPORTEUR: FRANCIS NGUATAH

### LONG RANGE CLIMATE PREDICTIONS AND EARLY WARNINGS

- It was pointed out that there have been great strides in development of long-range climate predictions in the recent years especially in models coupling ocean and the atmosphere.
- Observation was made that climate is critical when weather events are extreme for example floods and droughts.
- KMD produces a range of weather products in addition to the specialized forecasts to interested people or organizations. These predictions have relied upon models that take into consideration processes taking place in the major ocean basins of Pacific, Atlantic and Indian Oceans.



*Participants during the workshop listen to a presenter. Dr. Xia (ICIPE is seen on the foreground)*

- Forecasts have always been given to Government Departments but there is now demand for predictions by various specialized users.
- Generation of forecasts is quite expensive and goes through vigorous stages. This is ensured by a team of well-qualified Meteorologists who are continuously working to improve on accuracy of the predictions.

In conclusion it was noted that the KMD has the capacity for issuing skilful forecasts and the medium and long range prediction can help in mitigation of the negative impacts of the extreme climate events.

It was recommended that:

- Workshops should be mounted that involve the rural community
- Without appearing alarmist, the forecast should be presented in a way that would trigger action otherwise it is useless.

- Usage of local language would be useful and that is what RANET aims to do.

## **MEDIUM RANGE, DAILY, NOWCASTING AND THEIR APPLICATION**

Discussion was done in respect to the scope of the forecast periods and it was clarified that Numerical Weather Prediction models are used in medium range, daily and nowcasting techniques. This is different from statistical methods used in long-range climate predictions.

Various methods of forecasting were mentioned and definition of nowcasting given as very short-term forecasts in order of minutes to a few hours. Nowcasting is applied to disaster management e.g. flash floods.

In order to perform the above functions, communication (local, regional and global) was emphasized and this was discussed at length.

Satellite data collection was highlighted and its input to the science of meteorology enabled the science to develop.

Medium and short-range forecasts are useful for planning, safety in aviation, protection of crops and human activity.

It was pointed out that recent forecasting methods have resulted in improvement of skills to approximately 80% for short-range forecasts but the accuracy diminishes as the period of forecast becomes longer.

### **SESSION 3: METEOROLOGY AND AGRICULTURE**

**CHAIRPERSON: DR A. GITHEKO**  
**RAPPORTEUR: SAMUEL MWANGI**

#### **METEOROLOGICAL PRODUCTS NECESSARY FOR THE DEVELOPMENT OF AGRICULTURE AND LIVESTOCK: JOHN ONYANGO, KARI**

Various activities in agriculture including livestock feed, scheduling of agricultural activities depend on weather and climate information. Setting up and installation of weather stations including automatic weather stations is a core activity that yields data for use in agricultural planning. Weather forecasting, weather hazards and prediction of crop yield all require meteorological data.

Land use planning, ecological zone mapping with the incorporation of GIS techniques is a powerful tool that utilizes meteorological data. Remote sensing serves to introduce real time data (weather, meteorological, land use, etc) in agricultural planning.

The way forward is to reactivate and strengthen linkages between agricultural stakeholders and KMD, facilitate the understanding of micro climates for increased production, provision of simplified messages to farmers and other stakeholders and the need for timely dispatch of information. While agricultural production is related to weather and climate, this relationship may not be linear or direct and may vary with crop variety and region. The understanding of these relationships calls for the meeting of the minds between agriculturalists and meteorologists.

#### **EXTENSION SERVICE PROVIDERS IN KENYA: J.O. ODUOR, MOA**

Public institutions, private companies, NGOs etc, provide this service. There should be a policy to harmonize the activity while maintaining diversity of the players, to ensure sustainability and relevance.

The role of extension is to create general awareness, impart knowledge and skills. The methods used are the ASK shows, exhibitions, field days, promotion and young farmers and youth programmes, the mass media, agricultural information centre (NRB), farmers' training centres, educational tours, on farm trials, demonstrations, research extension, linkages with support institutions. The private sector uses similar methods but further offer credit and marketing facilities. Other sectors also use similar methods but lack adequate qualified staff.

In general timeliness, language, feedback mechanisms are some of the constraints in extension work. In the Kenya Ranet linkage with extension providers, awareness creation, training, feedback, and monitoring need to be taken into consideration.

## **CLIMATE FORECAST INFORMATION STATUS, NEEDS AND EXPECTATIONS AMONG KENYA SMALL HOLDER AGRO PASTORALISTS – A CASE STUDY OF MACHAKOS DISTRICT: DR ROBINSON K. NGUGI – UON**

This was aimed at assessing the awareness, the potential and the current methods of climate forecast information exchange. The method involved design of questionnaires which were circulated to farmers for data collection for subsequent analysis.

The results indicate that farmers are aware of existence of climate information. Most farmers are receiving the climate/weather information. There has been major change in level of awareness in the last 4 years. The farmers are taking this information seriously.

The primary source of this information was through radio, followed by personal contacts, while seasonal forecasts are the type of seasonal forecasts being received. The decisions based on the forecast depended on the forecast and the region. Most farmers indicated that they required additional information like onset dates and duration of the season.

Traditional practices in forecasting weather/climate are prevalent and are used together with the scientific methods. The traditional methods are qualitative and focus on the onset. They are very area-specific and are based on local observations.

## **THE ROLE OF AGRICULTURAL METEOROLOGY IN AGRICULTURAL PLANNING IN KENYA: JOHN MWIKYA**

There is need to know what the weather will be like during the cropping season. Suitability of varieties planting dates, scheduling of agricultural practices are based on agrometeorological data. For early warning and food security, socio-economic data including nutrition and stock levels are needed. Weather and climate data is the lead factor. Crop forecasting data including acreage, phenological, agroclimatological data, crop yield etc. is also important. This data is divided into static and current data i.e. field practices, crop calendar and planting dates, phonological stages, etc. respectively.

The Katumani case study, considers the seasons depending on early onset and length of the season. From this case study it is shown that an early onset translates into a good season and vice versa. The water balance determines the crop performance during the growing season, where evapotranspiration is compared to crop water requirement and rainfall. Other data that have application are rainfall probabilities, frequencies of frost etc. and skillful data analysis methods.

## **GLOBAL LIVESTOCK PASTORAL RISK MANAGEMENT: DR WINNIE LUSENO**

This study aimed at looking at the use of weather information, in order to assess potential and the methods of information dissemination applied. The processes used in coping with adverse weather effects include destocking/restocking procedures to ensure sustainability. The study covered Northern Kenya and Southern Ethiopia and sought to know the level of awareness of weather/climate information and methods used to cope. Increased awareness in weather information was observed mainly from traditional forecasters and elders. The level of confidence with the KMD forecast was low compared to traditional forecasts. The variation was related to the level of exposure to

other sources of information (radio). The study revealed that the information received was not of a seasonal nature and the few people who received the forecasts did not apply it. The populace depends on traditional methods of reading clouds and other local indicators to forecast rainfall. The study revealed that weather/climate forecast would be required 4-5 weeks ahead of the onset of rainfall.

### **STUDY PROJECT ON THE EFFECTS OF WEATHER FORECASTS ON AGRICULTURE IN KWALE: MRS JOSEPHINE MWINAMO**

This is to assess the availability, usefulness, the attitudes and language of communication in weather forecasting.

The results indicated that:

- The weather forecasts reach very few farmers at the Coast of Kenya, because of the channels used
- The farmers who get the weather forecast do not use it.
- They do not trust the forecasts due to the language used and perception problems. They have traditional forecasts which they trust.



*Mrs. Muinamo a teacher (front) and Mrs Annah Gafa (Farmer) both from Kwale on Kenya coast.*

- There is a missing link in the extension and the farmers at the field level.
- Weather forecast are received through radio

The conclusions from the study are that:-

- The forecasts should be disseminated in time, explained and understood to make weather forecasts useful.
- Level of education is a hindrance to weather forecast utilization.
- Religious beliefs hinder people from using the forecasts – “It’s God’s Work” they say.
- Lack of rural electrification hinders access of weather information by TV.

The Recommendations are that:-

- The farmers be mobilized and sensitized to use and apply the forecast
- The language of the forecast should be user-friendly and easy to understand.
- The farmers need to be educated on sourcing and using the information

- KMD should install more stations to localize the forecast more and
- The Ranet radio project would increase the reach of weather/climate forecasts.

### **APPLICATIONS OF METEOROLOGICAL PRODUCTS TO AGRICULTURE: J.E. CHERUIYOT**

Kenya is prone to variable rainfall with periodic droughts. Meteorological information should be used to reduce risk of losses in agriculture. The use of meteorological information lies in facilitating timely and accurate forecasts, while at farm level efficient uses of water would go a long way in increasing production.

Areas of application would be research in diseases and their control, delineation of Agro Ecological zones, regimes of potential and actual evapotranspiration. Some of the information available from KMD include soil moisture, agroclimatological data, information bulletins and advisories. Other services are supply of specialized agrometeorological forecasts, setting up and installation of agromet stations, and their maintenance. Training and consultancy services in agrometeorology are also a service offered. In conclusion the utilization of agrometeorological services for increased agricultural production should be enhanced. Decentralization of services rendered by KMD to the districts and increased agrometeorological observations in semi-arid areas would all go a long way in enhancing utilization of agrometeorological products for increased agricultural production.

### **DISCUSSIONS**

Following the presentations of Session 3, several issues came up, seeking clarifications and suggesting ways to improve on service delivery. Some of the specific issues raised were whether traditional forecasting methods which came up a lot in the presentations could be adopted or incorporated into the scientific KMD forecasts and the need to include forecast of other parameters like temperature, humidity, winds, radiation etc. in the seasonal forecasts. In response to the issues raised, KMD clarified that plans were underway to implement a project which would catalogue the vocabulary of traditional forecasters from different regions with a view to adopting the language of the traditional forecasters for use in KMD forecasts. This would eliminate the communication barriers encountered in disseminating the forecast. Further to this some of the traditional forecasters could be made voluntary observers, bringing them closer to the department and integrating traditional methods of weather forecasting with the scientific ones. The department also promised to include some of the relevant meteorological parameters in future seasonal forecasts.

#### **SESSION 4: METEOROLOGY AND HUMAN HEALTH**

**CHAIRMAN: S.W. MUCHEMI**

**RAPPORTEUR: J.G. KONGOTI**

**PRESENTERS: DR. A.K. GITHEKO**

**D.I. GIKUNGU**

The speakers confirmed that there exists a relationship between meteorology and human health. An overview of meteorology was given and how climate is influenced by the earth-atmosphere system.

Factors affecting human health include: food, shelter, clear air and water, safe and stress free environment. It was clearly demonstrated that human health depend upon the prevailing weather conditions, the micro-climate, the climate and the on-going human activities. The outbreak of various tropical diseases e.g. pneumonia, malaria, meningitis, cholera, typhoid, heatstroke, cancer, are strongly linked to extreme weather events and/or phenomena like excess heat, extreme cold weather, drought, floods, tropical disturbances etc.

Prior knowledge of various meteorological data was found helpful in disaster preparedness, monitoring and management of airborne, water-borne and vector-borne diseases. The medics have developed models for forecasting the outbreak of some of the tropical diseases like malaria based on meteorological data although the models have not been adopted for practical use. It was noted that some diseases like malaria are becoming resistant to some of the commonly available drugs and therefore there is need for early dissemination of any information related to disease management.

## **SESSION 5: HYDROLOGY AND WATER RESOURCES**

**CHAIRMAN:** MR J.O. ODUOR – MOA  
**RAPPORTEUR:** S.M. MALEMBWA – KMD  
**PRESENTER:** MR. D. ADEGU – KMD

- Hydrology services offer a series of products with a wide scope of application for poverty alleviation in rural communities in Kenya.
- Such fields of application include: decision on whether to irrigate or not, irrigation scheduling, drainage, water supply schemes, hydropower generation, fisheries resources, transport, etc.
- Various hydrological products are generated on 24 hr, weekly and monthly basis by KMD. They include:
  1. Long and short-term weather forecasts
  2. River flow and floods – Used in early warning to communities living downstream
  3. Probable maximum precipitation – Used for planning and design of hydrological structures
  4. Low flow forecast – Used for sounding a warning for dwindling water resources
  5. Run off modeling (RFE) – Includes rainfall estimation using Cold Cloud Duration (CCD) for enhancing river flow and extreme events prediction
  6. Geohydrological and geophysical products – Commonly used for mapping and generating products for geographical surveys. They assist in borehole construction.
  7. Run-off coefficient
  8. Quantity and quality products
  9. Rating curves
  10. Base flow index
  11. Flood water curves etc.
- The major problems in accessibility and communication of these products were outlined as:
  1. Insufficient station network
  2. Expensive equipment
  3. Duration required for consolidating data
  4. Language barrier

The presenters recommended various steps towards overcoming the above problems. The recommendations were:

- Incorporation of remote sensing information
- Strengthening station network
- Sensitize the rural communities
- Developing nowcasting techniques
- Communication of hydrological information in a simple language

## **SESSION 6: METEOROLOGY AND THE MEDIA**

**CHAIRMAN:** - STELLA AURA  
**RAPPORTEUR:** - F. NGUATAH

### **THE POTENTIAL ROLE OF THE MEDIA IN THE DISSEMINATION OF WEATHER INFORMATION TO RURAL AREAS**

#### **KIBE KAMUNYU – NATION MEDIA GROUP**

- The discussion of the paper centred mainly on the Agriculture Development which is the main stay of the rural people.
- For any development to take place and be accepted the rural people must fully be involved.
- It is critical that mutual understanding must exist between the gatekeepers (media) and the weathermen for effective weather information dissemination.
- There is a direct link between under development and a suppressed media and that media can significantly spur development if permitted to thrive.

#### **JUDITH AKOLO – STANDARD NEWSPAPER**

- Radio provides the most widely media of communication and its use should be enhanced.
- TV is for the urban areas endowed with electricity and it is, therefore, accessible to very few people.
- Print media used by elite because it is expensive and those who read it must be well schooled. Its impact on rural areas is therefore minimal.
- TV and print media are not designed for the rural people. However, Kenya News Agency (KNA) produces newspapers for rural areas at a cost of KShs. 2/= (USD 0.035) a copy, but still does not include subject such as weather. Ways should be found to ensure that weather is included in these newspapers.
- The current mainstream media does not reach the rural areas, effectively.
- The potential of weather information is great and the urban people get the information while the rural people do not. RANET will therefore go a long way in bridging this gap.

## **RECOMMENDATIONS:-**

- KMD should produce products tailor-made according to the needs of the community concerned. This can be achieved if rural people are consulted.
- Use of vernacular or local languages should be encouraged. They help in articulating the message so that it is understood.
- Rural press, which is relatively cheap, should be exploited for climate information dissemination e.g. *Nyota ya Magharibi*.

RANET shall be a partner to the mainstream media organizations.

## **CHRIS OPIYO – KENYA BROADCASTING CORPORATION (EDITOR-IN-CHIEF)**

S.W. Muchemi read the paper on behalf of C. Opiyo

- The paper indicated that 70% of the Kenyan population is based in the rural area and the weather information has proved extremely vital (knowledge of onset and cessation of rains critical).
- KBC has a wide coverage both for radio and TV. Radio has an audience of 24 million, TV has an audience of 12 million, KBC also broadcasts through local languages. It is, therefore, an important media that RANET can make use of.
- In order for the forecast to be useful certain basic things need to be considered:-
  - Packaging in a simple language
  - Use of radio which is appropriate because of the wider coverage
  - The weather information to be aired at prime time when the viewers or listeners are many
  - Pay special attention to regions that face exceptional food shortage or any extreme weather phenomena.

## **SESSION 7: COOPERATION WITH THE RANET PROJECT**

**CHAIRMAN: J. KONGOTI**  
**RAPPORTEUR: RAMTU BAKARI**

### **MR S. GATHARA – DMCN**

The topic was “Possible areas and roles of cooperation between DMCN and RANET project”. Challenges of producing and disseminating climate products in the GHA (Greater Horn of Africa).

- DMCN is a project which covers 10 countries of the GHA. The initial purpose of DMCN was to monitor and give drought warning but of late it also monitors other extreme events like floods, frost, etc.

Among the products of DMCN are:

- 10-day, monthly and 3 monthly climate analysis and prediction bulletins
- Annual, special and pre-seasonal outlooks are also issued.

The DMCN organizes for capacity building workshops at every beginning of rain season (i.e. both long rains and short rains). These forums address the issue of weather forecasts for the countries involved. Also users of weather information and products are invited to give contributions.

Workshops on general concepts, interpretation and application are conducted.

DMCN is an international organization with participants from United Nations organizations and NGOs.

### **YUN LONG – INTERNATIONAL CENTRE OF INSECT PHYSIOLOGY AND ECOLOGY (ICIPE)**

He gave a talk on the uses of PC (Personal Computers) and the post-PC era and how they can be applied to the RANET project.

How PCs are modified and made small for hand and pocket handling was demonstrated.

Management of data banks at ICIPE was presented as an example of how RANET can create a data bank.

He also explained the modification of information technologies for voice commands to be used in computer, TV and internet facilities instead of the physical or typed commands.

## **BRICE MONTFRAIX –PREPARATION FOR THE USE OF METEOSAT SECOND GENERATION SATELLITE IN AFRICA (PUMA)**

The presenter informed the participants of the goals of the PUMA project. The objectives of PUMA were given as preparation of NMHS's in Africa for the Meteosat Second Generation [MSG] satellites. Problems and opportunities presented by the satellite transition were presented.

The scope of PUMA was given as 47 African Caribbean and Pacific [ACP] countries in 5 regions of Africa excluding Algeria, Egypt, Libya, Morocco, S. Africa and Tunisia.

The programme is concentrating on Technology transfer, institutional and technical support and networking as its outlook activities. They will supply new satellite data- receiving and software, train NMS staff and technical assistance. One important component of technology to be employed in the project is the WorldSpace technology since it is cost effective, widely available and has little or no running costs. In it, information concerning PUMA will be transmitted to all countries in Africa in website form even without Internet connectivity. In this, PUMA will co-operate with the RANET project.

## **GILBERT OUMA - INTERGOVERNMENTAL AUTHORITY ON DEVELOPMENT (IGAD)**

- He informed the participants on the countries covered by IGAD.
- How IGAD is using meteorological information and remote sensing to implement its objectives.
- How the information is relayed to the member countries and used in the relevant fields.

## **SESSION 8: INTERACTION BETWEEN METEOROLOGISTS AND THE RURAL COMMUNITIES**

**CHAIRPERSON: J.W. MUHORO**  
**RAPPORTEUR S.M. MALEMBWA**

### **THE KMS, PROF. J. K. Ng'ang'a**

A well-informed community makes better use of weather and climate information for agricultural planning. Barriers to effective utilization of this information has resulted from:

- The information being in an inappropriate form.
- Users' inability to interpret correctly and discern what part of the information is useful for his field operations.

The responsibility of eliminating these barriers has been vested on Kenya Meteorological Department. KMS cooperates with KMD by undertaking various activities that are aimed at advancing the science of Meteorology and its application to the socio-economic development of the country. These include organization of workshops that encourage research and interaction between users and producers of weather information. The target groups include schools in rural areas, training and research institutions and individual users of weather and climate information. This effort coincides with the spirit of RANET.

### **INTERACTION BETWEEN METEOROLOGICAL OUTSTATIONS WITH RURAL COMMUNITIES IN KENYA AND POTENTIAL FOR ENHANCEMENT**

#### **CURRENT STATUS:**

<b>SIMON GATHERU</b>	<b>- National Museums of Kenya</b>
<b>ROBERT CHEPSOI</b>	<b>- Office of the President</b>
<b>MAURICE ODIE</b>	<b>- Kisumu, KMD</b>
<b>GEORGE WAITI</b>	<b>- Nakuru, KMD</b>
<b>ONYANGO AKUMU</b>	<b>- Garissa, KMD</b>

Interaction between rural communities and meteorological stations happens through:

- Education tours to KMD Headquarters
- Public meetings (*barazas*) – attended by NGOs, District Development Committees, local chiefs, government ministries staff.
- Open days for students to visit meteorological stations across the country.
- Awareness campaigns during WMO day and ASK shows.

From these interactions, it has emerged that:-

Most farmers are very keen on seasonal forecasts and that a wide cross-section of farmers request for tailor made products which include onset and cessation of rains.

Information on market rates, suitability of crops to particular microclimate systems etc is also sought.

Terminologies used for describing weather and climatic products have contributed to mistrust and lack of confidence on these products to the rural communities and even professionals in other fields because they are not well understood. For example, the term “Above-normal” is often interpreted as floods and “Below-normal” is interpreted as too little rainfall to sustain crop growth and development. “Near-normal” and “peak rainfall” are not understood.

## **CHALLENGES**

- Low level of interaction between rural communities and meteorological staff, leading to lack of understanding and appreciation of the products by the farmer.
- Religion and strong traditional culture has often led to some communities receiving the products with a lot of skepticism.
- Professionals in other fields do not understand the implication of weather and climate products as pertains their fields operation.
- Forecasts sent down the administration line rarely reach the agricultural extension officers, if they do, they are late and often, the officers do not interpret the information correctly.

## **RECOMMENDATIONS**

- To eliminate communication barrier through use of vernacular. Chief’s barazas are normally conducted in vernacular so they can form a platform for this purpose.
- Provide adequate airtime for forecasts on TV and radio and also establish rural radios such as is intended by RANET.
- Collaboration between weathermen and traditional forecasts to assess what scientific value may be in traditional weather forecasting such as mass exodus of birds prior to onset of rains, moon cycle and phases and wind flow.

## **MEETING OF WORKING GROUP ON WATER RESOURCES AND MANAGEMENT (HYDROLOGY)**

It was realized that rainfall (daily, seasonal) has a direct impact on water resources.

Currently, KMD does not produce hydrological products on a daily/monthly basis. It only offers advisories on potential impact of above/below normal rainfall on hydropower, river flows, etc. However KMD has developed a potential and capacity to produce hydro-products of necessary data is availed on time.

The products include:

- Low flood forecasts
- Rainfall runoff models
- Geophysical survey products.

### **FRAMEWORK FOR VALUE ADDING TO CLIMATE PRODUCTS**

- Inviting users in water resources, to discuss the meteorological products and possible implications.
- Encourage monitors in pastoral areas to send in their information so that National Meteorological and Hydrological can offer advisories on water allocation and regulation in the dams.
- Obtain products from the Ministry of Water, hydropower generators and general water sector and disseminate them alongside meteorological products.

### **WAY FORWARD**

It was recommended that

- Policy on water resources and meteorology needs to be enhanced
- Set up an operational hydrometeorological unit in KMD and work in close collaboration with Water Resources Dept.
- Allow Water Resources Dept. to transmit data through KMD real time data transmission channels.
- Strengthen the infrastructure required in river flow measurements
- Produce a bulletin in collaboration with the water sector that addresses the various needs of Kenyans.

## MULTIDISCIPLINARY SESSION 9

### PRODUCTS REQUIRED FOR APPLICATION IN AGRICULTURE/AGROMET/HEALTH

The following were recognized as important products that would be produced and disseminated through the RANET-Kenya project.

#### AGROMETEOROLOGICAL SEASONAL FORECAST

- Should include information on:
  - (a) Rainfall
    - onset
    - duration
    - cessation
    - distribution
    - dry spells
    - temperature
    - humidity
    - evapotranspiration
    - water balance in the soil
    - vegetation indices
    - probabilities of rainfall performance

#### AERONAUTICAL MONTHLY UPDATES

- Should cover all the above e.g. for rainfall – how long will it behave during the month?

#### HEALTH

##### SEASONAL FORECAST

Should include:

- a) Rainfall – onset, duration, cessation etc.
- b) Temperature
- c) Relative humidity
- d) Vegetation
- e) Solar radiation intensity
- f) Winds

#### NOTE:

This information should include the actual data and should be zone specific.

A mechanism should set up within RANET for feedback from the field on monthly or weekly basis on how the crop, vegetation etc. are performing.

## **FRAMEWORK FOR VALUE ADDING**

Within the RANET-Kenya project, the Director KMD should invite all sectors from the country, he gives forecast and multidisciplinary team would add value according to the specific sectors.

These should then be given out as a press conference and passed on to district level. At district level more zone specific value adding should be done.

e.g. The health man in Kisii will know what to tell his people, the agronomist in Makueni will give relevant information to this area and so on.

As much as possible the RANET multidisciplinary team should be invited to press conferences and briefs at the KMD.

## **DISSEMINATION**

RANET systems for dissemination of weather climate information should be set up. The idea of setting up rural radios of limited reach transmitting in local languages was recommended and emphasized. Distribution of wind-up radios was very much welcome.

There should be a monthly/seasonal column dedicated to climate outlooks and predictions in newspapers.

Pages 7 in Standard (News analysis) and Pages 9 in Nation (Horizon) were pointed out as suitable columns, which could be exploited right away.

Kenya Broadcasting Corporation (KBC) can dedicate time on television and radio for transmission of the products at no cost. Prototype forecasts should be made as a start.

Different languages for KBC – a one-day workshop in KBC was recommended for this purpose.

Coro, Baraka, Sayala, etc. These community commercial radios were recognized as possible outlets for climate outlooks in local languages.

Kiss FM

To send Nation and Standard the daily forecast

The Museums of Kenya pledged a section for display of seasonal forecasts in the 21 museums across the country.

## **FRAMEWORK**

In the media the following Focal Points were recommended for the RANET project.

Judith Akolo - Standard  
Julius Nthenge – KBC  
Kibe – Nation  
Mr. Gatheru – Museum

ICIFE – has experience in crop specific weather – This is the Kenya Highland Onion growth potential. A visit to ICIFE by the RANET team was recommended.

## **PLENARY SESSION II**

**CHAIRMAN** - S.W. MUCHEMI  
**RAPPORTEUR** - J.G. KONGOTI

- (a) The rapporteur for each session presented a summary of the issues discussed during the session. There were 9 sessions.
- (b) Recommendations for RANET
  1. RANET very committed to education and training of farmers and extension officers
  2. Setting up of FM radio stations through donor assistance
  3. Frequent workshop about RANET progress
  4. Form multi-disciplinary committee or approach to handle the RANET-Kenya
  5. Met. Out stations to play a role in the implementation of RANET.
  6. Focus on the linkage between modern and traditional forecasting
  7. Train the farmers/extension officers – simplify the language
  8. Draw up a tentative working frame or time frame – should be set up.
  9. Dissemination of draft report to the media
  10. Use the media to advertise about Ranet (visibility of Ranet)
  11. The possibility of misuse of the facilities by the beneficiaries – proper monitoring and management of the radio to avoid misuse by the beneficiaries and success of the project
  12. Distribution of radios should include women and men

13. Time frame for dissemination of information on radio should be synchronized to the availability of the listener.
14. Activity to involve all the partners/stakeholders in all the stages of the Ranet-project.
15. Education and assessment of the project
16. Encourage the participants
17. Ranet to work closely with the collaborating partners like ICRAF, FAO, ICRC, ICIPE, World Bank, WHO have established infrastructure in support
18. MOA to use the Ranet facilities to disseminate the information to end users.
19. Use local language to disseminate the information
20. Schools should be incorporated to the Ranet programme
21. Specific available products from MOA should be included in Ranet.
22. Investigate the possibility of regional approach.

## ANNEX I

RANET WORKSHOP, 10-13 DECEMBER 2001, NAKURU, KENYA

PROVISIONAL WORKSHOP PROGRAMME

**Dates:** 10<sup>th</sup> - 13<sup>th</sup> December 2001

**Venue:** Hotel Kunste, Nakuru

### **Monday 10-12-2001**

08.00 – 08.30 A.M      Arrival and registration

#### **Session 1 Presentation of RANET**

*Chairperson - W. Nyakwada*

*Rapporteur - S. M. Malembwa*

08.30 – 08.45 AM      Workshop perspective; S. W. Muchemi, KMD

08.45 – 09.00 AM      KMD National Weather and Climate Products, J. R. Mukabana, KMD

09.00 - 09.30 AM      RANET in Africa, the RANET-Kenya project, the objectives and status of implementation; S. W. Muchemi, KMD

09.30 – 09.45 A.M.      Demonstration of the functioning of RANET and the technology behind it  
- Peter Mutai, KMD

09.45 – 10.00 A.M.      The development of RANET in Uganda - Milton Waiswa - Met. Uganda

10.00 - 10.30 AM      Discussions

#### **10.30 - 11.15 AM      Opening Session**

Invited Speakers delivers speeches and Guest of Honour Opens the workshop

11.15 - 11.30 A.M      Tea Break

#### **Session 2 Meteorology (Meteorological forecasts and how they are realized)**

*Chairperson - S. M. Gachara*

*Rapporteur - F. Nguatah*

**11.30 – 11.45 PM      Long-range climate predictions and Early Warning; Mr. William Nyakwada, KMD**

12.00 – 12.15      Medium-range forecasts and their applications, Mr. Samuel Mwangi, KMD

12.15 – 12.30 P M      Daily forecasts and nowcasting and their applications; Mr. Samuel Mwangi, KMD

12.30 – 1.00 PM      Discussions

01.00 - 02.00 P.M Lunch Break.

### **Session 3 Meteorology and Agriculture**

*Chairperson - Dr. A. Githeko*

*Rapporteur - S. M. Mwangi*

- 02.00 – 02.30 PM Meteorological Products Necessary for the development of Agriculture and livestock – *Dr. Joab Onyango, KARI*
- 02.30 – 02.45 PM – Application of Meteorological products to Agriculture: *Mr. J.E. Cheruiyot, KMD*
- 02.45 – 03.00 PM Ministry of Agriculture and Livestock Development and its potential role in transmission of Meteorological Information – *J. O. Oduor, MOA*
- 03.00– 03.15 PM Field experience on needs for weather and climate information to farming and livestock communities – *Dr. Robin K.Ngugi, UON*
- 03.15 – 03.30 PM The role of Agricultural Meteorology in agricultural planning in Kenya; *Mr. John Mwikya, KMD*
- 03.45 – 04.00 PM Weather and Climate information necessary for animal husbandry in different climatic zones of Kenya; *Dr. R. Kaitho, ILRI*
- 04.00 – 04.15.PM Tea Break
- 04.15 – 04.30 PM Use and value of climate forecasting among pastoralists: Preliminary research findings from northern Kenya and southern Ethiopia.; *Dr. Winnie Luseno, ILRI*
- 04.30 – 04.45 PM Study project on the effects of weather forecasts on Agriculture – *Mrs. Josephine Mwinamo, Kwale*
- 04.45 – 05.15 PM Discussions

**Tuesday 11-12-2001**

### **Session 4 Meteorology and Human health**

*Chairperson – Dr. Mugah*

*Rapporteur- J. G. Kongoti*

- 08.30 – 09.00 AM Lead paper on Meteorology and Health – *Dr. A. K. Githeko*
- 09.00 – 09.15 AM Cala Aza and Malaria and how weather determines its propagation – *Dr.D. Sang, MOH*
- 09.15 – 09.30 AM Weather and Health - *Mr. D. I. Gikungu*
- 09.30 - 10.00 AM Discussions
- 10.00 - 10.30 AM Tea/Coffee Break

### **Session 5 Hydrology and Water Resources**

*Chairperson – Mr. J. O. Odour*

*Rapporteur - J. K. Muhindi*

- 10.30 – 10.45 AM      Hydro meteorological products and their applications : *Mr. Kabubi, KMD*
- 10.45 – 11.00 AM      Applied hydrology in Kenya and the meteorological products required for rural development: *Min of Water resources Ministry of Water Development representative*
- 11.00 – 11.15 PM      Discussions

### **Session 6 Meteorology and the Media**

*Chairperson – S. Aura*

*Rapporteur – F. Nguatah*

- 11.15 – 12.15 PM      The potential role of the media in the dissemination of weather information to rural areas; *Kenya Broadcasting Corporation, Kameme FM, Nation Media Group, East African Standard*
- 12.15 – 12.45 PM      Discussions
- 01.00 - 02.00 PM      Lunch Break

### **Session 7 Cooperation within the RANET Project**

*Chairperson – Dr. Robin Kinuthia*

*Rapporteur - J. N. Kabubi*

- 02.00 – 03.00 PM      Possible areas and roles of cooperation within the RANET project : *Mr S. Gathara DMCN, Dr. Ouma IGAD, Dr Xia ICIPE, Prof. Ng'ang'a KMS, Winnie Luseno ILRI, Brice PUMA*
- 03.00 – 03.30 PM      Discussions
- 03.30 - 04.00 PM      Tea Break

### **Session 8 Interaction between Meteorologists and rural communities**

*Chairperson – J. W. Muhoro*

*Rapporteur – F. S. M. Malembwa*

- 04.00 – 04.15 PM      The Role of the Kenya Meteorological Society in the dissemination of weather products to the rural communities; *Prof. J. K. Ng'ang'a, KMS*
- 04.15 – 04.30 PM      The Role of the Museums of Kenya in dissemination of climate information to rural areas of Kenya. *Simon Gatheru, Museums of Kenya*
- 04.30 – 04.45 PM      Climate information necessary for Early Warning and Disaster Management in Kenya- *Robert Chepsoi*

04.45 - 05.15 PM Interaction between Meteorological Outstations with the rural communities in the Kenyan– *Mr. James W. Muhoro, KMD, Mr. Bakari Ramtu, KMD Eldoret, Mr. Ainea Nyahera, KMD Kisumu, O/I Garissa Met Station, O/I Nakuru Met*

05.15 – 05.45 PM Discussions

### Wednesday 12-12-2001

09.00 - 10.00 AM Demonstration of of operation of RANET equipment and information system. *Mr. P. Mutai and WorldSpace representative.*

10.00 AM  
break

Tea

Excursion to a touristic site for the rest of the day.



### Thursday 13-12-2001

#### Session 9: Multidisciplinary Session

*Chairman - S. W. Muchemi  
Rapporteur - S. W. Kahuha*

08.00 – 09.30 AM  
Meetings of working groups to:

*Participants wait as one of them boils eggs in a natural hot water spring of Lake Bogoria located in the Rift Valley, which the participants visited.*

- Form working groups for development of value-added products
- Discuss products required for different fields of application.
- Formulate frameworks to enable inclusion of professional advice/commentary etc. to Kenyan monthly and seasonal climate outlooks on an operational basis in future.

09.30 – 10.00 AM Presentation of Working Group discussions

### 11. Session 11 Plenary

*Chairperson – W. Nyakwada  
Rapporteur - S. W. Muchemi*

10.00 - 12.30 AM

- Rapporteurs present their reports
- Develop recommendations and an implementation plan for RANET

### Closure

## ANNEX II

### **SPEECH BY HON. MUSALIA MUDAVADI EGH, MP, DURING THE OPENING CEREMONY OF THE FIRST RANET WORKSHOP ON DISSEMINATION OF VALUE-ADDED CLIMATE INFORMATION TO RURAL AREAS; NAKURU, KENYA: 10 TO 13 DECEMBER 2001**

THE REPRESENTATIVE OF THE SECRETARY GENERAL OF THE WORLD METEOROLOGICAL ORGANIZATION (WMO), MR STEPHEN NJOROGE

THE DIRECTOR OF UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID)

THE DIRECTOR OF KENYA METEOROLOGICAL DEPARTMENT (KMD), DR JOSEPH MUKABANA

THE REPRESENTATIVE OF THE WORLDSPACE CORPORATION

THE COORDINATOR OF THE DROUGHT MONITORING CENTRE (DMCN), PROF. OGALLO

THE CHAIRMAN OF KENYA METEOROLOGICAL SOCIETY (KMS), PROF NG'ANG'A  
INVITED GUESTS

LADIES AND GENTLEMEN:

IT GIVES ME GREAT PLEASURE TO BE INVITED TO OFFICIATE AT THE OPENING OF THIS VERY IMPORTANT FIRST RANET WORKSHOP ON DISSEMINATION OF VALUE-ADDED CLIMATE INFORMATION AND PREDICTIONS TO RURAL AREAS IN THIS BEAUTIFUL AND TOURISTIC TOWN OF NAKURU.

I AM INFORMED THAT THIS WORKSHOP WILL SERVE TO HARMONIZE THE IMPLEMENTATION OF THE RANET-KENYA PROJECT WHICH AIMS AT ESTABLISHING STRUCTURES THAT WILL ENSURE THAT CLIMATE FORECASTS REACH USERS IN THE RURAL AREAS.

RURAL PEOPLE IN KENYA PLAY A VERY IMPORTANT ROLE IN PROVISION OF AGRICULTURAL PRODUCTS AND LIVESTOCK. HOWEVER THEY ARE DISADVANTAGED IN THAT, IN SOME AREAS, THERE IS INADEQUATE INFRASTRUCTURE WHICH PREVENTS THEM FROM GETTING IMPORTANT CLIMATE INFORMATION AND PREDICTIONS WHICH THEY WOULD APPLY TO THEIR ECONOMIC ACTIVITIES. A MAJORITY OF THEM ALSO CANNOT AFFORD NEWSPAPERS, INTERNET AND TELEVISION SETS. A FEW OF THEM CANNOT EVEN AFFORD RADIO SETS. THIS IS A SERIOUS PROBLEM SINCE THEY REQUIRE THIS INFORMATION FOR IMPROVEMENT OF THEIR AGRICULTURAL AND LIVESTOCK PRODUCTION. THE INFORMATION IS ALSO USEFUL FOR APPLICATION IN DELIVERY OF HEALTH SERVICES. IT IS, THEREFORE, APT THAT THE KENYA METEOROLOGICAL DEPARTMENT HAS TAKEN UP THE RANET PROJECT AS A RESPONSE TO THIS PROBLEM.

ONE OF THE STRONGEST POINTS OF THE RANET PROJECT, I AM INFORMED, IS THE MULTIDISCIPLINARY APPROACH IN TERMS OF EXPERTISE IN THIS EFFORT. MULTIDISCIPLINARY TEAMS IN AGRICULTURE, LIVESTOCK KEEPING, HEALTH, HYDROLOGY AND SOCIAL WORKERS WILL WORK TOGETHER IN ADDING ADVICE TO CLIMATE OUTLOOKS AND THEIR UPDATES IN THEIR FIELDS OF EXPERTISE. HENCE, FOR EXAMPLE, IN ADDITION TO A CLIMATE PREDICTION FROM THE KENYA METEOROLOGICAL DEPARTMENT, A RURAL FARMER WOULD ALSO RECEIVE ADVICE ON WHAT BEST AGRICULTURAL PRACTICES IN TERMS OF SEED VARIETY, PEST CONTROL AND SO ON TO ADOPT, FROM THE MINISTRY OF AGRICULTURE AS WELL AS

HEALTH ADVICE; ALL IN ONE PACKAGE. THIS IS, THEREFORE, A MOST VALUABLE PRODUCT AND HAS THE SUPPORT OF MY MINISTRY.

IN ADDITION TO THIS MULTIDISCIPLINARY APPROACH, I AM INFORMED THAT THE PROJECT HAS EXPLOITED THE MOST RECENT TECHNOLOGIES IN ORDER TO TAKE ADVANTAGE OF THEIR EASE OF APPLICABILITY AND COST EFFECTIVENESS. IT IS THUS, THAT THE CUTTING EDGE TECHNOLOGY OF WORLDSpace IS APPLIED TO THIS EFFORT. THROUGH THE RANET PROJECT, IT WILL BE POSSIBLE TO DOWNLOAD REAL-TIME VALUE-ADDED CLIMATE INFORMATION TO A COMPUTER IN FORM OF TEXT, IMAGES, VIDEO AND SOUND AT ANY PART OF THE COUNTRY, EVEN THE REMOTEST RURAL AREA, WITHOUT THE NEED FOR MAIN-GRID ELECTRICITY, INTERNET CONNECTIVITY OR EVEN TELEPHONE CONNECTIVITY.

THIS HAS BEEN MADE POSSIBLE BY THE USE OF WORLDSpace DIGITAL RADIOS THAT CAN RECEIVE DIGITAL DATA ANYWHERE IN AFRICA.

I AM GLAD TO NOTE THAT THIS SERVICE WHICH IS WORTH MILLIONS OF DOLLARS IS RENDERED FREE OF CHARGE BY THE WORLDSpace FOUNDATION FOR THE IMPROVEMENT OF QUALITY OF LIFE FOR PEOPLE IN RURAL AFRICA. I AM ALSO HAPPY TO NOTE THAT THIS TECHNOLOGY IS THE BRAIN CHILD OF AN AFRICAN, DR. NOAH SAMARA FROM ETHIOPIA.

I AM ALSO INFORMED THAT ANOTHER TECHNOLOGY APPLIED IN THIS PROJECT IS THE USE OF RURAL RADIO STATIONS OF LIMITED REACH OF ABOUT 25KM RADIUS. THE RADIO STATIONS THEMSELVES ALSO RUN ON SOLAR POWER AND CAN, THEREFORE, BE INSTALLED ANYWHERE IN THE COUNTRY.

IN ORDER TO ENSURE THAT LOCAL PEOPLE RECEIVE INFORMATION, RADIOS THAT OPERATE ON WIND-UP AND SOLAR ENERGY WITHOUT THE NECESSITY OF BATTERIES WHICH ARE QUITE EXPENSIVE ARE ALSO INCLUDED IN THE PROJECT.

I MUST COMMEND THE RANET PROJECT TEAM FOR THEIR INNOVATION AND FOR EMPLOYING COST-EFFECTIVE TECHNOLOGY.

MR CHAIRMAN, WE RECALL VIVIDLY THE FLOODS OF 1997 THAT WERE RELATED TO EL-NINO PHENOMENON. WE ALSO RECALL THE DROUGHT OF 1999 AND YEAR 2000. IN BOTH OF THESE EXTREME EVENTS, THERE WAS GREAT LOSS IN PROPERTY AND LIFE. THERE WAS ALSO LOSS OF LIVELIHOODS THAT RESULTED IN TRANSLOCATION OF POPULATIONS AND THE ATTENDANT POVERTY. THE GOVERNMENT TOOK COMMENDABLE MEASURES IN MITIGATING THE EFFECTS OF THESE EVENTS. HOWEVER, THE MOST SUSTAINABLE SOLUTION IS ENSURING THAT PEOPLE IN RURAL AREAS CAN COPE WITH VAGARIES OF WEATHER. THE RANET PROJECT IS A STEP IN THE RIGHT DIRECTION.

I RECOGNIZE THE IMPORTANT ROLE THAT DEVELOPMENT PARTNERS HAVE PLAYED IN SUPPORT OF THE RANET EFFORT IN AFRICA IN GENERAL AND IN KENYA IN PARTICULAR. FOR THIS I WOULD LIKE TO THANK THE AFRICAN CENTRE OF METEOROLOGICAL APPLICATIONS FOR DEVELOPMENT (ACMAD) FOR THE INCEPTION OF THIS VISIONARY PROJECT FOR AFRICA. I NOTE WITH PRIDE THAT THE KENYA METEOROLOGICAL DEPARTMENT WAS ONE OF THE PRIME MOVERS OF THE PROJECT WORKING CLOSELY WITH ACMAD BY SECONDING OFFICERS TO THE ORGANIZATION IN NIAMEY, NIGER.

I ALSO RECOGNIZE WITH GRATITUDE THE FUNDING FROM USAID, THE WORLD METEOROLOGICAL ORGANIZATION (WMO), THE COOPERATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION OFFICE OF GLOBAL PROGRAMMES

(NOAA-OGP), THE UK MET OFFICE, THE COOPERATIVE INSTITUTE FOR MESOSCALE METEOROLOGICAL STUDIES (CIMMS) AND THE UNIVERSITY OF OKLAHOMA IN THE USA.

IN ORDER TO SUCCEED, IT IS IMPERATIVE THAT THE SYNERGY HEREBY INITIATED INVOLVING LOCAL ORGANIZATIONS SUCH AS THE KENYA AGRICULTURAL RESEARCH INSTITUTE (KARI), THE KENYA MEDICAL RESEARCH INSTITUTE (KEMRI), MINISTRIES OF COMMUNICATION, HEALTH, AGRICULTURE AND LIVESTOCK AND NGO's ARRIVE AT A SUSTAINABLE WAY OF PREPARING THE INTENDED PRODUCTS. FOR THIS I WISH TO URGE YOU TO WORK TOGETHER IN HARMONY.

THE OBJECTIVES OF THE WORKSHOP, I AM INFORMED, INCLUDE FORMULATION OF A CATALOGUE OF SPECIALIZED PRODUCTS USEFUL TO THE RURAL COMMUNITIES AS WELL AS IDENTIFYING MEMBERS OF THE NATIONAL RANET TEAM AND GAINING THEIR COMMITMENT. I WISH YOU EVERY SUCCESS IN YOUR ENDEAVOUR AS YOU FINALIZE A NATIONAL RANET IMPLEMENTATION PLAN.

I NOW, WISH TO WELCOME ALL OUR VISITORS FROM OUTSIDE KENYA TO THIS BEAUTIFUL COUNTRY. TAKE TIME TO VISIT OUR TOURISTIC SITES AND MEET THE HOSPITABLE PEOPLE OF KENYA.

MR CHAIRMAN, I NOW HAVE THE PLEASURE OF DECLARING THE FIRST RANET WORKSHOP ON DISSEMINATION OF VALUE ADDED CLIMATE INFORMATION TO RURAL AREAS OFFICIALLY OPEN.

## ANNEX III

### FIRST RANET WORKSHOP ON DISSEMINATION OF VALUE-ADDED CLIMATE INFORMATION TO RURAL AREAS; NAKURU, KENYA: 10 TO 13 DECEMBER 2001

#### LIST OF PARTICIPANTS

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ANNEX IV

PRESS REPORTS

RADIO

The RANET KENYA project was discussed in two radio programmes and one television programme on the Kenya Broadcasting Corporation. The interviews were 15 minutes on television and thirty minutes on radio. The interviews were conducted in English and Kiswahili languages.

NEWSPAPERS

The major newspapers were present to cover the workshop. We gained the much-needed publicity that generated interest and positive debate.

