



Inter-Agency Consultation Meeting on User Interface Platform (UIP)

**Agriculture, Food Security and Water Sectors of the
Global Framework for Climate Services**

**FAO, Rome, Italy
26-28 September 2011**

FINAL REPORT

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Participants in the Inter-Agency Consultation Meeting on User Interface Platform (UIP) Agriculture, Food Security and Water Sectors of the Global Framework for Climate Services

Meeting Report

1. Introduction

The Interagency consultation meeting on the User Interface Platform (UIP), Agriculture, Food Security and Water Sectors of the Global Framework for Climate Services (GFCS) was held from 26-28 September 2011 at the Food and Agriculture Organization, in Rome Italy. The list of participants at the meeting is attached as **Annex 1** to this report. The Programme is presented in **Annex 2**.

The vision for the User Interface Platform for the Agriculture, Food Security and Water Sectors is '*To enhance the applications of climate information and products in the agriculture, food security and water sectors through improved interactions between climate service providers and user sectors at the global, regional and national levels*'. The meeting was organized by the World Meteorological Organization (WMO) and the Food and Agriculture Organization (FAO), to further partnerships and to develop recommendations for the implementation of the GFCS-UIP. The concept note for the meeting, identifying the objectives and specific outcomes expected from the discussions, is shown in **Annex 3**.

The meeting co-chairs Ray Motha (USDA, USA) and Ami Snorrason (IMO, Iceland).

2. Opening of the Meeting

Alexander Muller, Assistant Director General of FAO and Mannava Sivakumar, Director, Climate Prediction and Adaptation Branch of WMO welcomed participants to the meeting. They noted in particular the real and pressing needs of society at global, regional and national scales for useable, authoritative climate information, with which to build resilience and effectively manage risks and opportunities related to climate variability and change, and the need for the GFCS including its inherent collaborative approach on climate services. Welcome addresses of Muller and Sivakumar are attached in **Annex 4** and **Annex 5** respectively.

3. Session II: User Interface Platform in GFCS (Chair: Peter Holmgren, FAO)

Two presentations were made in this session by Mannava Sivakumar and Bruce Stewart of WMO. The goal of the GFCS is to 'Enable better management of the risks of climate variability and change and adaptation to climate change at all levels, through development and incorporation of science-based climate information and prediction into planning, policy and practice'. The GFCS is needed because even though some level of climate services is available in most countries, climate services are only at a fairly basic level in about 70 countries, and the knowledge and technical capabilities that have been developed globally for climate services is not fully exploited wherever needed. Considerable capacity development will be needed with respect to infrastructure and the technical, human and institutional capacities needed to provide high-quality climate services.

It was noted that a 'High Level Taskforce (HLT) on the GFCS produced an excellent report on the GFCS in early 2011 with recommendations for its implementation. The HLT described five key 'pillars' for the GFCS, including observations and monitoring; research, modeling and prediction; the Climate Services Information System (the operational heart of the GFCS); a User Interface Platform; and Capacity Building. The UIP is intended to bring climate-sensitive sectors together, to establish sectoral platforms, provide feedback channels (between users/sectors and the other components of the GFCS), develop a strategy to monitor the implementation and effectiveness of the GFCS, and a communications programme, *inter alia*. The HLT recommended a set of 8 guiding principles for implementation and operation of GFCS, and placed the highest priorities on national capacity building in developing countries, and implementation of the regional elements of the Framework (e.g. Regional Climate Centres). For the first few years of GFCS implementation, four priority sectors were identified which include the agriculture, water, health, and disaster risk reduction. In conclusion, WMO welcomed the active participation of all agencies and organizations

in the development of the UIP components related to agriculture, food security and water. The meeting agreed that an essential precursor to effective national climate services was climate observations, with the required density and quality.

In elaborating on the UIP, it was noted that services must be designed in consultation with users. The UIP needs to facilitate identification and description of the user's requirements, and communication of these to the climate community (observations, analysis, research, products, forecasts, etc.). These GFCS components must then design and provide climate services to meet these needs. The GFCS will require new competencies including interdisciplinary sciences/knowledge, which will need multidisciplinary training and communications.

Ray Motha and Arnie Snorroson, Co-Chairs of the Meeting described the Meeting Concept and Expected Outcomes as outlined in Annex 5. The meeting agreed that it is important to build the GFCS and UIP on existing mechanisms, and to aim to address the needs of the most vulnerable. It noted the complexity of users across, and within, sectors, and that it would be a challenge to develop a framework that would apply well to all sectors, in all countries. It was stressed that climate services for agriculture, water and the security of food and water, were very much about saving/protecting lives.

4. Session III: Needs for Climate Services in the Agriculture, Food Security and Water User Sectors at the Global and Regional Levels (Chair: Roger Stone, University of Southern Queensland)

Four presentations were made in this session by representatives of UN Agencies ie., Michele Bernardi, FAO; Anil Mishra, UNESCO; Carlo Scaramella, WFP and Sheila Mwanundu, IFAD. The final presentation in the session was made by Mark Svensen, International Commission on Irrigation and Drainage. Requirements for climate services for agriculture and food security, water, enhanced risk management, food security and resilience, agricultural development, and for irrigation and power were covered in these presentations.

Key points raised in discussion included the following:

- With respect to the use of reanalysis and satellite data in modeling efforts, including for forecasting, the meeting agreed that these are valuable sources of data, but that these should not be considered replacement for observed local data. It is necessary to continue the effort to increase station density over land and to develop and exchange high quality local observations, both current and historical. It was further noted that there has been a proliferation of rainfall estimates available over the Internet, but that these can be quite wrong when compared to observed local data. Such products need to be identified, evaluated, validated, compared.
- The UNESCO commitment to education is multidisciplinary, cutting across human, biological and other systems. A significant and multidisciplinary effort will be needed around the world to develop the wide range of capacities needed in an effective GFCS, including its operational aspects as well as the capacity of users everywhere to understand and apply climate information.
- There are many different types of users, at all levels, across all sectors, and even within sectors. The most vulnerable users need to be identified; the needs for climate information and products for all users must be defined. Stakeholder mapping could identify certain core categories of users, each with different needs. It will be useful to conduct 'market research' to identify what users need.
- There is little information available on the extent to which users access, understand and apply the currently available climate information and products. Therefore it is not known to what extent the EWS are effective for users. While there is, in many regions, a lot of

information available, it is known that information fails to reach the decision makers, or even when it reaches, remains unused. The process should be understood in order to improve the outcomes.

- Availability of, and access to, high quality data at local scales is needed for many users, and purposes. WMO Resolution 40 is WMO's policy on data and supports free and open data exchange. There is no doubt, however, that in some countries, there are constraints placed on making data available to agencies, researchers, other countries, etc, and this (if continued) would negatively affect the efficacy of the GFCS. In that respect, and because Res 40 may not be as explicit on climate data as is needed to implement the GFCS, WMO is undertaking a review of Annex 1 of Res 40.
- Quality of information and products is critical. Standards are needed, for observing, for data, for data management and analysis, for modeling, etc.
- Uncertainty in climate information needs to be dealt with. The causes of uncertainty need to be identified and understood by users, and users require information and methods that will assist them in using information that has uncertainly.
- Long term sustainability of critical programmes will be required for an effective GFCS.
- Vulnerability of people, systems, organizations, communities, etc needs to be evaluated and included in decisions on GFCS priorities. The HLT report is focused on empowering the vulnerable. A number of organizations (e.g. IFAD) work directly with communities and people, and are helping to develop resilience and capacity to cope. Many vulnerable groups need assistance in merging their traditional knowledge (which may no longer be reliable) with science-based information (which has uncertainties and may also not be 'correct'). Extension communities can be a valuable asset in interface between technical providers and users.
- The pace of technology development appears to be outstripping capability in some developing countries. To assist them during the phase of capacity development, regional institutions can play a powerful role (e.g. river basin organizations, or RCCs, *inter alia*).
- There appears to be a tendency for large organizations to try to do everything for themselves (e.g. for observations, research, assessment, etc), but this can have several negative effects, including lack of adherence to standards (resulting in dubious quality) and inefficient use of the few resources with which these agencies have to work with. There are reasons why entities prefer to be 'stand alone', but under the GFCs, it is hoped that they would be more collaborative with the mutual goal of being more effective from the user's perspective, with more resources being used to help the users at local scales.
- A principle of GFCs should be that when providing information to users, the information, products and messages should be useful from their perspectives. One corollary here is that if users need something that is not possible yet (e.g. advance forecasts of onset dates of rainy seasons) GFCS needs to work towards the research needed to develop the required skills and tools, and in the meanwhile communicate more effectively how to use what is available for better outcomes.
- There is a wide range of capabilities in countries, and one priority is to enhance the capacity development in the most vulnerable and currently least capable. This could take several forms . HLT strongly recommended the development of Regional Climate Centres (RCCs) as a primary goal, to assist developing countries while the longer term capacity is developed at national scales.
- Collaborations between government entities and climate users (e.g. farmers) and relationships with non-government organizations that provide services (e.g. academia,

NGOs, etc) will vary from one country to the next. Under GFCs, national frameworks and collaboration across these various players will be needed.

5. Session IV: Current Status of Interactions between Climate Service Providers and End Users in the Agriculture and Water Sectors (Chair: Michele Bernardi, FAO)

Five presentations were made in the session by Paulo Sentelhas, University of Sao Paulo, Brazil; Arni Snorrason, the Icelandic Meteorological Office; Barnabas Chipindu, University of Zimbabwe, Zimbabwe; A.K. Gosain, Indian Institute of Technology (Delhi), India and Andrew Dansie, United Nations University Institute for Water, Environment and Health, Canada. The current status of interactions between climate service providers and users in the agriculture and water sectors was presented through examples from Brazil, Iceland, Zimbabwe and India. Views on Knowledge management and mobilization were provided by the United Nations University IWEH.

Key points raised in discussion included the following:

- Communications between providers and users, and collaboration between various providers (from global, regional and national levels) in a country vary widely. If government makes application of certain information mandatory, (e.g. as in Brazil, where farmers can only get crop insurance if they use the sowing information provided), it does get used.
- WMO's new initiative Global Cryosphere Watch, bringing together communities for observations, research and services related to cryosphere, is a GFCS-relevant global programme heavily relying on multidisciplinary partnerships and international cooperation, and may play a strong role in activities relevant to the changing nature of ice, snow and glaciers and the potential impacts on water resources, *inter alia*.
- When NMHSs or other data proprietors charge for their data and/or products, some users (often the most vulnerable) cannot afford them. Research is also affected by the lack of access to local data. Also, procedures for acquiring data in this manner are cumbersome and can result in delays in getting the information required.
- RCOFs are being used at national scale and in some places, the NMHSs participate in National Climate Outlook Forums in which local users can interact with the providers.
- The concept of separate UIPs for specific sectors was proposed (e.g. for water).
- Data should have the source identified. Not all data or products are of equal value. Authenticity and quality must be protected.
- Once a community has become engaged on one matter relevant to them (e.g. deforestation and its impacts on lives and livelihoods), effective introduction of related information (e.g. climate) should be more likely.
- In countries where there is little data, services will be limited. The GFCS can, however, make some services available in this case. Through global and regional centres and use of satellite and reanalysis data (*inter alia*), useable information can be provided. Capacity development at national scale can improve this situation over time.
- UIP has three aspects, based on HLT assessments. First is to assess user requirements for climate information and products. Second is to monitor GFCS 'health' (effectiveness, progress, etc). Third is to ensure the two way dialogue to ensure that the service providers incorporate and act on user feedback.
- Sovereignty over data is important for some countries. GFCS may need a special focus group to work on access to data. This group should demonstrate the benefits that arise from sharing the data, and its subsequent use.

- Technologies using geoinformatics, simple user interfaces, Internet etc. are combined in new Knowledge Integration and Management (KIM) systems that can hold extensive numbers of documents that are searchable through SQL queries (all texts are searchable, and so is the metadata on each file). Users can add information (e.g. geo-tagged photos from smart phones) and keep files up-to-date with progress, and the method facilitates group collaboration and communication. The UNU KIM is developed with the users as collaborators – a concept in line with GFCS UIP principles. Quality (of the information contained in the system) is discussed by collaborators, and is embedded in the MOAs set up to guide what is shared.

6. Session V: Mechanisms for Improving Interactions with Users in the Agriculture, Food Security and Water User Sectors, and Session VI: Advances in the Information and Communication Technologies (ICTs) in the Agriculture, Food Security and Water Sectors (Chair: Bruce Stewart, WMO)

Four presentations were made in this session by Peter Holmgren, FAO; Ania Grobicki, Global Water Partnership (GWP); Giacomo Rambaldi, The Technical Centre for Agricultural and Rural Cooperation (CTA), Netherlands and Julie van Blik, International Water Management Institute (IWMI). Mechanisms for improving interactions with users in the Agriculture, Food Security and Water User Sectors were covered in the presentations from FAO and the GWP. Views on the use of Information and communications technologies were provided by CTA and IWMI.

Key points raised in discussion included the following:

- The user interface is context specific and depends on needs of the end users.
- There is a significant gap between the information providers and users. Role of User Interface Platform (UIP) should be clear for all; end users, intermediaries and climate information providers.
- Mechanisms for improving interactions between users, information providers and intermediaries should build on existing set up and tune to the emerging needs.
- Climate impacts are local; and interface should also happen at local level to address the needs of vulnerable groups (small farmers, fishers and forest dwellers).
- The mechanisms for improving interactions among information providers, intermediary agencies and end users should consider bottom-up approaches to effectively address the user needs.
- There could be a benefit from dividing the UIP component into two groups (high level and regular users). Intermediaries can play a helpful role in communicating technical information to non-technical users.
- In water research, sometimes the factors such as population growth are larger drivers for water scarcity than the climate drivers.
- Climate data are critical for water and hydrological research. It is important to include the relevant NMHSs in a project as partners and collaborators, and not to consider them only as data providers. It is important to be part of the effort, and to share in the benefits of the results.
- To support an effective GFCS, data sharing needs to be two-way – the water community needs also to share their data with the climate community.

- Agreements for data sharing for research may benefit (case-by-case) on agreements that the research community will not, itself, share those data with anyone else.
- Regarding data availability, there may be a need to look at not only improving density of observing sites, but also selecting specific, priority locations, based on specific needs (for research, for user requirements, etc).
- There are excellent partnership models to learn from (e.g. GWP). It may be feasible that the GWP partners could have some influence with GFCS implementation of observations component.
- Agencies working directly with vulnerable communities (e.g. CTA) where technology-based solutions are not yet feasible have learned that top-down approaches to sharing information tend to be ineffective. Also, scale is important. Much climate information available for users is at national or regional scale, not local. Understanding the recipient requires effort to connect, to be relevant to them, and requires understanding of and respect for traditional knowledge and decision processes of the people. It is important to ensure that the users have a voice, that they recognize that they and their traditions are respected. Engagement of the community is important, but not easy to achieve. The process of engagement is important, as well as the results.

7. Session VII: Operational Strategy for UIP Implementation in GFCS during 2013-2017 (Chairs: Ray Motha and Arni Snorrason)

The meeting divided into two break-out groups. The intent was to focus on development of an operational strategy for UIP Implementation in GFCS during 2013-2017. The vision of the exercise is to enhance the application of climate information and products in the agriculture, food security and water sectors through improved interactions between climate services providers and user sectors at the global, regional and national level. The User Interface Platform will provide a means for users, user representatives, climate researchers and climate service providers to interact, thereby maximising the usefulness of climate services and helping develop new and improved applications of climate information.

Group 1 focused on the Agriculture and Food Security Sector. Group 2 focused on the Water Sector. Each group conducted their discussions with respect to the following Terms of Reference:

1. Review the needs for climate services in your sector at the global, regional and national levels;
2. Identify the major areas of improvement needed to foster closer interactions between climate service providers and users;
3. Discuss and recommend appropriate mechanisms for improving interactions with users;
4. Propose ways to improve communication between climate service providers and users;
5. At each of the global, regional and national levels, identify the structure and process steps to be undertaken in the implementation of the UIP;
6. Identify, describe and propose 3-4 case studies that could be undertaken to show the benefits of an integrated approach to the UIP, linking existing mechanisms and if necessary developing linkage mechanisms, at the global, regional and national levels;
7. Provide advice and guidance on how we build capacity to implement the User Interface Platform in the developing world.

8. Session VII: Plenary Discussion on Operational Strategy for UIP Implementation in GFCS during 2013-2017 (Chairs: Ray Motha and Arni Snorrason)

8.1 Paulo Sentelhaus who chaired Break-out Group I (Agriculture and Food Security Sector) presented its findings under each of the seven terms of reference.

8.1.1 Review the needs for climate services in your sector at the global, regional and national levels:

- Identification of the user (e.g. the agriculture industry (livestock, sugar, forestry, fisheries (aquaculture and ocean) etc)), extension officers, farmers, policy makers, researchers, NGOs, media, insurance/finance, transportation (whole supply chain)...etc
- Data (climate, biological, phenological...); metadata; data quality
- Data Rescue (DARE) and digitization
- Downscaled information from global and regional climate models including temporal resolution,
- Build linkages between climate and weather information
- Rainfall distribution, information on rainfall onset and cessation
- Climate forecasts at seasonal and longer scales
- Information on extremes and forecasts of extremes
- Early Warning Services
- Crop-related agroclimatic indices
- Information on ENSO and other global/regional indices
- Crop and yield model outputs (joint Clim-Ag effort)
- Special data needs for pest and disease forecasts and for storage
- Techniques for operating systems (e.g. irrigation, reservoirs) under changing climate conditions; models of groundwater availability under changing climate conditions (joint Clim-Wat-Ag effort)
- Improved knowledge of the interactions between climate and fertilization, and other interdisciplinary applied climate research
- Holistic assessment of climate impacts
- See page 185 for HLT list of GFCS expected outputs (incl #2)

8.1.2 Identify the major areas of improvement needed to foster closer interactions between climate service providers and users:

- Better decision support systems
- More effective use of indigenous knowledge
- Improved reliability and credibility of climate information and products to build trust
- Expanded and enhanced RCOFs and NCOFs
- Awareness programmes on climate variability and climate change (for users) and on users and their requirements (for providers)
- Extension and intermediary services maintained and enhanced through training
- Interpretation of climate information to be understandable to users
- Data analysis and model calibration; interpolation methods
- Use of additional data sources (e.g. remote sensing)
- Packaging of information to suit users
- More active engagement of climate providers in contingency planning that influence development of seed and forage banks, e.g.
- Ensuring the most vulnerable receive all services, including warnings
- Training of the media in climate reporting
- Education of farmers (e.g. farmers schools, etc)
- Obtaining and acting on feedback from users

8.1.3 Discuss and recommend appropriate mechanisms for improving interactions with users:

- Forums (RCOFs, NCOFs, etc), roving seminars (direct interaction)
- Farmer field schools
- Evaluate these mechanisms for their effectiveness, and feed this back into the system for improvement
- Include all components of the full value chain involved in agriculture (the millers, the exporters, etc)
- Aim for full integration of climate and the various agriculture-relevant activities (through secondments, e.g.)
- Set a priority on providing climate data and support to interdisciplinary climate/agriculture research
- Improve relationships between research, NMHSs and intermediary organizations for operationalizing research outputs into services
- Improve relationships with Ag-relevant industries (e.g. insurance and instrument providers (inter alia))
- All universities to establish focal points for climate services
- NMHSs to establish focal points for interaction with universities
- Explore avenues to establish stronger linkages with policy makers, e.g. the high level (Ministerial) meeting on national drought policy (HMNDP) being organized in March 2013
- Promote integrated approaches for floods and droughts, e.g. APFM and IDMP, using the Help Desk model for user interaction

8.1.4 Propose ways to improve communication between climate service providers and users:

- Develop and consistently use common language (in packaging)
- Use local (indigenous) languages
- Develop standardized ways of producing information (using language comfortable to the user)
- Link science-based information and traditional knowledge
- Encourage youth interest in climate and agriculture issues
- Engage policy in communications
- Identify the simplest information that can be delivered to meet user's requirements
- Produce information at times needed for user decisions, especially for extreme events (decision processes of users may not currently align with development of climate products)
- Improve and disseminate information (case studies) related to the value of the climate information (e.g. the potential economic return from effective use of climate information)
- Improve communication channels: web portals, social media, dedicated web links
- Get feedback from users and act on it
- Improve communication and understanding of uncertainty and probabilities
- Publish verification results to increase confidence in products
- Help users to manage their expectations (e.g. to understand the limitations of climate science)

8.1.5 At each of the global, regional and national levels, identify the structure and process steps to be undertaken in the implementation of the UIP:

- Develop an appropriate structure for each level...
- Conduct stakeholder mapping (scale diagram, with decision points for each stakeholder, tactical and strategic, for each Ag industry), incl. classification of stakeholders
- Conduct hazard mapping/crop zonation mapping
- Ensure provision of climate inputs to and participation in vulnerability mapping
- Develop better linkages - multidisciplinary
- categorization of mechanisms,
- identification of existing mechanisms, sector basis, etc.).

- institutional mechanisms and policies
- focus on reduction of top-down approaches and improving bottom-up efforts
- recall that the Agriculture sector is large and diverse, complex. Impacts are often felt at local scales. The interface (climate-Ag) should be well developed at all appropriate levels. (policy, investment, operational, EW operational, etc)
- Devise ways of continuous (sustainable) interaction with users (COFs, e.g. are often "occasional"). e.g. mobilize users to be more active in use and dissemination of climate information
- encourage free exchange of data and climate information
- Consider what is appropriate for risk management, for adaptation (processes different for these time scales).

8.1.6 Identify, describe and propose 3-4 case studies that could be undertaken to show the benefits of an integrated approach to the UIP, linking existing mechanisms and if necessary developing linkage mechanisms, at the global, regional and national levels:

- What would 'success' look like? What should be in a case study?
- User-targeted climate products and information (designed to meet user's needs); at a scale useable by the user; understood and taken up by user (perhaps facilitated by extension service or COF process); to positive effect (increased productivity or revenue) from the user's perspective; with feedback (on quality of the information, products and forecasts, and their effects (incl. user confidence), and any gaps) to all parts of GFCS where needed
- Maximize on what is already available, where feasible
- Use existing studies where available, from reliable sources, where these fit the profile, but also include new ones that include new challenges
- Regional in scope
- Range of typology (livestock, fisheries, cereal, food security, planning...etc)
- Include range of time scales (for risk management and adaptation)
- Include risk and vulnerability mapping
- Consider capability to "upscale" the knowledge to larger regional and global levels, to transfer the knowledge to other regions
- Include all relevant socio/economic factors – costs and benefits
- Identify how UIP-GFCS approach/priorities helps – end to end, from assessing the needs, to delivering the products to decision-makers at each relevant level, with feedback integrated, with identification of effective partnerships at all levels...ID best practices
- Case study 1: Asia
 - Focus: soybean (weather sensitive crop), irrigated and rainfed
 - Region: central India
 - including pests and diseases, fertilizers, planting
- Case study 2: Africa
 - Focus: livestock (esp. cattle)
 - Region: southern Africa
 - including pests and diseases
- Case study 3: South America
 - Focus: community-based agriculture and food security, requirements for risk management and adaptation to climate change
 - Region: Ecuador
- Case study 4: Europe
 - Focus: cash crops (e.g. grapes)
- Other case studies could be considered for development, e.g. cash crops (e.g. soybean) in South America, Rice or wheat in Asia, etc. A literature survey may be needed

8.1.7 Provide advice and guidance on how we build capacity to implement the User Interface Platform in the developing world:

- Inventory of existing global, regional and national services, their management structures and partnerships, and gaps (e.g. data)
- Establish or expand on mechanisms for providing interaction with users (e.g. RCOFs, NCOFs and other forums, including user-driven forums), and any gaps (e.g. sustainability of COFs)
- From this, identify, document and share those practices, mechanisms that best fit the UIP objectives
- Build effective collaboration with farmers associations, cooperatives, NGOs, research institutions, extension services
- Identify ICT resources available, and gaps
- Facilitate capacity building through training (including online and distance learning), development of infrastructure and resources the ICT needs,
- Identify sources of financing, and mobilize these
- Optimize the available resources through cooperation and agreements; harmonize, reduce duplication
- Base priorities for capacity development on addressing real problems
- Build and sustain the cooperation, partnerships, knowledge across all the disciplines needed for Ag and food security (climate science, applied climate sciences (Agromet), user disciplines, disaster management, communications specialties, analytical specialties,,etc)...
- For effective use of resources, build capacity at regional scale (e.g. through Regional Climate Centres (RCCs))
- Identify methods for monitoring use of the system (the GFCS), for continual system improvement
- Regarding education and training, Agmet curriculum is revised and published, and CCI is working on climate curricula; need to harmonize climate curricula in collaboration with universities and other training institutions (climate and user).

8.2. Mr Bruce Stewart, Rapporteur of the Break-out Group on Water Sector, presented its findings under each of the terms of reference.

8.2.1 Review the needs for climate services in your sector at the global, regional and national levels:

- Climate data, time series and statistics (free and unrestricted access) (P, E, T, SM, Q, etc)
- In the longer term the water community requires products and services on the river basin scale
- Weather in an historical context
- Hydrological design climate data (e.g. PMP, IFD)
- Climate change scenario data (P, E, T, SM, Q etc)
- Drought indices
- Seasonal, decadal outlooks etc
- Explanatory data – uncertainty, meta data
- Identifying the best practices-sets of data
- Improved understanding of the science and its limitations

8.2.2 Identify the major areas of improvement needed to foster closer interactions between climate service providers and users:

- Improved understanding and communication of uncertainty
- Better access to hydrometeorological data – free and unrestricted access – Application of WMO Resolutions 40 and 25 – Review the annexes on climate data that should be exchanged to meet requirements – Provide annexes on hydrometeorological data for Resolution 25.
- More user focussed and accessible services

- Knowledge of the limitations of the science
- More emphasis on user driven approach- who are the end users?
- Lots of products available – but what is the quality – some confusion on what to use and when to use it – lack of coherence of information – push of information – gate keeper?

8.2.3 Discuss and recommend appropriate mechanisms for improving interactions with users:

- Many types of mechanisms – face-to-face, surveys, internet-web,
- Variety of approaches within these
- Mechanisms must be fit-for-purpose – smaller matrix around each purpose, e.g. water demand and allocation including ecosystem services, flood management, drought management (risk management)
- Technical working groups
- Intergovernmental bodies
- Outreach groups
- Participatory groups
- Web-based activities – UNU example
- Ministerial forums
- Technical Commissions of WMO
- Joint technical commissions
- Existing partnerships/networks – GWP
- Regional economic commissions
- Existing user groups, e.g. ICID
- UN Water
- Other UN – NGO linkage mechanisms
- Sectoral forums, e.g. energy, local government
- ICSU, IUGG, CGIAR
- Private Sector, WBCSD
- Professional Groups, IWA

8.2.4. Propose ways to improve communication between climate service providers and users:

- Clear and transparent on outputs/outcomes
- Must be two way communication
- Open forums, seasonal climate outlook sessions
- Feedback mechanisms on the web
- Internet – UNU example of KIMUNU
- Publications
- Policy briefs
- Newsletters
- Include guidance on products

8.2.5 At each of the global, regional and national levels, identify the structure and process steps to be undertaken in the implementation of the UIP (e.g. stakeholder mapping, categorization of mechanisms, identification of existing mechanisms, sector basis, etc.).

- UIP - Dynamic – will grow and evolve - engagement between users and providers – transparent monitor and trusted gate keeper?
- Two-way flow
- Ownership will be an essential requirement (not just good ideas)
- Geographical element as well – in the longer term the water community requires products and services on the river basin scale
- Public good/societal value
- Continuous and sustainable - transparent
- Structure/Process steps
 - Purpose of the UIP – HLSG Report

- Define/scope climate services – see GFCS - CSIS
- Identify the users and categorise them (map) (in particular for the water sector)
- Identify potential future users
- Get all stakeholders together early in the process
- For the water community – improved cooperation between RBOs-NHSs-NMSs (including the exchange of data) for the provision of climate related services at the basin scale.
- Identify and evaluate the existing user interface mechanisms/models e.g. Aviation, Network models (GWP), RCOF, APFM HelpDesk
- Map these mechanisms onto the stakeholder/service matrix
- Determine the pros and cons of the mechanisms – where are they best applied – which users, etc.
- Undertake a strategic assessment of gaps/capabilities
- Propose an approach for each community and/or global, regional or national perspective.
- Consider using the Water, Climate and Development Programme for Africa as a component and a model for further development of a UIP for Africa.
- Geographical Example : Africa
 - Regional Groupings – Economic Communities
 - 5 GWP groups
 - Climate Institutions – Gaborone, Niamey, Nairobi, Addis Ababa –Climate Services
 - ARCOF – Seasonal forecast specific purpose – Adhoc
 - AMCOW - AMCOMET
 - Basin Authorities/Commissions
- Geographical Example : Asia
 - Not as clear – Strong national relationships
 - ICIMOD, ICHARM
 - Korean Climate Centre

8.2.6 Identify, describe and propose 3-4 case studies that could be undertaken to show the benefits of an integrated approach to the UIP, linking existing mechanisms and if necessary developing linkage mechanisms, at the global, regional and national levels.

- Case Study – Ghana – Burkina Faso – Floods – Climate data for reservoir operations
- Regional case study- network operation and maintenance in Caribbean
- Case Study - Link the GWP Water, Climate and Development Programme for Africa to the mechanisms (RCCs) for delivering the seasonal climate outlook and longer term predictions to improve the user interface.

8.2.7 Provide advice and guidance on how we build capacity to implement the User Interface Platform in the developing world:

- Professional training required – UNESCO figures - 300% increase in the water professionals in Africa need training in climate thinking as well
- Technical capability needed for maintenance and sustainability – not new sites
- Train the users in use of products and services
- Need trained support staff – to deliver the products and services at all levels (different languages, cultures, etc)
- Review and refresh existing platforms (e.g. RCOFS) to provide capabilities to improve the interface – ownership and support.

In discussion, the meeting agreed that each group had brought up important points that, combined, would contribute strongly to implementation of the GFCS UIP. The meeting appreciated the concept of the UIP as a trusted ‘gatekeeper’.

WMO offered to produce the report of this meeting within a week. The meeting agreed to provide comments quickly, and to finalize the report the week of 10 October.

WMO and FAO thanked participants and their agencies for their active and enthusiastic support. The meeting closed at 1700 hrs.

Inter-Agency Consultation Meeting on User Interface Platform (UIP) for Agriculture, Food Security and Water Sectors of the Global Framework for Climate Services

**FAO, Rome, Italy
26-28 September 2011**

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Inter-Agency Consultation Meeting on User Interface Platform (UIP)

Agriculture, Food Security and Water Sectors of the
Global Framework for Climate Services

FAO, Rome, Italy
26-28 September 2011

PROGRAMME

Vision

To enhance the applications of climate information and products in the agriculture, food security and water sectors through improved interactions between climate service providers and user sectors at the global, regional and national levels.

Meeting Co-Chairs: Ray Motha (USDA) and Arnie Snorrason (Iceland)

Monday, 26 September 2011

- Session I Opening Session**
Chair: Alexander Muller, Assistant Director General, FAO
- 0900 hrs** Welcome Address
Alexander Muller, FAO
- 0910 hrs** Welcome
Mannava Sivakumar, WMO
- 0915 hrs** Tour de table: Introduction of participants
- Session II. User Interface Platform in GFCS**
Chair: Peter Holmgren, FAO
- 0930 hrs** Global Framework for Climate Services: Climate services for all
Mannava Sivakumar, WMO
- 0945 hrs** Developing a UIP component for GFCS: background and current status
Bruce Stewart, WMO
- 1005 hrs** Meeting Concept and Expected Outcomes
Ray Motha and Arnie Snorrason
- 1030 hrs** Coffee Break

**Session III Needs for Climate Services in the Agriculture, Food Security and Water User Sectors at the Global and Regional Levels
(Chair: Roger Stone, University of southern Queensland)**

- 1100 hrs** Climate Services for Agriculture and Food Security
Michele Bernardi, FAO
- 1130 hrs** Climate Services needs for water sector
Anil Mishra, UNESCO
- 1200 hrs** Climate Services for enhanced risk management, food security and resilience
Carlo Scaramella, World Food Programme (WFP)
- 1230 hrs** Lunch
- 1400 hrs** Climate Service Needs for Agricultural Development
Sheila Mwanundu, International Fund for Agricultural Development (IFAD)
- 1430 hrs** Climate Services needs for Irrigation and Power
Mark Svensen, International Commission on Irrigation and Drainage
- 1500 hrs** General Discussion
- 1530 hrs** Coffee Break

**Session IV Current Status of Interactions between Climate Service Providers and End Users in the Agriculture and Water Sectors
(Chair: Michele Bernardi, FAO)**

- 1600 hrs** Review of Current status in the Agriculture Sector in Brazil
Paulo Sentelhas, University of Sao Paulo, Brazil
- 1630 hrs** Review of Current Status in the Water Sector in Iceland and the Nordic countries
Arni Snorrason, the Icelandic Meteorological Office
- 1700 hrs** Adjournment

Tuesday, 27 September 2011

Session IV Current status of Interactions between Climate Service Providers and End Users in the Agriculture and Water Sectors (contd)

- 0900 hrs** Review of Current Status in the Agriculture Sector in Zimbabwe
Barnabas Chipindu, University of Zimbabwe, Zimbabwe
- 0930 hrs** Review of Current Status of climate services for the Water Sector in India
A.K. Gosain, Indian Institute of Technology (Delhi), India
- 1000 hrs** UNU Platform: Knowledge Management and Mobilization
Andrew Dansie, United Nations University Institute for Water, Environment and Health, Canada
- 1030 hrs** Coffee Break

**Session V Mechanisms for Improving Interactions with Users in the Agriculture, Food Security and Water User Sectors
(Chair: Bruce Stewart, WMO)**

1100 hrs Improving Interactions with Users in the Agriculture and Food Security Sector
Peter Holmgren, FAO

1130 hrs Improving Interactions with Users in the Water Sector
Ania Grobicki, Global Water Partnership

1200 hrs General Discussion

1230 hrs Lunch

**Session VI Advances in the Information and Communication Technologies (ICTs) in the Agriculture, Food Security and Water Sectors
(Chair: Geoff Love, WMO)**

1400 hrs Use of ICTs in agriculture and rural development based on CTA's experience with ACP organizations
Giacomo Rambaldi, The Technical Centre for Agricultural and Rural Cooperation (CTA), Netherlands

1430 hrs Research needs for new decision making processes in water sector under non-stationary conditions
Julie van Bliiek, International Water Management Institute

1500 hrs General Discussion

1530 hrs Coffee Break

**Session VII Operational Strategy for UIP Implementation in GFCS during 2013-2017
(Chairs: Ray Motha and Arni Snorrason)**

1600 hrs Proposal for break-out groups and Terms of Reference
Ray Motha and Arni Snorrason

Group I: Agriculture and Food Security Sector
Group II: Water Sector

1630 hrs Meetings of the break-out groups

1800 hrs Adjournment

Wednesday, 28 September 2011

0900 hrs Meetings of break-out groups (contd.)
Group I: Agriculture and Food Security Sector
Group II: Water Sector

1030 hrs Coffee break

1100 hrs Meetings of break-out groups (contd.)

1230 hrs Lunch

Session VII Plenary Discussion on Operational Strategy for UIP Implementation in GFCS during 2013-2017
(Chairs: Ray Motha and Arni Snorrason)

1400 hrs Presentation of the reports of break-out groups

1400 hrs Group I: Agriculture and Food Security Sector

1420 hrs Group II: Water Sector

1440 hrs General Discussion

1530 hrs Coffee break

1600 hrs Discussion on the way forward
Ray Motha and Arni Snorrason

1645 hrs Vote of thanks
Filipe Lucio, WMO

1655 hrs Vote of thanks
Michele Bernardi, FAO

1700 hrs Meeting closure

Inter-Agency Consultation Meeting on User Interface Platform (UIP) for Agriculture, Food Security and Water Sectors of the Global Framework for Climate Services

**FAO, Rome, Italy
26-28 September 2011**

CONCEPT NOTE

Preamble

The World Climate Conference-3 in 2009 decided to establish a Global Framework for Climate Services (GFCS), an international framework to guide the development of climate services. GFCS is envisaged as a set of international arrangements that will coordinate global activities and build on existing efforts in order to provide climate services that are truly focused on meeting user needs, are available to those who need them and that provide the greatest benefits possible from knowledge about the climate.

The High Level Taskforce (HLT), constituted to provide a report on the implementation of the GFCS, in its recommendation 2, enumerated eight principles that should be adhered to while implementing the GFCS. Principle 8 enunciates that the “The Framework will be built through user – provider partnerships that include all stakeholders”.

To be useful climate information must be tailored to meet the needs of users. The principal categories of users are policymakers, managers, engineers, researchers, students and the public at large. Appropriate use of climate information can help individuals make more informed short- and medium-term decisions that affect their livelihoods, organizations and businesses to reduce uncertainty that affects long-term planning, and governments to choose adaptation measures that reduce vulnerability to climate variability and change.

A key to the long term success of the Framework will be its ability to interact with its user community to enable it to properly tailor climate services to meet community needs. The HLT urged that new efforts be made to develop the dialogue between providers and users and to focus on developing and implementing measures of the Frameworks success in meeting needs, and using these monitoring results to continuously evaluate and improve the overall performance of the Framework. The HLT therefore proposed that the GFCS includes a “User Interface Platform (UIP)” to link climate service providers and users with a view to building the capacity of users to make better use of climate services, collecting user requirements, assisting in the monitoring and evaluation of the Framework and promoting a global understanding of the Framework.

Approaches to User Interface Platform (UIP)

The HLT recommended that by the of end 2017, access to improved climate services should be facilitated globally in four priority sectors (agriculture, disaster risk reduction, health and water) and that active technical committees be established for each component and an active communications programme. Across all of the sectors considered, the three core demands for climate services are for planning, operations and impact assessment. Planning concerns decisions that have ongoing impacts over multi-year and decadal time scales, often for large-scale public planning and investment but also for private investment in businesses, homes and farms. Operational management involves sequences of decision making, often associated with the annual cycle of the seasons in agriculture and water. Impact assessment relates to the important activity of assessing the impact of operational and planning decisions.

The HLT recommended a three-tiered Framework approach to address global, regional and national dimensions, with an appropriate flow of data and information amongst all three levels.

National platforms can be strengthened where they are present or else developed through partnerships among national climate centres, sector organizations and civil society organizations. Regional platforms and centres can play key roles as focal points and clearing houses for countries, particularly in helping to identify and address regional needs, in sharing knowledge and exchanging data and in supporting interdisciplinary research and training. To achieve good coordination and a well-structured approach to the field, international platforms oriented to user needs will need to be strengthened.

The widespread and effective use of climate information requires significant interaction among many organizations and people, including from government, civil society, communities and business, and must involve decision makers, climate experts and sector disciplines. Such interactions do not happen by chance but require user-oriented platforms of various sorts such as industry conferences, training workshops, professional societies, sector and interdisciplinary working groups, integrated research studies, technical publications, national committees, regional forums and international programmes. These are well-proven tools in many fields but in the climate services field they exist only in fairly immature forms, if at all. This is a major gap, but at the same time it is also a big opportunity that will be addressed and promoted by the user interface platform of the Global Framework for Climate Services, building on existing interactions between climate service providers and users.

Purpose of the Inter-Agency Consultation Meeting

In order to develop the strategy for the agriculture, food security and water Sectors of UIP, it is proposed to organize an Inter-Agency Consultation Meeting on User Interface Platform for GFCS at FAO, Rome, to which representatives of different key UN agencies, international organizations and selected experts would be invited to discuss the key issues and develop the strategy for effective implementation of the UIP as an integral part of the GFCS. The outcome of this Consultation Meeting is expected to bring greater clarity on the roles of the different agencies and organizations in promoting the implementation of the UIP at the national, regional and global levels.

Vision

To enhance the applications of climate information and products in the agriculture, food security and water sectors through improved interactions between climate service providers and user sectors at the global, regional and national levels.

Specific Objectives

- 1) To review the needs for climate services in the agriculture, food security and water user sectors at the global, regional and national levels;
- 2) To assess the current status of interactions of the climate service providers with the users in the priority sectors and identify the major areas for improvement;
- 3) To discuss and recommend appropriate mechanisms for improving interactions with users in the priority sectors;
- 4) To identify and propose ways by which the advances in information and communication technologies can be put to best use in improving communications between the climate service providers and users in the priority user sectors;
- 5) To propose an operational strategy for developing a UIP implementation plan for the 2013-2017 period with appropriate case studies in different priority sectors.

Expected outcome

Identification of options for developing the UIP and a roadmap towards operational implementation

Agenda topics

- Presentations from the different UN Agencies and from representative international organizations that will inform participants on the needs for climate services in the agriculture, food security and water user sectors at the global, regional and national levels;
- Presentations on the current status of interactions between climate service providers and end users in the priority sectors;
- Proposals for mechanisms for improving interactions with users in the agriculture, food security and water user sectors;
- Presentations on the use of the advances in the Information and Communication Technologies (ICTs) in the priority user sectors and identification of promising elements for case studies;
- Discussion on the operational strategy for UIP implementation.

**Inter-Agency Consultation Meeting on User Interface Platform (UIP)
Agriculture, Food Security and Water Sectors of the
Global Framework for Climate Services**

Welcome Address

**Mr Alexander Müller, Assistant Director-General
Natural Resources Management and Environment Department
Food and Agriculture Organization of the United Nations (FAO)**

Agriculture and water sectors are the most weather and climate dependent and are the prominent beneficiaries of climate information

- Agriculture, forestry and fisheries are central to livelihoods, food security, use of natural resources and development:
 - constitute the principal livelihood of more than 70% of the world's poor.
 - accounts for about 70% of all water use worldwide and up to 95% in many developing countries
 - manages a larger portion of land and a significant fraction of carbon cycle
 - accounts, on average, for about 30% of GDP in agriculture-based countries
- Increasing weather and climate variations have an impact on the productivity of crops, forests, the incidence of pests and diseases, biodiversity, livestock, fisheries and the environmental health of food system resources.
- **“User Interface Platform”** in agriculture, forestry, fisheries and water sectors
 1. recognizes five major focus areas for which climate services are essential:
 - monitoring, data, tools and methods
 - managing risks of climate variability and change
 - managing food systems and its resources
 - advancing payment for environmental services
 - promoting risk transfer mechanisms
 - contributing to food security information and emergency response
 2. plays a major role in reducing the negative impacts of climate on agriculture, forestry, fisheries and water and enhances the opportunities of favourable situations

Climate services and user interface should recognize existing gaps and future challenges

- There are existing **gaps** in relation to provision of need-based climate services to users in agriculture and water sectors:
 - monitoring infrastructure is weak and is declining in some regions
 - available data is not digitized and difficult to use
 - climate information is often not sufficient for local level planning
 - Link between information providers and users is not strong enough
 - timely and trusted communication of climate information is under developed
- All our efforts for the effective use of climate information should be adapted in light of the **challenges of the future.**
 - World's population is expected to reach 9.1 billion by 2050
 - Requires raising overall food production by some 70%
 - Natural resources, namely land, water and biodiversity, will become scarcer

- Climate change adds complexity to the above dual challenge of meeting food demand and maintaining the sustainability.

UN agencies, international organizations and national hydro-meteorological, agriculture and water services have a major role to play

- Improve institutional mechanisms to bridge the gap between weather and climate information providers and users at global, regional, national and local levels
- Develop methods, tools, data and information for assessments of climate impacts and adjustments of food systems to climate fluctuations.
- Promote capacity development to interpret the climate information; the preparation of localized impact outlooks and improved management options for the agriculture, forestry, fisheries sectors
- Ensure that agricultural policies, national extension services, agronomic research and national hydro-meteorological services develop synergies to deliver need-based climate information products for the most vulnerable communities
- Promote the use of low-cost Information and Communication Technologies (ICTs), such as mobile phones to reach the most vulnerable farmers, herders and fishers
- Enhance further cooperation and collaboration among Climate Services Information Systems, user interfacing platforms and users at global, regional, national and local levels

**Inter-Agency Consultation Meeting on User Interface Platform (UIP)
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Welcoming Address

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Director, Climate Prediction and Adaptation Branch
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On behalf of the Secretary-General of WMO, Mr Michel Jarraud, I have the great pleasure in welcoming you all to this Inter-Agency Consultation Meeting on User Interface Platform (UIP) for Agriculture, Food Security and Water Sectors of the Global Framework for Climate Services. At the outset, I wish to convey my sincere thanks to Dr Alexander Muller, Assistant Director General of FAO for agreeing to host this meeting here in Rome and for putting at our disposal the wonderful meeting facilities of FAO. Dr Peter Holmgren, Director of the Climate, Energy and Tenure Division, Dr Michele Bernardi and all their colleagues have been very active in liaising with the WMO Secretariat in organizing this meeting and in ensuring that all of us felt most welcomed in FAO and I convey my sincere thanks to all of them.

From WMO, we are indeed very pleased that colleagues from FAO, UNESCO, IFAD, WFP and UN ISDR and the Global Water Partnership are here with us to contribute to the discussions at this meeting. We are also grateful to Dr Raymond Motha, Chief Meteorologist, United States Department of Agriculture and Dr Arnie Snorrason, Director, Icelandic Meteorological Office for agreeing to co-chair this meeting and guide us during our discussions.

Let me briefly present to you as to why this Inter-Agency Consultation Meeting is being organized. The World Climate Conference-3 in 2009 decided to establish a Global Framework for Climate Services (GFCS), an international framework to guide the development of climate services. GFCS is envisaged as a set of international arrangements that will coordinate global activities and build on existing efforts in order to provide climate services that are truly focused on meeting user needs, are available to those who need them and that provide the greatest benefits possible from knowledge about the climate.

A key to the long term success of the GFCS will be its ability to interact with its user community to enable it to properly tailor climate services to meet community needs. The High Level Taskforce (HLT), constituted to provide a report on the implementation of the GFCS, urged that new efforts be made to develop the dialogue between providers and users and to focus on developing and implementing measures of the Frameworks success in meeting needs, and using these monitoring results to continuously evaluate and improve the overall performance of the Framework. The HLT therefore proposed that the GFCS includes a "User Interface Platform (UIP)" to link climate service providers and users with a view to building the capacity of users to make better use of climate services, collecting user requirements, assisting in the monitoring and evaluation of the Framework and promoting a global understanding of the Framework.

The HLT recommended that by the of end 2017, access to improved climate services should be facilitated globally in four priority sectors (agriculture, disaster risk reduction, health and water) and that active technical committees be established for each component and an active communications

programme. Across all of the sectors considered, the three core demands for climate services are for planning, operations and impact assessment.

In order to develop the strategy for the agriculture, food security and water sectors of UIP, we are organizing this Inter-Agency Consultation Meeting on User Interface Platform for GFCS. Representatives of different key UN agencies, international organizations and selected experts are invited to discuss the key issues and develop the strategy for effective implementation of the UIP as an integral part of the GFCS. The outcome of this Consultation Meeting is expected to bring greater clarity on the roles of the different agencies and organizations in promoting the implementation of the UIP at the national, regional and global levels.

The main outcome of this meeting will be identification of options for developing the UIP and a roadmap towards operational implementation. We look forward to your active contributions to the discussions over the next three days to achieve this outcome.

Thank you.
