**The Integrated Global Water Cycle (IGWCO) COP and User Engagement**

(Prepared for the UIC Committee)

The IGWCO COP has engaged users during the past two years using a number of approaches. These approaches may be described as:

* Seeking to increase user involvement through participation in meetings and workshops,
* Launching joint projects with users,
* Launching specific user engagement activities by specific tasks.
1. **Seeking to increase user involvement through participation in meetings and workshops**

Over the past three years several meetings/workshops have been held where IGWCO has entrained users into its activities. These meetings/workshops included:

1. GEOSS Workshop XXXIII: Using Earth Observations for Water Management

This workshop was co-sponsored by the IGWCO COP and IEEE and attracted some users who described their needs for data for Irrigation, Urban water supply, State climate services, etc. The meeting was held at the Grand Hyatt San Francisco, San Francisco, CA, USA on Friday December 18th, 2009.

1. The IGWCO Workshop on Water Resource Assessment and Applications held at CUNY in New York on February 23 to 25, 2010. This workshop attracted some high level user including personnel from the United Nations Statistics Division and the World Wildlife Fund.
2. The GEO-DRI workshop emphasized the role of Earth Observations in dealing with drought in different parts of the world. The workshop, held in Winnipeg Manitoba in May 2010, attracted people from seven countries and featured a healthy dialogue between Earth observation scientists and those affected by agricultural drought.
3. **Launching joint projects with users**
* *IEEE Demonstrations projects on Water Discovery:* In support of GEO goals and a vision for needs of people in developing countries, the Institute of Electrical and Electronics Engineers (IEEE), in collaboration with IGWCO, has launched a “Water for the World” activity. In addition to providing direct assistance in developing countries, it also helps to shape the advance of Earth Observations in positive and demonstrable ways. IEEE has initiated the first phase of selected pilot projects in cooperation with local, regional, and national groups and other organizations to provide water quantity and quality assistance where they are needed but not available. One of the projects in the village of Melva in northern India has been funded and has produced beneficial results by enabling a community with unreliable water supplies to gain access to quality water on a year-round basis through water harvesting. Earth Observations are used for site selection and management.

*Drought Impacts Monitoring:* One of the major projects contributing to GEO drought impact monitoring, the Drought Research Initiative (DRI), undertook a number of user interactions including user workshops in each of the three Canadian Prairie Provinces where the benefits of Earth Observations to decision making in the agricultural and water resources sectors was emphasized during the past year. These workshops indicated that users were beginning to find DRI results useful and were benefiting from the insights emerging from DRI research.

*Drought Preparedness Assessment:* Through collaborations with Agriculture and Agri-Food Canada Drought Preparedness (DP) workshops were held in Manitoba and Saskatchewan. These workshops assessed the ways in which formal institutions respond to and plan for drought in order to gain insights into possible drought preparedness augmentation strategies. A major component of the DP is to move institutions away from their typical disaster management approach during drought and to create pathways for institutionalizing a risk management approach. Proactive impact mitigation planning to minimize risk is fundamental to the risk management approach but overlooked in the disaster management approach. Within the DPP framework, DRI and AAFC explored the value of information in the drought preparedness process, how it is used, and how its use could be improved. Since we anticipate more frequent and severe droughts that are likely to require proactive management, institutionalized drought-related risk management and improved information could go a long way in preparing institutions for future drought conditions.

Simulations of past droughts, especially the 2001-2002 Canadian Prairies drought, were used to seek answers to the following questions: how can institutions address past weaknesses in their drought preparedness? How can information be enhanced, in terms of quality, timeliness, and accessibility, to increase drought preparedness? In these simulations, participants were led through a simulation of a past drought and were invited to discuss their institutions’ responses, or lack thereof. Drought preparedness was characterized qualitatively through discussion and quantitatively, in terms of the pre-2001-2002 drought, with a questionnaire. Participants were then moved through a hypothetical future drought scenario and were asked how their institutions might respond, how future responses could be improved, and what immediate actions can be taken to mitigate future drought impacts and increase preparedness. Following the future scenario, a more in-depth investigation of the role of new information in drought preparedness was conducted through the DEWS simulation.

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**3. Launching specific user engagement activities by specific tasks**

*DRI drought studies:* one DRI Investigator has worked closely with municipal authorities to establish a groundwater monitoring network in Alberta Canada that will provide baseline data for assessing and responding to future droughts.

*Asian Water Cycle Initiative:* This initiative continues to develop products that are beneficial for users and to hold training programs in different countries in East Asia to show them how to deal with the data sets. The latest training program was held in Tokyo in March 2011 and provided many young scientists in East Asia with an opportunity to see how to use climate change data to assess the impacts of change on water resources and to scope out adaptation strategies for the future.

*African Water Cycle Coordination Initiative (AfWCCI):* This activity was advanced through the Second AfWCCI symposium held in Addas Ababa in Ethiopia in February 2011. A number of managers of River Basin Authorities and River Basin Initiative were in attendance and engaged in discussions about ways in which GEO principal could benefit water management in their basins.

*Latin and Caribbean America:* A web site has been set up for the public and users of Earth Observations to learn about the water issues in Latin America and to discuss ways in which Earth Observations can address those needs. Discussions have been held with the World Bank about the possibility of developing some demonstration projects in several Latin America countries.

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