SIMHYDRO 2012 – Round Tables Sessions

Motivation and rationale of Round Tables

The SIMHYDRO initiative to set up Round Tables discussion is motivated by the existing situation in water sector: simulation models are used by all groups of the stakeholders in the business and administration but specific groups often do not dialog with others. Thus in many cases and situations the use of models and their results are not as efficient as they should be. And even, sometimes, this use (for engineering purposes or for decision processes as well as for public communication) is detrimental to the purpose because of lack of sufficient knowledge of limitations of the models and uncertainties in their results. But simulation modelling is only a small part of hydroinformatics. What do we call "Hydroinformatics" ? What is its content? The following definition is taken from elsewhere where it is developed in detail[1] : "the **HydroInformatics** can be defined as **collection** (including data surveys, etc.), **creation** (including modelling), **interpretation** (including integration of various domains inputs), **communication** (including projection of the results and impacts towards large public) **and management** (including aid in participation of decision makers) **of information concerning water sector activities"**

Hydroinformatics technologies are used on every day basis by all stakeholders of water sector: when the decisions are taken, when communication between stakeholders or with the public is carried out, when the dialog with non-engineering circles is promoted. It is clear that hydroinformatics technologies are essential to these problems. Now, how much these technologies are used? Are they understood and how do the stakeholders evaluate their usefulness? What are the requirements for future developments of these technologies?

SIMHYDRO wants to put on the table two questions that address specifically two groups of stakeholders. One group is composed of the users of the results of modelling: decision-makers such as elected representatives, NGOs, investors, governments, local and central, and in general, citizens. Another group are those who run the models themselves, e.g. consultants carrying out feasibility studies, businesses, water-related service and utilities managers.

First question concerns hydroinformatics technologies (not specifically modelling) used by both groups. How do they evaluate existing hydroinformatics technology? What are their needs, desires, requirements (including knowledge of people involved and education). How do they dialog directly or indirectly with the model developers- what is needed from hydroinformatics technology to facilitate such dialog?

Second question is more related to the simulation and modelling but in context of decision making engineering, social and economic processes. With special attention to two important points: reliability of model results in view of their uncertainty (To what degree? How

---

[1] The document « **HYDROINFORMATICS VISION 2011**- **Synoptic Report of the Working Group** » developed by the IAHR/IWA/IAHS joint Committee on Hydroinformatics summarizes what is Hydroinformatics and what are its perspectives. This document can be unloaded from………………………

uncertainty is taken into account in decision making? And is it in communication with the public? How to use and improve the data acquisition in order to decrease the uncertainties ? How to improve the transfer of research results from Academia to engineering world?).

These two questions correspond to two Round Tables. With a common bridge over their limits: With the help of models and the way the results are presented, can all the stakeholders understand each other? Do the developers and researchers on the one hand, and the stakeholders on the other, know each other well enough to exchange information and clearly express concerns about the limits and the potential of the models? How should the technical and scientific meetings be organized and carried out in order to be efficient way leading to better understanding between the different players? And, specifically, to improve the communication between industrial-decision making stakeholders and researchers?

Organisation of discussions

It is intended to have the Round Tables exchanges of opinions not limited to the people sitting around the table but to involve as much as possible the floor where we expect the participants who would be able to share their own experience of the subjects discussed. The Round Table sessions will be chaired by a moderator who, in few minutes, will remind the points to discuss and will insist on the participation of the floor in discussion.

Expected participation in this Round Tables session concerns the persons involved in the decision processes coming from Ministries of Environment and Development, Competitivity Poles, Management of Harbours, Basin Agencies, Town Technical Services, Local Governments, Civil Protection Services, Insurance Companies and software developers.

9:00 – 10:30   Round Table 1: New requirements for hydroinformatics. Project owners expressions.

Round table moderator:

Themes for discussion:

This round table will be focused on the role of hydroinformatics technologies in the development and implementation of ambitious projects dealing with infrastructures - coastal & continental infrastructure – and water services – smart metering, environment monitoring, etc.

How hydroinformatics is currently used to provide relevant information to the project developers in order to improve quality of the planned infrastructure, satisfaction of users and public, financial investment? What do the developers expect and require from the hydroinformatics technologies?

The new emerging technical resources, mainly in the ICT domain, offer the possibility to improve strongly the management processes in the water domain (among others, e.g., data acquisition and assimilation for flood forecasting) . How such evolution is integrated into the hydroinformatics environment and how far is it requesting a shift of paradigm in the on-going approaches?

The public awareness is a major challenge for many water related issues such as disaster prevention. The information flow towards the public has to be permanently adapted to an evolving society requesting a more and more accurate and reliable data. How hydroinformatics can integrate such expectation and provide efficient tools to the project developers ensuring both technical and public information?

In this context, how well the modellers understand decision makers' problems, and vice-versa? How and which new requirements have to be integrated in the new hydroinformatics environments in order to improve efficiency?

11:00 – 12:30 Round Table 2 : From simulation towards decision. Communication of information to stakeholders.

Round table moderator:

Themes for discussion

Results of the models (of simulations) are most often used for three domains concerning water sector:
- Policy of developments and projects, decisions of investments.
- Crisis management (floods).
- Management of the systems such as urban networks, energy or irrigation systems.
- Flood forecasting
- Etc.

The Round table discussion will focus on the decision taking processes in these domains: how the decisions taken are stemming from, are being supported by, take into account, simulation results. Simulation models represent only partially and imperfectly the complex reality, this representation being limited by our knowledge of physics and terrain, by available software, by the budgets available for development and applications of the software. Consequently the results cannot be considered as certain and accurate.

Suggested specific subjects for the discussion would be:

- How the decision makers adapt their reasoning to the simulation results. How do they evaluate the validity of the results they are supplied with?
- What is the role of quantification of uncertainty in results? How are the results uncertainties taken into account? How can the uncertainties be reduced (improving models, networks of data collection, data assimilation)?
- How, on one hand, software developers and, on the other hand, software users (e.g. consultants) communicate with decision makers (i.e. their clients)? How do they deal in this communication process with the problems of uncertainties or the degree of approximation of the results supplied to the clients? Are the problems related to engineering ethics considered?
- How the decision makers use the simulation results in their dialogue with citizens and public opinion? Through which means? And how do they deal with uncertainties of the results? Quantification and reduction of uncertainties.
- And media? What is the state of forwarding to the media and then to the public of information stemming from simulations? And how uncertainties of the results are dealt with in this context?