

Droughts, Low Flows & Water Scarcity

Outcome of the international Conference, 1-13 December 2019

UNESCO Headquarters (Paris), France

SHF (Société Hydrotechnique de France) initiated and led the organisation of an international conference on "Droughts, Low Flows & Water Scarcity", held from December 11th to 13rd at Unesco headquarters (Paris, France). The event was co-organised with Unesco, Afeid, Académie de l'eau, French Water Partnership and Office International de l'Eau. The conference, organised in the framework of IHP (Intergovernmental Hydrological Programme), focused on Mediterranean and West African countries. Its official language was French with some presentations in English. Fifty-seven papers were presented, either on sessions or by posters. Despite conflicting dates with the COP25 meetings held in Madrid and a public transportation strike in France, 179 persons attended the conference.

AFEID presented two papers during the final plenary session:

- Presentation of Costea Project, jointly managed by AFEID and AFD (French International Development Agency), fostering sustainable management of Sahelian water resources for more efficient irrigation.
- Some insights on possible NGO input on water tension monitoring and adaptation strategy identification. They were based on a ten-year cooperation between AFEID and two sister organisations, addressing forthcoming water tensions in Europe and Mediterranean countries. New visions and perspectives were provided by four international seminars organised by the consortium.

The first session of the conference clarified the concepts of droughts, low flows and water scarcity. They are not objective variables linked to climate, such as aridity. They represent either a significant deviation from reference hydrological conditions or an important discrepancy between water requirements (including ecosystem ones) and available water resource. They may impact various bodies: rivers, soils, reservoirs, underground tables. Their origins may be meteorological or anthropogenic. It results that water scarcities are very diverse, each one requiring a specific approach. Climate change introduces another complication as a steady long-term trend worsening the situation in some regions, chiefly those addressed by the conference.

After many other ones; the conference regretted the degradation of drought monitoring tools in many countries. It reminded that satellite remote sensing cannot provide reliable data if not calibrated and supplemented by ground data.

In order to adapt to recurrent water scarcities and upcoming droughts triggered by climate change, the conference mainly concluded that:

- Reliable, consistent and long-term ground data gathering systems should be implemented to feed medium term forecasting models.
- Political agendas should pay more attention on droughts and water scarcities, presently taken much less in consideration than floods. They should no longer be viewed as random events but as very low frequency oscillatory phenomena, already modified by climate change.
- Drought characterisations are intricate and multidimensional with uncertain evolutions. They required complex analyses with sophisticated theoretical approaches. However, scientists and experts should also produce clear and simplified messages to facilitate broad political debates and policy definition by decision makers.
- Long term and wide range investment sequences addressing uncertainties should be encouraged and decisions should not systematically favour individual win-win projects. They should question systematic irrigation development and dam building as adaptation measures to increasing water scarcity. "Hydro-diplomacy" should be encouraged on transboundary basins to avoid growing tensions on water resources shared between different countries.
- These plans should be flexible and adaptive to efficiently address uncertain future. Risk management should replace natural disaster management with resilience as a key word.
- Social scientists should be much more involved in multidisciplinary reflections on water related questions, particularly on the water-food-energy nexus. They can help (i) identifying the huge variety of social perceptions and constraint acceptability, (ii) enforcing hazard awareness and (iii) raising consciousness of the urgent necessity of building global strategies coping with a partly unknown future.

