Training on « basic ecohydrology : a leading role in environmental problem solving »

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Ecohydrology is a growing subject area in the hydrology arena. It is a trans-disciplinary science examining mutual interactions of the hydrological cycle and ecosystems. It is also an applied science focused on problem solving and providing sound guidance to catchment-scale integrated land and water resources management. How human needs and wellbeing interact with quantities and qualities of the finite natural resource base, and how changes to the natural environment impact on human activities and vice versa, are the key questions underlying the conceptual development of ecohydrology and socio-hydrology.

Among the first drivers, the soil quality with its vegetation cover and geomorphology directly controls the stream water quality and quantity, through both lateral and longitudinal connectivity. And above all, the rainfall distribution and intensity have a major impact on the quality of the soil and its vegetation cover.

Then the principle spheres of ecohydrology include:

(i) climate-soil-vegetation-groundwater interactions at the land surface with special implications for land use, food production and climate change;
(ii) riparian runoff, flooding, and flow regime dynamics in river corridors with special implications for water supply, water quality, and inland fisheries;
(iii) fluvial and groundwater inputs to lakes/reservoirs, estuaries, and coastal zones with special implications for water quality and fisheries.

The one-day training course will provide conceptual and scientific knowledge on ecohydrology to perform scientists (hydrologists, agronomists, biogeochemists, geographers, and practitioners) competencies in the theory and practice of ecohydrology for sustainable management of freshwater resources. The goals of the programme are:

- To improve the understanding of basin scale processes by integration of hydrological and biological factors toward enhancement of resistance and resilience of freshwater ecosystems against anthropogenic stress;
- To develop cost effective methods of water and nutrients cycles restoration in river basin scale by using ecosystem properties as a management tool.

Finally, the goal of this training course is to encourage scientists and practitioners acting at multi-dimensional and multi-scale levels at the continuum continental river basin and coastal areas with integration of rural and urban areas, to apply environmental problem solving in a synergetic integrative approach between the biological, physical and chemical processes with the services provided by the ecosystems (Zalewski, 2015).