

Chiaki Isaji, Director of WA-links, made a presentation about slow sand filtration in the Session “Establishing the foundations for success: the science, benefits and relevance of ecohydrology”. This session is sited at “Managing and Restoring Ecosystems for Water Services and Biodiversity” in the Thematic Process “Water for Sustainability: Harmonizing Humans and Nature”.

Prof. M. Zalewski, Director of European Regional Centre for Ecohydrology and the coordinator of the session, has advocated that ecohydrology has key hypotheses and principles. The hypotheses are “Hydrological parameters regulate biological processes in a catchment scale”, “Biota regulates hydrological processes”, and “Both types of regulation integrated in a synergistic way can be applied to the sustainability of ecological services”. The principles are the hydrological framework, the ecological target including increase of carrying capacity and resilience, and the ecological engineering methodology by dual regulation, integration toward achieving synergy and harmonization with hydroengineering measures.

In the Session Prof. M. Zalewski made an introductory speech titled “Ecohydrology for the Introduction of IHP VIII - Challenges and Opportunities for Sustainability”. Subsequently current ecohydrology theory and practice were introduced through various case studies of many countries. They are as follows: a report from Ethiopia on dioxins removal by biofiltration, restoration of spring water by vegetation recovering, and recycling system of livestock wastewater and feed cultivation, a report from USA on application of ecohydrology to integrated water resource management, a report from EC on flood control of a river, a report from Italy on microbial pathways in river biofilm by molecular biological method and application to arsenic removal, and a report from Japan on effect of forest for hydrological circulation.

The report on slow sand filtration included the following contents based on outcomes of the 5th International Slow Sand and Alternative Biological Conference held in Nagoya City last year. Slow sand filtration with purification by biofilm can a viable and sustainable drinking water treatment system for rural and developing communities. It has the possibilities to solve new water quality problems like trace pollutants. It is important to apply ecological principles to design and operation. In addition, organized information is required for the sustainability of slow sand filtration.

Slow sand filtration can be one of application fields of ecohydrology, because it is an engineering system controlling both biofilm and filtration rate which are mutually influenced. The purification by biofilm can be seen in the source river, and accumulated knowledge about slow sand filtration is useful for elucidation of phenomena in the catchment area. In addition, raw water of good quality can be obtained by proper

maintenance of ecosystem.

Prof. M. Zalewski referred to slow sand filtration in the summary of the session on the last day of the forum. Wide future development can be predicted from the fact that slow sand filtration was included in the session of ecohydrology in the 7 WWF.

