

Water for agriculture and natural environment

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Abstract: Views on the objectives and role of water management have remarkably changed in the last years. The need of a complex water management that would consider all water users including agriculture and natural environment is often underlined. It is pointed out that agriculture and natural environment (including commercial forests) are basic consumers of precipitation water which is not considered in water and economic balances. More and more importance is attributed to the utilisation of waters from catchment basin and to application of non-technical measures of controlling water cycles. A large impact of agro-ecosystems and natural or semi-natural (forests, wetlands) ecosystems on water balance is underlined. This different approach to the problems of water management is expressed e.g. in Water Framework Directive of European Union devoted to surface and ground water protection. The directive attributes a great role to the protection of aquatic and water related ecosystems. More and more often it is realised that the total water resources are equal to the volume of atmospheric precipitation. Water management should involve not only the water in geological aquifers or river channels but also that which is retained in soil profile. Such elements of water balance as spatial distribution, interception, infiltration and recharge of ground water reservoirs, soil retention capacity, surface runoff and evapotranspiration depend largely on land use in a catchment. Through appropriate land use and catchment management, application of rational agro-technical methods, development of small retention, wetland restoration, and hampering water outflow from draining systems one may significantly affect water cycling in a catchment.

Small water resources of Poland, increasing water consumption, climate changes and requirements of environmental protection enforce the implementation of complex methods of water management and search for environmental-friendly methods of limiting economic losses caused by water deficit or excess. Saving water used for economic purposes and agriculture would permit better fulfilment of the needs of natural environment.

Key words: agriculture, environment, hydrology, water management, water resources