

# EUROPEAN BEAVER — A FRIEND OR AN ENEMY? NATURAL SMALL RETENTION AS A REMEDY FOR A NEGATIVE WATER BALANCE IN POLAND

## Summary

Growth of demographic and urbanization expansion from XIX century is a cause for shrinking of water resources over the world. A remedy for this problem since 1950s is water retention — over 40 thousands of dam reservoirs, with dams higher than 15 meters, were build during the last century. Several decades of operating such reservoirs show that not always they are beneficial for the economy and nature. Their negative influence on riverine ecosystems is a reason for liquidating big reservoirs — a tendency observed in the last decades. An alternative for the negative effects from the reservoirs is searching for solutions, which providing retention does not interfere with biological processes within the water body. Such modern approach to water retention, compliant with sustainable development, is particularly important in Poland due to the growing deficit of water resources. This deficiency is not only associated with the natural conditions in Poland, but also with long lasting negligence in saving water resource, particularly in so called “small retention”. An analysis of literature shows that a way of water storage beneficial for natural environment is using the natural behavior of beavers to build dams

and ponds. It appears that building the dams, beavers not only help in water retention but also have positive influence on their surroundings. Such influence from beaver-made ponds appears in many aspects, both hydrological and biological. However most important is, that in contrary to artificial ponds, the natural ones built by beavers does not degrade the river course downstream. On the other side, damming stimulates biological processes in rivers. The retention effect from beaver-made ponds is very significant. It is estimated to be between 10 and 20 millions of cubic meters of water country-wide — the same amount as generated from all the programs of small retention working in Poland. Also the economic factor is important — beaver mediated retention almost does not generate any costs. Yearly costs of financial compensation paid due to some damage caused by beavers do not overcome a few hundred thousand zlotys. News emerging after bigger floods blaming beavers for damaging dikes has mostly the medial character and usually is just a way to detract the responsibility of local authorities for maintaining the anti-flood systems.