

RETENTION

KEEP THE WATER!

The Water scarcity prevention program

According to the statistics for the year 2019, there were less than **1,100 m³** of water per inhabitant in Poland, while in Europe, on average, this amount was over **2,500 m³**. Therefore, it means we have no large water resources in Poland. Moreover, they are not evenly distributed across the country. There are areas with sufficient water reserves, but also regions poor in water – the so-called deficit areas. In case of surface waters, more than **50%** of all catchments are at risk of insufficient access to water at the highest and extremely high levels. The situation of groundwater is better for now, since only about **3,3%** of them are threatened with a deficit, however the situation is a subject to change.

Climate change will increasingly affect water availability. In the long term perspective, by 2050, climate changes will be noticeable as a reduction in the frequency of rainfall, which will reduce water resources and extend the areas at risk of water scarcity.



One of the effective ways to increase the availability of water resources is retention

The term retention means the temporary storage of water in the environment, which can be done in many ways. Firstly, we divide retention types into:



Artificial – covers water reserves stored in the intentionally built reservoirs.

In the frames of artificial retention, there are over 9 thousand of reservoirs built in Poland, that store over 4.5 billion m^3 of water, which is about 7.5% of the average annual water runoff from the country

Natural – means water retention in landscape forms, such as wetlands, forests, lakes, and rivers. The water quantity stored in wetlands is estimated on the level of 14 billion m^3 , forest retention amounts to 23 billion m^3 , while the biggest lakes in Poland store up to 16,5 billion m^3 of water.



Secondly, we divide retention types according to the way of water storage:

- **Surface water retention;**
- **Soil retention;**
- **Ground water retention;**
- **Landscape retention.**

Due to its specific character, we can also distinguish an **urban retention**.

It is possible to increase the amount of water retained both in the reservoirs and in the landscape. For that purpose, the Ministry of Infrastructure has developed the Water scarcity prevention program. The document introduces **14 types** of measures to improve retention:

3 types

of measures related to the hydrotechnical investments: implementation of water retention facilities, implementation of other activities aimed at improving water retention; transforming selected dry reservoirs designed for flood protection into multi-functional retention reservoirs.

1 type

type for urban areas – implementation of Urban Adaptation Plans for cities and other retention increasing measures such as blue and green infrastructure, rainfall retention, increase of infiltrating surface.

14 types of measures

1 type

dedicated to post-mining areas – mining area reclamation and transformation into water reservoirs.

5 types

types of measures aimed at improving retention in agricultural areas - implementation and reconstruction of small retention and microretention facilities in agricultural areas, promoting and implementing of agrotechnics treatment increasing soil retention, implementation and restoration of breeding ponds, implementation of new and reconstruction of the existing drainage systems to provide irrigation and drainage functions, foundation and restoration of midfield, roadside and aquaticsides trees and bushes.

2 types

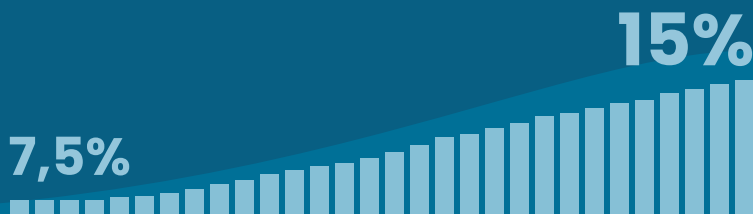
of measures aimed at increasing forest retention: – creating and regeneration of small and micro retention objects in the forests, afforestation, reconstruction of forest stands.

2 types

in the field of restoration measures – restoration of wetlands, rivers, multifunctional retention reservoirs.

The measures envisaged in the Program are to be supported by educational activities.

Implementation of the measures foreseen in the Water scarcity prevention program is going to ensure the achievement of the goal set in the document: the increase of water retention from **7,5%** to **15%** of the average annual outflow, which means over **4,5M m³** of water.



Depending on the type of measure, it is estimated to achieve the following effects:

- hydrotechnical investment of State Water Holding Polish Waters – ca. 1 176,3M m³;
- River restoration – ca. ok. 1 176,3M m³;
- creating and regeneration of small and micro retention objects in agriculture areas – ca. 1 082M m³;
- mining area reclamation and transformation into water reservoirs – ca. 871M m³
- promoting and implementing farming practices, which increase soil retention – ca. 601M m³;
- Forest retention – ca. 450M m³;
- Wetland restoration – 79M m³;
- Creating small retention objects in forests – ca. 2,8M m³;
- building new and recreating existing drainage systems to provide irrigation and drainage functions – ca. 0,9M m³;

Broad measures covering all types of retention should be implemented both by the government – especially Polish Waters, but also municipal government units, and individual persons.

www.gov.pl/retencja