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Expected development of irrigation in Poland in the context of climate change

Leszek ŁABĘDZKI

Institute for Land Reclamation and Grassland Farming at Falenty, Regional Research Centre in Bydgoszcz, Glinki 60, 85-174 Bydgoszcz, Poland; imuzbyd@by.onet.pl, labl@poczta.onet.pl

Abstract: Uncertainties as to how the climate will change and how it will influence the necessities and trends of irrigation development lead to a number of serious questions to be answered in the near future. How irrigation and water systems will have to adapt to climate changes is a challenge that planners, designers and O&M services will have to cope with.

It is widely accepted that air temperature in Poland will increase of 2–4°C, however a total yearly precipitation will not vary yet its pattern during the year may change towards higher in winter and lower in summer. Evapotranspiration and crop water demand may rise due to both an increase in temperature and duration of crop growth cycles.

Three main factors are expected to exert an accelerating influence on the development of irrigation: increased frequency and intensity of droughts and long-lasting precipitation-free periods with the high insolation and high air temperatures resulting from climate change; the intensification of agricultural production (e.g. in horticulture, orchards, seed crops), being forced by both domestic and European free-market competition; the necessity of reaching high level of quality for the majority of agricultural products.

To mitigate negative effects of climate change and extreme events, appropriate adaptation methods and adaptation strategies should be developed and implemented in existing irrigation and water control systems. A number of technological and organisational steps should be taken to improve operation, management, administration and decision making processes.

Key words: climate change, drought, irrigation