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## ESTIMATION OF WATER WITHDRAWALS IN THE CZECH REPUBLIC

**ANSORGE, L.; DLABAL, J.**

TGM Water Research Institute, p. r. i.

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The article presents the results of a Project TD020113. This project was focused on the estimation of future water withdrawals in the Czech Republic between 2030 and 2050. We analysed four possible social-economic pathways of the Czech society. We modelled the estimation of withdrawals for public water supply sector and energy sector in the Czech Republic using available demographic prognosis and scenarios published in State Energy Policy of the Czech Republic from 2014. We also modelled water needs for livestock production. Water needs for livestock production was based on statistics of livestock and specific water needs of different livestock species. Unfortunately, there is no clear linkage between water needs for livestock and water withdrawals. Current data in the Czech Republic and the approach based on statistical models do not allow creating a model for irrigation needs. For this reason the agriculture water needs were estimated only. We also did not model the estimation of withdrawals for industry and for other withdrawals. Two scenarios predicted a decrease of water withdrawals for public water supply and two scenarios predicted a stagnation of water withdrawals for this sector between 2030 and 2050 compared with current withdrawals (see *Fig. 3*). Between 2030 and 2050 a significant decrease of withdrawals for energy sector can be expected. Only the social-economic scenario focused on economic development in combination with the gas scenario of future energy development leads to small increase of water withdrawals for energy sector (see *Fig. 4*). *Table 1* summarizes the estimation of sectoral water withdrawals for four social-economic scenarios. Total water withdrawals were 1.6 billion  $\text{m}^3\cdot\text{year}^{-1}$  in the Czech Republic in 2015 (see *Fig. 1*). The scenario with preference of security tasks (food security, energy security etc.) predicted water withdrawals between 1.389 and 1.583 billion  $\text{m}^3\cdot\text{year}^{-1}$ . The scenario with preference of economic development predicted water withdrawals between 1.514 and 1.851 billion  $\text{m}^3\cdot\text{year}^{-1}$ . The scenario with preference of an environmental policy predicted water withdrawals between 1.076 and 1.264 billion  $\text{m}^3\cdot\text{year}^{-1}$ . The scenario with preference of sustainable development predicted water withdrawals between 1.295 and 1.458 billion  $\text{m}^3\cdot\text{year}^{-1}$ .