

Submitted Abstract

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Abstract

The growth of population and the increased demand for clean water, the reduction of living space, forests, and agricultural land, all command new, innovative means of using and managing water basins and reservoirs in the mountainous regions worldwide. Global warming and climate change have brought on large oscillation of air temperature and annual distribution of precipitation in highland regions of the Republic of Serbia as well. Prolonged dry periods are followed by frequently intensive precipitation. Such extremes result in floods and soil erosion. Among other functions, water reservoirs as major multifunctional facilities greatly affect the outflow regime. By developing them, we have the means to absorb flood flow during rainy periods, on the one hand, provide the continuous water supply to the local population, secure the ecological minimum, and prevent drying up of rivers during dry periods, on the other. Apart from affecting water regimes, newly constructed water reservoirs considerably impact the managing and use of space in the reservoir basins. This also affects biodiversity, ecosystems, and the environment in general, which is thought to be degraded in half the territory of the Earth. Introduction of protection measures, restrictions, and prohibitions considerably affect land resources, resulting in the increased forest areas, planned management of agricultural land, prevention of unnecessary construction and opening of mines, as well as other activities that cause water shortage and pollution, soil erosion, accumulation of mud deposits, and similar. Constructing embankments and water course regulation downstream reservoirs partly reduce flooding issues, as opposed the accumulation of deposits and prolonged dry periods, still largely present. This commands the integral analysis of the mountain basins issue and the preparation of technical, space planning documentation, and feasibility studies for building new water reservoirs as economically, socially, ecologically, and environmentally sustainable systems. The Republic of Serbia has recognised the significance of building water reservoirs in mountainous regions, and has devoted itself to protecting and preserving the existing and planning the new water reservoirs.