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# Virtual water flows related to land use in an intensive agriculture in the Fergana Valley, Uzbekistan

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Due to low annual precipitation, agricultural production in Uzbekistan is depending on irrigation from the Syrdarya and Amudarya rivers to a great deal. One of the most important cash crops of the country is cotton. Current irrigation management leads to elevated groundwater levels, salinization of soils and to a degradation of soil and water resources. Through export of cotton and other crops, the problems related to water consumption and water management are transported beyond the producing country. The amount of water transported through production and export is referred to as virtual water. To distinguish between productive and unproductive partitioning of water flows, the terms green and blue water have been introduced. Information on virtual water flows due to crop production usually only exist on country level. To reduce uncertainties related to generalization, the effect of land management and environmental factors on the partitioning of water flows needs to be studied on smaller scales.
The presented study analyzes water fluxes in an intensively used agricultural area in the Fergana Valley, Uzbekistan. The study aims to a) quantify crop specific water consumption in agricultural production under current management and b) analyze water use efficiency as subject to land use and irrigation management. Based on crop production, irrigation management and environmental conditions in the study area, virtual water flows will be calculated on the level of agricultural collectives (Water Users Associations). In a further step, the partitioning of green and blue water fluxes will be quantified. Alternative scenarios for improved water management will be analyzed in a model study.