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“Management of land use systems for enhanced food security:
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Food Security through Integrated Land and Water Management of Smallholder and Family Farmers in Eastern Georgia

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Abstract

The collaborative research between the Agricultural Faculties University of Kassel, Germany and University of Georgia, Georgia examines the causality between land and water resource management and food security of smallholder and family farmers. Adequate water quality and improved soil quality are critical factors in ensuring food security of smallholder and family farmers. Socio-politically less powerful stakeholders, such as smallholder farmers, could have to bear the negative consequences of land and water as competitive sources, which are exposed to different interests. Smallholder and family farmers are considered as major food producers in Bolnisi municipality, eastern Georgia. Most of them own 1 to 2 hectares under the land reformation program after 1992 and are located as homestead lands. Especially vegetables and fruits are produced in their own fields and these are the main source of family food supplies. As a result of the mining activities in the upstream area of *Mashavera* River and *Poladauri* River, soil and water sources in the downstream area are heavily polluted. As early studies state, irrigated soils are highly polluted by heavy metals including copper (Cu), Zinc (Zn), Manganese (Mn) and Lead (Pb). On the other hand, the intensive application of chemical fertilizers is another factor in Georgia that reduces soil fertility leading to water and soil salinization. The salinisation of soil and water table cause for the decline of arability of lands and directly impacting the ecosystems and human health. Consequently, the quality of food is reduced by polluted soil and water. Therefore, the social risks of smallholders and family farmers in terms of household food and nutrition security are threatened. This research study is going to analyze the water quality and quantity of irrigation water and its impacts on food production of small-scale agriculture with the land management policy in the area. Furthermore, the research study aims to observe how small-scale farmers could be engaged in the current land and water management system at local level. Implementing a mechanism to raise local awareness of soil and water quality would mean civic engagement at the local level in terms of land and water resource management processes which would lead to the establishment of food security for smallholders and family farmers. Since the research study deals with a pragmatic and complex problem that entails both socio-economic and ecological factors, a mixed methods research approach will be followed. Within this mixed-method approach, there will be multi-disciplinary methodological approaches to evaluate particular disciplinary-oriented and transverse factors. The field and laboratory-based water quality assessment will be

conducted. Field research methodology encompasses with surveys, qualitative interviews and participant observation, semi-structured interviews and focus group discussions, as well as expert interviews and institutional observation. These qualitative and quantitative data will undergo MAXQDA, SPSS assisted analyses.

Keywords: Civic engagement, land reform, nutritional wellbeing, organic agriculture, river basin, small-scale farm lands, water quality assessment