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Assessment of hydro-agricultural infrastructures in burkina faso by using multiple correspondence analysis approach

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Due to the semi-arid nature of the Sahelian countries in Africa, irrigation infrastructures are essential in supporting the improvement of agricultural production. Their proper operation is, therefore, a key indicator for the sustainable development of agriculture in this region. However, there is a lack of critical assessment on the operating state of these hydro-agricultural facilities in Burkina Faso. In this study, we applied a multiple correspondence analysis (MCA) to 4070 hydro-agricultural facilities from 1950 to 2020 and classified them according to the Permanent Interstate Committee for Drought Control in the Sahel's (CILSS) typology classification system (Type 1 to Type 5). The MCA made it possible to see the relationships between a development typology and variables such as “functionality”, “condition of the development”, or “year of construction”. The results indicate that the irrigated lands with surface areas of less than 100 ha, which were funded by the government or organizations (associations, NGOs) and managed by local communities, are the least functional ones and in bad condition. Their dysfunction indeed conceals deep-seated causes that have not yet been resolved as the infrastructures keep on deteriorating. Therefore, establishing a sustainable and efficient management system for these agricultural infrastructures is imperative. The findings of this study can be used as a practical decision-making tool for implementing agricultural policies in the Sahel region.

Biography

Cyrille Bassolo Baki holds a Master's degree in Water and Environmental Engineering from 2iE after studying mathematics and physical sciences at the University of Ouagadougou. He has worked in the private sector as a consultant for studies, training, and works related to hydro-agricultural developments in several West African countries. He has participated in several international training courses, including one on "advanced irrigation technologies and farmers' associations for water management in Israel" with study trips to discover the Songhai center in Benin. He is now specialized in the management of irrigated systems of all types. He designs and develops solutions, including software, to improve the performance and sustainable management of hydro-agricultural facilities. He is preparing for a Ph.D. at the University of Liège on the improvement of the performance of irrigated systems and their sustainable management.