**Integrated Water Management for Sustainable Food Security: The Case of the Karfiguéla Plain in Burkina Faso**

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Food and water are vital elements for all forms of life. In the 21st century, they are at the heart of global concerns, particularly due to population growth and economic development in many countries, leading to increased demand for food and water. The depletion of natural resources, particularly in developed countries, has exacerbated inequalities between resource-rich nations and those without. Massive purchases of arable land and water by multinational corporations have sparked debates about protecting natural resources and the need to regulate their use to ensure food security and access to water for the most vulnerable populations. In this context, it is imperative to recognize the right to food security and access to water as collective fundamental rights, requiring regulations to preserve these precious natural resources. An integrated approach to water management is essential to address these challenges and ensure sustainable and equitable use of water resources for food production and daily life.

Today, agriculture in general, and market gardener-culture in particular, face numerous challenges such as increasing food supply, as well as the requirement for agricultural production ensuring health safety, nutritional quality, and environmental respect. However, in many developing countries, regulations on production techniques or sanitary quality of agricultural products are either nonexistent or not accompanied by effective control of practices, inputs, and food products. Thus, market gardening cultivation in Sub-Saharan Africa often relies heavily, even abusively, on inputs (mineral fertilizers, organic waste, pesticides, wastewater), with often detrimental consequences for human health and the environment (Abdulkadir et al., 2013; Son et al., 2017). Faced with these threats, more and more initiatives are emerging to promote market gardening practices that are more respectful of human health and the environment (Traoré et Toé, 2008), both in terms of crop fertilization, disease and pest biocontrol, irrigation water quality, and crop diversity. These initiatives are part of a promotion of reasoned market gardening production, preferably organic, or even agroecological (in its technical meaning; Stassart et al., 2012).

The Karfiguéla Plain, located in the Cascades region of Burkina Faso, is a fascinating example of the challenges and opportunities related to water management in food systems. This region largely depends on water for agriculture, especially market gardening, which is essential for the subsistence of local populations and the provision of food for local and national markets. The vegetables grown include lettuce, tomato, cabbage, green beans, eggplant, and carrots. Water is intensively used for irrigation of market garden crops through primary and secondary irrigation channels. However, water sharing throughout the Comoé basin, from which water used in the Karfiguéla Plain originates, is managed by the Cascades Water Agency and the Local Water Committee Upper-Comoé (LWC). This management poses enormous difficulties due to conflicts among different water users, including market gardeners, farmers, and local populations. These conflicts are managed locally by the Local Water Committee (LWC) Upper-Comoé through dialogues and discussions. At the regional level, these conflicts are managed by the Cascades Water Agency through the establishment of a water sharing schedule, the installation of sophisticated devices for automatic water management, and through dialogue and discussion emphasizing the importance of an inclusive and participatory approach to water resource management. Karfiguéla's water installations and services are made physically and economically accessible to all users, without any form of discrimination, with priority given to the neediest. In the Karfiguéla Plain, all stakeholders, including women, vulnerable people, and people with disabilities, have access to water and use it regularly.

market gardeners often occupy the banks of water reservoirs and the basin, leading to silting of the reservoirs and degradation of water quality due to the input of fertilizing products. To address these problems, measures have been taken, such as reforestation of the basin's banks, demarcation of the banks to prevent excessive occupation by farmers, and the creation of agricultural wells for market gardeners located far from the main water source. These initiatives aim to promote more sustainable use of water resources while ensuring long-term food security. Awareness and training on water pollution, efficient use of pesticides, hygiene, and water management are also organized for water users to promote more responsible and sustainable agricultural practices. However, despite these efforts, challenges persist. Overexploitation of aquifers, water pollution, and climate change continue to affect the availability and quality of water in the region. At the level of judicial decisions, initiatives have been taken to regulate and protect water resources, including national and local judicial decisions concerning the management and protection of watersheds and water sources. These decisions are often made in response to water-related conflicts and aim to promote more equitable and sustainable use of water resources for resilient and prosperous agriculture.

In conclusion, the relationship between water and food is crucial for the survival and well-being of populations worldwide. As demand for food and water increases with population growth and economic development, it becomes imperative to implement integrated water management strategies to ensure food security and equitable access to this vital resource. Concrete examples like the Karfiguéla Plain illustrate both the challenges and opportunities associated with this management, highlighting the importance of an inclusive and participatory approach. Despite progress made, challenges persist, including overexploitation of water resources and the effects of climate change. However, local initiatives and judicial decisions aimed at regulating and protecting water resources offer promising avenues for resilient and sustainable agriculture. By adopting a collaborative approach and investing in responsible agricultural practices, it is possible to overcome these challenges and ensure a safe and sustainable food future for all.