Chapter Fourteen

Post-1994 Challenges of Small-Scale Farmers in Water Irrigation and its Effect on Social Well-Being in South Africa

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Abstract

Through the political ecology theory, this chapter argues that despite water governance through the policies and institutional support of small-scale farmers, South African small-scale farmers still face challenges in accessing water for irrigation. Most rural farmers rely on natural rainfall for farming since they do not have access to irrigation infrastructure. Relying on rainfall reduces the risk of food product contamination but leaves room for water shortages because of inconsistent weather patterns. Due to the rapid pace of climate change, water shortages become a prevalent problem, and droughts occur frequently. The lack of access to irrigation water tends

to pose a challenge to the social well-being of South Africans. Regarding theoretical framework, this chapter uses political ecology theory, which focuses on examining the relationship between environmental issues and socioeconomic dynamics, accentuating how power, inequality and governance shape access to natural resources, particularly in marginalised communities. In relation to this chapter, access to water, especially for irrigation, is mostly dependent on political and economic elites, which exclude small-scale farmers and rural people vulnerable to irrigation water. Therefore, there are power imbalances in water distribution in different communities. As a result, small-scale farmers rely on rainwater for their farming projects. For that reason, the chapter explores the challenges of small-scale farmers in water irrigation after 1994 and how it affects the social well-being of South Africans, especially those who rely on farming for their survival.

Introduction

Small-scale farmers continue to deal with Apartheid-era challenges that affect their day-to-day farming operations after the year 1994. The overwhelming majority of rural farmers only depend on the rainy season to support their livelihoods because they do not have access to irrigation facilities. Rain-fed farming is defined as agriculture that relies solely on natural precipitation (Habib, Alauddin, & Cramb, 2022). Relying on rainfall lowers the possibility of tainted food products and creates space for water shortages due to erratic weather patterns. Due to the rapid pace of climate change, water shortages are becoming a prevalent problem, and droughts are occurring more frequently in South Africa. Therefore, this has become a challenge for small-scale farmers who depend on natural water for irrigation (Bakhsh & Kamran, 2019).

Except that, most small-scale farmers rely on agriculture for their livelihoods and depend on rainfall for irrigation. Furthermore, there is a discrepancy in how this dynamic affects total household income and the various responsibilities different institutions play in African irrigation schemes. This raises questions such as what has been done to assist those small-

scale farmers who depend on natural rainfall for irrigation. The study outlines the institutional assistance and policies designed to aid these small-scale farmers. Furthermore, the chapter explores the challenges of water accessibility and how it affects social well-being. This chapter adopts a political ecology theory as the aim of the theoretical framework of this study. The work of Raef (2016) argues that a theoretical framework is viewed as a required philosophical foundation for connecting the theoretical aspects of a phenomenon to its practical components.

Political ecology is a field that seeks to unravel the political forces at work in environmental access, management, and transformation. It further focuses on processes, players, and dynamics that are at work politicising the natural environment. Political ecology aims to conduct environmental politics without using prior definitions and explanations of ecological degradation. Researching alternative framings of environmental change may also produce new insights or surprising refutations of orthodox explanations. Such insights may be forms of democratisation because they indicate how hegemonic environmental explanations reflect culturally specific framings of problems (Forsyth, 2004). Against this background, the present study unpacks the post-1994 challenges of small-scale farmers in water irrigation and its effect on social well-being in South Africa.

Regarding methodology, the chapter relies on secondary data, where published works (articles, journals, and books) are reviewed. Apart from the introduction, the chapter comprises different sections. First is the overview of small-scale farmers in South Africa, followed by the policies and institutional support of small-scale farmers. It further discusses small-scale farmers, water accessibility, and social well-being. Lastly, the chapter provides a conclusion summarising the whole chapter and makes some recommendations.

Overview of small-scale farmers in South Africa

In 1948, the International Declaration of Human Rights revealed that everyone has a right to sufficient food. However,

access to natural resources, including water, is necessary for food production. In South Africa, the farming sector is known for its duality; first, it is commercial farming, and second, it is smallholder (small-scale farmers). White farmers mostly dominate the commercial sector, the main driver of the agricultural economy. This sector is successful compared to the small-scale farming sector. According to Tshuma (2014), the commercial farming sector is successful because of the support it received from the Apartheid government. Thamaga-Chitja and Morojele (2014) argue that the post-1994 government gained much interest in supporting small-scale farmers in South Africa. Of the same view, Pienaar (2013) states that one priority of the National Development Plan (NDP) was capacitating and building smallholder farmers. The democratic government intended to achieve the food security goal and to ensure social well-being. Moreover, Mvelase (2016) reveals that the NDP intends to build a rural economy by supporting small-scale farmers.

Despite the interest of the post-apartheid government in small-scale farmers, there is a problem of weak governance, which fails to execute the formulated policies (Osabohien, Matthew, Gershon, Ogunbiyi & Nwosu, 2019). The failure of the democratic government to implement the policies and the proposed institutional support continues to affect small-scale farmers' access to services, including water. The scarcity of water irrigation makes these farmers rely on natural rainfall. However, natural rainfall is unreliable because of climate change, which affects the rainfall pattern.

However, subsistence agriculture remains one of the important sectors in South Africa as rural households negotiate their lives by producing their food (Siphesihle & Lelethu, 2020). Subsistence agriculture provides better living and thus evolves rural communities (Department of Forestry and Fisheries, 2016). Hence, subsistence farming is more viable in rural areas as it is less labour intensive, requires less educational knowledge, and is practised using 'Indigenous' knowledge (World Bank, 2018; Khapayi & Celliers, 2016). The following section focuses on the policies and institutional support of small-scale farmers.

Policies and institutional support

In the field of political ecology, the governance of water irrigation is very important. There are many ways to govern water. The first is formulating policies that help govern water and establish institutions that support small-scale farmers. For that reason, this section intends to focus on the policies and institutional support put in place to ensure proper governance of water. It is important to note that subsistence farmers, who account for the majority of the world's poor and hungry, are a vulnerable population frequently ignored by development strategies despite their crucial role in reaching global food production.

Hence, it is argued that functional institutions and sufficient funding can raise the incomes of the poor and improve the living conditions of farmers (Sidibe, Totin, Thompson-Hall, Traoré, Traoré, Schmitt & Olabi 2018; Corral, Díaz, Monagas, M. del C, & García, 2017).

Although innovation platforms have provided insightful information about institutional change, it needs to be understood whether and how the position, interests, and commitments of enabling actors may conflict with the goals and results of those institutions (Turner, Klerkx, Rijswijk, Williams & Barnard, 2016). This has led to institutional change which gave rise to numerous research institutions that tend to focus on how organisational processes shape and reinforce reward conformity.

The existing institutions are a response to policy to enable subsistence farmers to redress the issues of irrigation water scarcity. We will look closely at the water policies and institutional reforms implemented in South Africa since 1994. What informed the reform was political and economic fronts. The political and economic fronts were centred around water governance and distribution. This was also supported by new water laws that exhibited and encouraged fairness, sustainability, representation, and efficiency by implementing decentralised water management. Through regional and municipal agencies, the registration and licensing of water

users and the development of markets for water rights were also established. This was functional through institutions such as irrigation boards, commercial and cooperative schemes, and other entities that help manage 96% of the irrigation water (Kirsten, Perret, & Van Zyl, 2000). Yet, some smallholder irrigation schemes risk collapsing soon after the state stops funding them, despite significant government investments in their construction and upkeep (Cousins, 2013). This has proven that, unlike commercial farms that are more financially independent, most subsistence farmers rely more on state support for water irrigation. This is not just a problem for South Africa but in the rest of the world since many nations have started a process to hand over control of state-run irrigation systems to water users by implementing irrigation management transfer (IMT) and participatory irrigation management (PIM) policies (Gomo, Mudhara & Senzanje, 2014).

Smallholder rainfed-dependent subsistence farmers are considered the most vulnerable to climate variability and change and need interventions to adapt their livelihood systems to changing climatic conditions. According to Eriksen, Nightingale & Eakin, (2015), the development of these institutions as adaptation strategies is said to result in the formulation of sensible policy interventions and planned reactions to real or anticipated biophysical changes brought on by climate change. This interpretation of adaptation is limited because it conceptualises it as a process, which makes people passive recipients of adaptation rather than active participants (Eriksen *et al*., 2015). Hence, people's participation in the design, implementation, and evaluation of local climate policies now prioritises climate change adaptation through new technologies and alternative farming methods (Hossain, Qian, Zhao, Mehmood, & Kächele, 2019; Khanal, Wilson, Lee, & Hoang, 2018).

A typical example is drawn from Southeast Asia, where national irrigation systems deteriorated after the withdrawal of state agencies. This was due to the costs of operation and maintenance from their farming activities. Similarly, South African smallholder irrigation schemes were built and planned

to use a centralised state design approach (Fanadzo, 2010). According to policymakers, the expansion of Smallholder Irrigation Schemes (SIS) and the revitalisation of already existing and defunct ones could boost food output (Van Averbeke, Denison & Mnkeni, 2011).

Even though smallholder irrigation farmers in South Africa frequently experience issues with high levels of reliance on government assistance, weak local institutions, and a need for more knowledge about farmers' production strategies are some of the additional challenges that farmers face (Reinders, van der Stoep, & Backeberg, 2013). Another challenge subsistence farmers face in sub-Saharan Africa, particularly South Africa, is that Smallholder Irrigation Systems (SISs) need better market access (Mdemu, Mziray, Bjornlund, & Kashaigili, 2016). The scale of production is an issue. Hence, financial support through public funding may play a massive role, especially in assisting the farmers with input.

Paradoxically limited public funding for the agricultural sector has also made it difficult to create an atmosphere conducive to doing business and providing enough institutional support, which has hampered private sector engagement and investment in agriculture. The government is required to allocate 10% of its national budget to agriculture under the terms of the Comprehensive Africa Agriculture Development Programme (CAADP) of the New Partnership for Africa's Development (NEPAD), which aims to reduce the continent's reliance on rain-fed support water management, agriculture and increase resilience to climate change (Shimeles, Verdier-Chouchane, & Boly, 2018).

The study suggests that understanding farmers' perspectives on climate change, agriculture, and adaptation measures is crucial for effective adaptation policy. Hence, pro-poor growth strategies in the context of developing nations call for risk mitigation and adaptation tools that can assist farmers in offsetting the negative effects of climate change and boosting productivity (Ali, Egbendewe, Abdoulaye, & Sarpong, 2020). Although water scarcity is the main obstacle to sub-Saharan

African agriculture, enhancing smallholder farmers' access to irrigation can boost agricultural outputs and rural livelihoods (Burney & Naylor, 2012). Despite water governance through the policies and institutional support the post-apartheid government formulated, small-scale farmers still face some challenges to water accessibility. This limits the number of farmers who rely on farming to generate their livelihood.

Small-scale farming and water accessibility

The challenge of water accessibility is neither only a South African issue nor an African one, but global. Although the study is based in South Africa, it is fundamental to explore the challenges of water on a global level. The study by Eman, Meško, Segato & Migliorini (2020) estimates that water covers almost 70% of the planet; the scholars further note that 97 % of the water is salty, making it difficult to use for agricultural purposes. Moreover, 2% of the water is found in the snow, like glaciers, which small-scale farmers cannot use. Meanwhile, humans only have 1% of water to be distributed equally and used for farming. Nine countries all over the world share 60% of clean water, for instance, China, Russia, Canada, Indonesia, Colombia, the United States, Peru, India, and Brazil (Miaschi, 2018). It was noticed by Eman & Meško (2020) that the international consumption of water is increasing, and human activities are likewise growing. Furthermore, it is predicted that within the next three decades, the demand for water in agriculture is estimated to increase by 50 %.

On a global level, water accessibility can be seen through the Sustainable Development Goals (SDGs). Historically, the SDGs succeeded the Millennium Development Goals, which also had similar goals to the SDGs. Scholars like Ismail and Go (2021) and Huang, Liu, Sun, Tang, Yuan and Tang (2021) recognise water scarcity as the main threat to attaining the SDGs by 20230.

In South Africa, agricultural activities rely on the rain, which becomes a challenge during droughts and dry seasons. Of the same view, Holtz & Golubski (2021) believe that 90 per

cent of rural residents rely on farming as their primary source of income and generation of livelihood. Moreover, 95 per cent of the people in the region rely on rain in their farms. Hence, this shows that if there is no rain, 95 per cent of the people in the region will not be able to farm properly. Due to global warming, the rainfall is unpredictable; as a result, the region is facing rising temperatures and extreme drought, which has a high impact on the poorest communities (Holtz & Golubski, 2021).

In most cases, the continent suffers from the lack of economic water scarcity. Generally, investing in water resources and relevant human capacity is not sustainable. Climate change is a central factor driving water stress in Africa and around the world. African countries face poor management of water resources scarcity, and water management is the continent's biggest challenge (Mason, Nalamalapu & Corfee-Morlot, 2019). It is further estimated that by 2030, the challenges of climate change will force 100 million people into absolute poverty. As a result, 90% of sub-Saharan Africa will be affected (Mason *et al*, 2019).

One of the elements of political ecology is access to water irrigation. The theory holds that access to water irrigation is always a challenge, especially for small-scale farmers (Oseji, Fan & Chigbu, 2019). It is undeniable that since 1994 South Africa has faced challenges with water irrigation, regardless of the promises made by the ruling party (African National Congress). The majority of the underprivileged rural people live without that water, which makes their lives difficult for irrigation on their small farms (Jackson, Quist, Downing & Larscheid, 2010). The political ecology theory considers the lack of access to water irrigation as an injustice that exposes its victims to poverty and destitution, among other ills (Nelson, 2012; Elmhirst, 2016).

In relation to the present book chapter, the theory (political ecology theory) is of the view that the challenges of water irrigation are not simply the result of what nature has to offer but always involve power relations and political decisions. The crisis of water irrigation is not only about who is granted

access to water irrigation (when, where, and why) but also about the extent to which the shrinking of available water irrigation influences people's everyday lives at the national and subnational scales (Pect, Robbins & Watts, 2010). Political ecology was chosen for various reasons for this study. The following section discusses how the lack or shortage of water for irrigation affects social well-being. The section helps to understand how lack of access to irrigation water results in food insecurity, poverty, and unemployment.

Farming for Social Well-being

In this section, it is important to focus on how the unavailability of water for irrigation affects farmers' social well-being since most rely on natural rainfall for irrigation. Increased production from subsistence farming can improve the food security of poor households, while some subsistence farmers may gain income from the crops they sell to other local households (Sibhatu & Qaim, 2017). Likewise, Praveen & Sharma (2019) connote a need to significantly increase the productivity of subsistence agriculture to ensure long-term food security. The work of Sally (2023) shows that subsistence agriculture remains a substantial sector in improving the livelihood of rural people as it can provide nutrition and improve social status. Scholars, like Sithole, Ncama, Magwaza, Motsa, and Mashilo (2023), also maintain that subsistence agriculture can reduce poverty and food security, as indicated before.

Even though this sector has the potential to ensure food security as well as the availability of food in general, it faces the challenge of a lack of water irrigation. Tengberg (2020) estimated that 3.2 billion people, or nearly one-sixth of the world's population, live in agricultural areas with very high water shortages, and 1.2 billion of them in severely water-constrained agricultural areas. There are significant consequences for food security because many of these regions are underdeveloped nations. Almost 11.7 per cent of the world's population is food insecure (Okoth, 2022).

The challenge of water irrigation disturbs the farming process, as it relies mostly on natural rainfall. Praveen & Sharma (2019) state that rainfall patterns are distracted by the effects of climate change. Of the same view, Tengberg (2020) notes that the water cycle has already been and will continue to be impacted by the effects of climate change: droughts, unpredictable or variable rainfall for farming or herding, pollution, contamination, floods, or extreme weather can all have disastrous repercussions.

Furthermore, Praveen & Sharma (2019) note that climate change is a major concern not only for South Africa but also for Africa at large and Asian countries. In developing countries, it is worse due to poor adaptive capacity and lack of technology (Praveen & Sharma, 2019). Therefore, although other patterns disturb small-scale farmers, climate change is the main cause. Compared to men, women are mostly dominant in subsistence farming in Africa. Women are increasingly in charge of running the farm as men look for employment in the cities.

Moreover, Mwale (2022) reveals that because of the unequal distribution of labour among men and women, women frequently work in domestic and non-domestic contexts. In poor nations, women are frequently in charge of gathering water for domestic usage and irrigation. The challenge for rural farmers remains, especially for females who rely on farming for survival because of the unavailability of water. In other countries like Kenya, women farm crops that require daily irrigation, while men participate in ploughing crops that do not require too much water (Williams, 2022).

Conclusion and recommendation

Water stress is mostly caused by climate change in Africa and globally. Although small-scale farming has the potential to increase food security and lower poverty, subsistence farming struggles due to a shortage of irrigation water. These struggles are interlinked with farming operations and function and have social and economic implications. The chapter unveiled that effective institutions and sufficient funding can improve

farmers' living conditions. Even if innovation platforms have given us crucial knowledge about institutional change, farmers continue to be in the crosshairs of the outside interests and motivations of these institutions. The main issue facing African nations is the continent's poor management of the region's limited water resources.

Political ecology theory asserts that power dynamics and political choices are constantly present in water irrigation issues rather than only the outcome of what nature must provide. Therefore, water shortage may be a natural or a human-manifested problem. Water availability for irrigation is in crisis, affecting not only those with access but also people's daily lives at the national and sub-national levels. Water scarcity is a triple threat to the social well-being of people, health, and farmer operational issues. Hence, the chapter recommends further research on the role of climate-smart technologies as a strategy to reduce water dependency on rainfall water. Policies on what to consider in terms of the climate and seasonal changes are needed. The study further suggests more studies should be conducted on indigenous small-scale farming coping strategies.

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