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RESEARCH ARTICLE:

Reflections on Rural Household Water Insecurity: Evidence from Goboti and Khubvi in the Eastern Cape and Limpopo Provinces, South Africa

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Abstract

South Africa continues to grapple with water insecurity, especially regarding access to rural household water. Access to water in rural areas is communal, yet its distribution remains uneven. A mixed-methods approach was used to elicit data for this study. Quantitative data were collected from 211 households using the survey method where a questionnaire was administered. Qualitative data were collected using key-informant interviews with 20 participants. Quantitative data were analysed using the SPSS software. Qualitative data were analysed using the thematic content analysis technique. The findings indicate that water resource management is intertwined with water allocation. Evidence from Goboti and Khubvi reflect structural inequities and the lack of equalisation of opportunities, especially considering the absence of socially inclusive policy interventions, including the Water Services Act (No. 108 of 1997), which has arguably failed to address the challenges impeding rural household water provision. Further, findings unveiled the fallacy that rural households have a greater acceptance of communal water. This study reflects on how the mandate for transformation has been ignored, prompting the need to understand the implications of lack of water in resource-constrained rural settings. Thus, it is imperative to focus on representation and inclusion within rural communities. More importantly, a commensurable allotment of water resources in South Africa's post-apartheid extractive political economy and political power of water management remains necessary if water access must be attained.

Keywords: *household water; inequities; rural; water resources management; water access*

Introduction

South Africa is yet to find long-lasting solutions to the problem of shortages of potable water in rural households (Tortajada and Biswas, 2018). Improving water security in rural households is an important item on the development agenda for developing countries, and South Africa is no exception (Nojiyeza, 2014; Bulled, 2017). Despite being Africa's second largest economy, South Africa continues to grapple with persistent water woes. Since 1994, the South African government has been undertaking reforms and pursuing a policy transformation trajectory, a restructuring process that interrogates water governance arrangements at all levels (Woodhouse and Muller, 2017). Amongst the many issues this process advocated was an equitable distribution of water an indispensable resource (Tewari, 2009). The two key pieces of legislation that were formulated are the Water Services Act No. 108 of 1997 and the National Water Act of 1998 (Act No. 108 of 1997 and Act No. 36 of 1998). In addition, South Africa recognised access to water as a human right enshrined in the Constitution (RSA Constitution, 1996). In tandem with the Constitution, the Free Basic Water (FBW) Policy of 2001 was promulgated (Rodina, 2016). The

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FBW policy provides for indigent people that cannot afford to pay water rates, with a basic level of service to have access to 25 litres of water per day.

The legislative and the policy frameworks designed to regulate sustainable water resources management were meant to address socio-economic challenges that perpetuated poverty and uneven distribution of potable water in rural areas (Nojiyeza, 2014). The problem of water resources management is exacerbated by a plethora of factors related to lack of infrastructure, poor planning, uneven distribution, inaccessibility, water mismanagement, and drought (Wrisdale, Mokoena, Mudau and Geere, 2017). These are the most glaring challenges in South Africa's rural communities (Lebek, Twomey and Krueger, 2020). According to the Department of Water and Sanitation 2020/2021 Annual Performance Plan (APP), 3 million households did not have access to potable and reliable water supply. The Department of Water and Sanitation 2020/2021 APP, further reveals that water demand far exceeds the supply of this resource. The FBW policy stipulates that a household can receive 25 litres of water per person within a radius of 200 metres from the source (for example, communal tap) (Free Basic Services Act, 2001). Various forms of water reallocation, such as spatial scale, complexity, and institutional infrastructure, are prompted by differences in users' marginal value of water (Rawlins, 2019). Through the National Development Plan (NDP), South Africa acknowledges and advocates for spatial justice and fair allocation of public resources between rural and urban areas, yet there seems to be no plan to significantly develop rural areas regarding the fair allocation of water. The challenge impacting rural water allocation is proper water reallocation. Garrick *et al.* (2019) define water reallocation as historical patterns of water use when the existing allocation is physically impossible, economically inefficient, and socially unacceptable.

Despite the considerable strides South Africa has made in the water sector, numerous challenges still beset this critical sector, impeding access to rural household water and equitable water distribution (Lebek *et al.,* 2020). In rural communities, it is a common practice to see households storing their water in various containers such as drums, buckets, vertical water storage tanks, corrugate iron water tanks, and pail enamel buckets. The water is usually collected from rivers, dams, springs, boreholes, and community standpipes. This practice is common in rural areas as some communities lack proper infrastructure, like water pipes that supply water to homes. The recognition of the previously neglected water rights of people, selected groups or nations makes it imperative for rural households to have access to water, for equitable distribution to be attained. Since 1994, considerable strides have been made to improve the well-being of citizens in most rural areas, with the expansion of almost hundred per cent of electricity supply, courtesy of the rural electrification programme. However, water allocation has remained stagnant. For example, rural development discourses show that disparities in access to water in rural areas are much greater than those for income (Gini 0.95 and Gini 0.65, respectively) due to apartheid settlement patterns that restricted the Black population's residence rights to homelands (Peter and Woodhouse, 2019). Further scrutiny of the rural economy suggests that the high levels of inequality existing in South Africa's former homelands are a result of the legacy of exclusion and the nature of economic growth, which is not pro-poor and unable to generate sufficient jobs.

Water scarcity manifests through the nexus between the available freshwater supply and demand under the prevailing inadequate institutional arrangements and infrastructural conditions (FAO, 2021). Water scarcity is a global socio-economic predicament, with an estimated 1.6 billion people facing water scarcity (Ungureanu *et al.,* 2020; Anim and Ofori-Asenso, 2020; UNESCO World Water Assessment Programme, 2021). An estimated 160 million people, translating to 14 per cent of Africa's population, live under conditions characterised by water scarcity (Hasan, Tarhule, Hong and Moore, 2019). In South Africa, 7 million people live in water-scarce areas (Inequality Trends in South Africa, 2019). However, many water-related challenges affecting rural South Africa are not linked to water scarcity but to water management practices that exacerbate uneven distribution of water among citizens (Cole *et al.,* 2017; Bischoff-Mattson *et al.,* 2020). If access to water is to be successfully addressed, government should acknowledge the fact

that water scarcity is a multi-dimensional phenomenon that integrates aspects of the physical availability of water, water quality, as well as socio-cultural, economic, political, and structural dimensions (Hasan *et al.,* 2019).

A plethora of challenges militate against water security. These include the lack of relevant infrastructure, droughts, and low investments in water supply. The challenges are threatening the full attainment of Sustainable Development Goal 6 (Ungureanu *et al.,* 2020; Anim and Ofori-Asenso, 2020). Water scarcity is not simply the result of what nature has to offer, but also involves power relations and political decisions (Ashcraft and Meyer, 2016). Xu *et al.* (2020) contend that the issue of water availability and its equitable distribution is one of the most critical challenges confronting natural resources management in the 21st Century. Scholars like, Kumar (2018), and Lebek, Twomey and Krueger (2020) note that rural water allocation should be a water management action that should not benefit some people or groups at the expense of others. For instance, Kumar (2018) recommends that policy decisions regarding water resources should be designed to suit the sociological contexts of various geographical areas. Further, the use of water policy for a region or locality should guide water resources and services managers, other than being the pricing determinant where the proponents of water demand consider water as a social and public good (Kumar, 2018).

Access to water means having clean, running, and equitable water distribution on a daily basis (Lebek *et al.,* 2020). The contracts occurring at rural household level and between different types of users of water resources, condition the distribution and use of water in Khubvi and Goboti. Water supply and demand forces are mostly met with changes in relation to societal preferences, and how water is distributed across users (Ungureanu, Vladut and Voicu, 2020). The recognition of previously neglected water rights of people, groups or nations further dictates that rural households receive water, for equitable distribution to be attained. Access to water in rural areas is particularly uneven owing to physical and/or economic constraints (FAO, 2021). For example, South Africa experiences an average rainfall of 450mm compared to the global average of 860mm and has high water stress ranging between 40 and 80 per cent because it withdraws over 25 per cent of its renewable freshwater resources, which is mainly consumed by agriculture (Anim and Ofori-Asenso, 2020). Against this backdrop, strong governance and water allocation strategies are essential to address the competing needs of, and tensions between, actors and users. Water governance should balance the need for efficient water use with equitable access that respects the human right to water. A conducive environment capable of uplifting socially and economically depressed rural economies should be established to prepare such economies for water as an essential good (Makhathini, Mlambo and Mpanza, 2020).

Theoretical Framework

The Governmentality Theory developed by Michel Foucault (1991) provided an analytical lens to navigate discourses on rural household water access. The theory is underpinned by the assumption that government can create conducive conditions for the lives of its populations. This study used this theoretical basis to explore the manner in which the post-colonial government's agenda of providing a reliable supply of safe and adequate water to households in the rural community can transform the situation to improve household water security. Underpinning the philosophy of governmentality is the need to determine who can govern, what governing is, and who or what is governed (Foucault, 1991). Lasswell (1936) defined politics of governing as: who gets what, when, and how; and governing the provision of direction to the economy and society. It is an activity that involves 'steering' and reflecting on mentalities and rationalities towards those that are governed during implementation and change of governance structures (Rose, 1968; Muller, 2019). The Governmentality Theory envisages that the lives of people in rural areas would improve if water infrastructure occupied an integral part of socio-economic development and modernisation efforts in those areas.

Background and Study Setting

The Eastern Cape and Limpopo are among South Africa's poorest provinces. These provinces were created after 1994, in the post-apartheid system that created nine provinces with three spheres of government namely, national, provincial, and local government (Masuku and Jili, 2019). These provinces also housed homelands, Venda in Limpopo Province, and Transkei in the Eastern Cape Province. These homelands were modelled in line with the ideology of separate development, premised on the analogy of 'distinct African people', that is, the Black population. Separate development deliberately enforced low levels of subsistence living through political, social, and economic discrimination (Robinson, 2015). This cyclical phenomenon impoverished the locals, and created unemployment and infrastructural underdevelopment, where basic services such as electricity, water, sanitation, primary healthcare, and education were not adequately delivered to the Black population (Robinson, 2019). The two villages selected for this study typify how water allocation and redistribution to rural households remains largely dominated by technical glitches that impinge on water provision.

The study was conducted in Engcobo Local Municipality in the Eastern Cape Province and Thulamela Local Municipality in Limpopo Province, South Africa. These local municipalities are in Chris Hani District and Vhembe District Municipalities, respectively. The impact of apartheid spatial policies includes wage gaps, poverty, and inequality. At the heart of both rural villages is household water insecurity. Such persistent lack of uneven development possibly reflects poor governance and the neoliberal stance adopted by the South African government. Neoliberal is a form of policy reform of political economic practices that favours strong private property rights, free market, and trade (Smith *et al.,* 2019). Therefore, the neoliberal stance is that neoliberal structural adjustments that the government adopted hardly ameliorated the challenges impeding the distribution of water in rural communities. Instead, it has exacerbated the unevenness in water provision, inequality, pervasive poverty, and unemployment rates.

Several considerations determined the choice of the two study areas. The two municipalities are in the poorest regions of the Eastern Cape and Limpopo provinces. Goboti Village, which is in Engcobo Local Municipality, was chosen because it is endowed with rivers, spring water, and good rains, but lacks proper infrastructure. Khubvi Village, which is in Thulamela Local Municipality, is an overly dry area, though it has the necessary infrastructure that includes a big dam. Thulamela is characterised by floods and incessant droughts due to its complex topography (IDP Thulamela, 2021). The two areas are highly rural and agrarian. Households in these villages have common resources such as communal water taps and tribal land, and residents are highly dependent on social grants.

Methodology

This study adopted a sequential explanatory mixed-methods approach. A case study design was used to explore rural household water insecurity in Goboti and Khubvi villages in the Eastern Cape and Limpopo provinces, respectively. Questionnaire, key-informant interviews, and focus-group discussions were triangulated as they constituted the best fit in terms of integrating the strengths and neutralising the weaknesses of the three methods as well as averting the danger of having findings that are reflective of one method (Creswell and Clark, 2011). Data triangulation helped to explore the depth and breadth of the research problem. This methodological pluralism enriched the quality of data generated to illuminate the intricacies of rural household water. A survey questionnaire was administered to 211 households to generate quantitative data. The random sampling procedure was used to recruit respondents. Qualitative data were collected using four (n=4) key-informant interviews and six (n=6) focus group discussions. Participants for the qualitative component of the study were purposively selected. These sampling techniques were ideal because of the two different geographic areas and the distance between the two municipalities suited the choice for analytical purposes. This would help in establishing any sub-regional differentiation or homogeneity that might exist.

Views were solicited from key informants on how they perceived water issues and their significance. Qualitative data, and a conclusive understanding of the case study areas, yielded several meanings given that the research areas are geographically far apart. A systematic approach of viewing and observing the natural phenomena in the location assisted in drawing informed inferences with regards to collective behaviours, such as accessibility, the quality of water infrastructure, basic water services, and containers used to carry water. These insights provided the context and process of studying the physical environment, which happens mostly at the village level. The household was chosen as the unit of analysis, as it serves as a tertiary unit where the beneficiaries of services and the population sample consisted of individuals such as a father, a mother, a sister or any other close and mature relative in a position to respond to questions on behalf of the household.

The population sample size comprised 211 completed questionnaires from sub-samples drawn from the two villages. Therefore, the purposive, non-random sampling method was used in the two villages due to their prevailing socio-economic characteristics such as service and non-service delivery issues. In addition, widespread poverty, poor infrastructure, poor access to road network, non-availability of jobs, poor educational facilities. In administering the questionnaire, a random sampling technique was applied, and the houses were picked depending on the availability of household members. The questionnaires were administered at the homes of the respondents, and in all cases, the languages that were used were IsiXhosa and TshiVenda, although the questions were written in English. This did not create any challenges as the assistant researchers were thoroughly trained on how to complete the questionnaire. The methods used to solicit information from the respondents were household surveys, focus-group discussions, observation of the areas and in-depth interviews. Quantitative data were analysed using the Statistical Package for the Social Sciences (SPSS), a version 22 computerised programme. Qualitative data were analysed using thematic analysis, which involved the process of identifying, sorting, and arranging data into different categories of themes. Thematic analyses occupied a significant portion of the entire methodology as they informed to the objectives of the research.

Results and Discussions

The results on the basic demographic feature of respondents were captured by descriptive statistics. Table 1 illustrates the socio-economic demographic characteristics of the sampled households. The data revealed that there were more females that participated in the study in Khubvi (60%) than in Goboti (45.2%). According to the Statistics South Africa Census (2011), there are more females (51.4%) than males (48.7%) in South Africa. The table also reveals that in Goboti, 54.8% of the respondents were male while 45.2% were female. This high male-gender representation in Goboti village can be attributed to massive retrenchment that happened in South African mines in the 1990s. Historically, homelands served as labour reserves for the migrant labour system and Transkei exported the largest number of labourers to the mines (Southall, 1983). The dominant age group that participated in the study was the 31- 40 years. A bigger proportion of the studied population comprised the youthful and working age, hence a possibility of having a big population of employable, but unemployed individuals. This variable is significant in the context of water unavailability because militant youths can be expressive if their energies are correctly channelled towards advocating for water provision in their areas. Both villages show a low proportion of formal qualifications amongst the youths; hence, they cannot easily increase their chances of getting formal employment.

In Khubvi village, it was observed that most households had fruit trees namely banana, avocado, and mango. These fruits have a potential to create rural wage income as markets can be created for such produce. It was observed that Goboti village is endowed with clay soils found on riverbanks. This natural resource could also create local, small-scale industries capable of generating the much-needed household income. Proactive government policies can help create equal opportunities if demands for social change were adhered to, in order to desist from solely relying on social grants.

Table 1: Categories of rural household water access

Variable	Description	Khubvi	Goboti
Sex	Male	40%	54.8%
	Female	60%	45.2%
Age	11-20 years	3.2%	5.5%
	21-30 years	30.55%	19.2%
	31-40 years	21.1%	31.5%
	41-50 years	14.7%	17.8%
	51-60 years	16.8%	13.7%
Education	Never been to school	13.7%	12.3%
	Grade 1-7	4.2%	5.5%
	Grade 8-11	14.7%	12.3%
	Matriculation	38.9%	34.2%
	Certification	21.1%	24.7%
	Diploma	8.4%	8.2%
	Degree	3.2%	2.7%
Employment status	Employed	15.85%	20.5%
	Unemployed	84.25%	79.5%
Salary income	Yes	11.6%	15.1%
	No	88.4%	84.9%
Source of income	Remittances	4.2%	5.5%
	Old age pension	20.0%	20.5%
	Child support grant	45.3%	37.0%
	Disability grant	5.3%	4.1%
	Self employed	7.4%	12.45%
	Other	6.3%	2.7%
	None	11.6%	15.15%

Table 1 reveals that the salary-income variable correlates with the unemployment rate where more than 80% of the respondents are not salaried and more than 79% of the respondents are not employed. These results reveal the employment status of the rural population and the poverty emanating from having little or no education. The 11.6% and 15.1% that indicate earning a salary refer mainly to casual workers, permanent farm workers, nurses, police officers, businessmen, counter managers, and dry cleaners. The recent community survey data reveals that people who have been unemployed for more than a year constitute 75.3% of the unemployed population (Stats SA, 2021). In these two cases, some of the respondents have been unemployed for much longer than 10 years, with others having never been employed. Usually, such statistical analysis does not disaggregate for rural areas unless it is a census. The danger with such high unemployment rates is that the rural dwellers are not a fluid group; they are entrapped due to the conditions around them. Despite relatively higher levels of education, some rural dwellers could hardly find work. A combination of low experience and low productivity tends to collaborate in thwarting prospects for work.

The financial capacity of rural households reveals that income composition comprised mostly welfare transfers. This upward trend in welfare usage by vulnerable people in rural settings has been ongoing since the dawn of democracy in South Africa (Makhathini, Mlambo and Mpanza, 2020). Migration by males to Johannesburg, Cape Town, Durban, and Port Elizabeth has temporarily eased unemployment in both rural areas. Old-age pension grants (the second highest source of income in both villages where there is no significant difference as the proportion of respondents who answered in the affirmative was almost equivalent, at 20% for Khubvi *vis-à-vis* 20.5 % for Goboti) and child support grants (the highest source of income at 45% for Khubvi and 37% for Goboti) remained the most important financial relief for people in both villages. Evidently, remittances from urban employment benefited people in both villages in equal proportions. Data on remittances made interesting reading, as some remittances determined the purchasing power for most households in both villages. Focus-group discussions revealed that most households used remittances to build houses or buy furniture. By observation, the houses

in Goboti were typical of rural households, unlike in Khubvi where there were modern structures. Although remittances positively contributed immensely to the standard of living, poverty levels remained very high in these rural areas, particularly in Goboti. Contrary to this finding, a villager who was a water committee member in Khubvi reflected that:

> "There are family members who are in Johannesburg, and they send us money. With that monthly income, we can plan properly. We plant crops and buy everything we need. We have a lot of fruits and vegetables here. That is another way through which we generate money. Most people here are not lazy; we also sell chickens to augment our monthly incomes"

In view of the utterances above, rural people are seemingly surviving mainly on social grants provided by the government, apart from the remittances. Most households in Khubvi were involved in small-scale agricultural activities, albeit not for formal economic interest unlike in Goboti where minimal gardening activities were done. One of the participants in the focus group discussion in Goboti had this to say:

> "We do not grow vegetables anymore, since they require much water. We can't keep livestock too, because they also require drinking water and that results in food insecurity".

According to an official from the Chris Hani District Municipality:

> "The water structures are not designed for extra domestic practises such as irrigation; they only cater for domestic uses".

Moreover, social grants were the dominant source of income in both areas. In contrast, households in Limpopo province were perceived to have better quality of life, which was attributed to a reliable water supply and the remittances sent home by the economically active population. Climate change-induced droughts posed a serious threat to subsistence farming in Goboti. Participants reported that the yields were better before the prevailing climatic conditions. Respondents in both areas indicated that they navigated the challenges posed by climate change-induced droughts through remittances. Siblings or parents sent some money home for procuring vertical water storage tanks, in the case of Goboti and drilling boreholes, in the case of Khubvi. The participants also indicated that they hired trucks to deliver water at a cost ranging between R700 and R800 per load, depending on the size of the tank. Officials in both areas indicated that they developed water conservation programmes:

> "Our conservation programmes are determined by demand, which is often dictated by population size and the financial stability of people in the area. We also conduct conservation awareness campaigns in schools and communities. In some communities, we have rainwater harvesting programmes, where we supply rural communities with vertical water storage tanks for them to practise farming".

Participants in both areas indicated that they had not received water harvesting tanks tailored for farming practices. Perhaps, in other rural communities, such interventions were implemented. Despite being a naturally dry area, villagers in Khubvi employ good subsistence farming practices, which have the potential to unlock diverse livelihood options if markets are available outside the area. Subsistence farming contributes positively to food security (ECSECC, 2017). The findings also indicate that households in Khubvi diversified their sources of income. Many households had organised themselves into *stokvels* (savings or investment society), which have significantly raised household incomes. Consequently, households have been able to afford building beautiful houses and drilling boreholes. For instance, the unemployment status of both areas is above 70% (see Table 1), which is above the unemployment rate in the country. In South

Africa, the rate of unemployment is 34.9% (Stats SA, 2021). However, the percentage of houses with boreholes and tanks was higher in Limpopo province than in the Eastern Cape.

The costly self-made supply system involving the sinking of boreholes is a way of securing water for rural dwellers themselves whilst mitigating water scarcity, given that the area is dry, resulting in dams and other water bodies running critically low. Villagers in Goboti faced several constraints related to access to adequate infrastructure. In Khubvi village, water infrastructure is in the form of a dam, which supplies water to communal taps in the village. There are boreholes belonging to individual households. The successful gardens observed in some homesteads in Khubvi correlate closely with availability of water in the area irrespective of where it is sourced. Evidently, the installation of boreholes had major financial implications, though it was a once-off expenditure. The rural community and household water, as well as the matrix of water availability in Table 2 characterise and contextualise the meaning of water availability in each village. Muller *et al.* (2015) argue that South Africa must secure water at all costs and reiterate that water infrastructure is essential as it underpins water security, adequate quality water, reliably available to meet health needs, livelihoods, the ecosystem, and production needs, as well as protection from water's destructive extremes.

The above statement substantiates the findings as the surveyed households indicated that lives would improve in the local communities if water infrastructure occupied an integral part of socio-economic development and modernisation. For instance, China invested in water infrastructure by building the Three Gorges dam, which supports economic development in that country; however, rural-urban resettlement meant that the rural people struggled to re-establish their livelihoods in their new urban localities (Wilmsen, 2018). Thus, households can only be food secure if there is water availability, which enables them to diversify their incomes. However, manufacturing, mining, and agricultural industries always enjoy support from dams. Consequently, the same dam cannot deliver, and is randomly enabled for capturing, storage, transmission, treatment, and distribution of water to rural communities.

Table 2: Rural community and household water, matrix of water availability

Characteristic	Meanings	Goboti village respondents	Khubvi village respondents
Household water	Water that is available in the yard (tanks, taps, boreholes)	63% (Mostly vertical water storage tanks, some illegal connections) 37% (Use communal taps)	94.7% (Boreholes and vertical water storage tanks, illegal connections) 5.3% (Use communal taps)
Water sources	Best water sources (Dam, River, Springs)	17.8% (Preferred spring water)	42.1% (Preferred dam water) Borehole water is salty
Distance from water point	The distance they walked from the house to a water point (Utilising the principle of 200 meters between communal taps)	46.6% (Not satisfied) 53.4% (Satisfied)	35.8% (Not satisfied) 64.2% (Satisfied)
Water accessibility	The accessibility of water from their households	46.6% (Furthest from household[4]) 53.5% (In the yard or nearest from the household)	35.8% (Furthest from household). 64.2% (In the yard or nearest from the household)
Quantity of water	Getting water from the water point as much as you need in a short space of time	34.2% (Water pressure is weak) 65.7% (Water pressure is strong)	27.4% (Water pressure is weak) 72.7% (Water pressure is strong)
Access to clean drinking water	Considered that they have access to clean drinking water	89.0% (Yes) 11.0% (No)	90.5% (Yes) 9.5% (No)
Causes of water shortage	Dominant water shortages in the village	Dry area 32.9 % Corrupt officials 20.5 % Unserviced infrastructure 23.3 % Government does not care 23.3 %	Dry area 35.8 % Corrupt officials 18.9 % Unserviced Infrastructure 27.4 % Government does not care 17.9 %
Possible adjustments to avoid water shortage	Coping strategies in response to water challenge	Usage of tank 23.3% Conserve 23.3% Usage of drums- 8.2% Hire trucks 11.0%	Borehole and tank 23.3% Conserve 23.3% Drums 8.2% Less water usage 12.3%

		Non usage 21.9%	Non usage 21.9% Hire trucks 11.0%
Access to water	Meaning of access to water for households	91.8% (Having access to clean water every day)	89.5% (Having access to clean water every day)
Reliability of water when needed	The reliability of water at water points	50.7% (Worse off)	42.1% (Worse off)
Service delivery	Whether district municipality is doing enough in terms of water provision in your area	38.4% (Yes) 61.6% (No)	61.1% (Yes) 38.9% (No)
Causes of water shortage	The dominant water shortages in your area	Dry area 32.9% Corrupt officials 20.5% Unserviced infrastructure 23.3% Government does not care 23.3%	Dry area 35.8% Corrupt officials 18.9% Unserviced infrastructure 27.4% Government does not care 17.9%
Average money spent per month to access water	Do you spend money to access water? If so, how much averagely per month?	17.9% spend money to access water	23.3% spend money to access water
Access to water since 1994	How do you rate your level of access to water since the new dispensation?	No change 19.2% Better 52.1% Worse off 11.0% I don't know 17.8%	No change 21.1% Better 54.7% Worse off 9.5% I don't know 14.7%

Furthest from the household means that: Distance (metres) travelled outside the yard of households to a water source. In the case of Goboti, the distance travelled ranges from 200 to 600 metres to access water from springs, communal taps, or rivers. In the case of Khubvi, the distance that households travel outside the yard is 200 or less than 200 meters to the communal tap. In Goboti, it was observed that there were two active springs, of which the source is from the mountains overlooking the village. There are two small streams or rivers that have been observed in the area.

The above illustration shows that 38.4% of the households indicated that the District Municipality was doing enough in terms of service delivery, while 61.6% indicated otherwise. The higher rate of success characterising the provision of water in Khubvi may be attributed to the availability of a dam that supplies water to the area. The impact of the built water infrastructure on water security, locally and internationally, significantly improves water allocation. For most household respondents, the onus is on officials to discharge their responsibilities effectively and fully as drivers of reform and change. Their ineptness has compounded the complexity characterising water allocation. Judging by the results in the above matrix, the officials are not doing well in terms of securing the much-needed water. The findings confirm that water service delivery has adequately improved in Khubvi. However, the dam was built during the apartheid era. Similarly, in Goboti, the reservoir was built during the homeland system. The villagers incurred costs for accessing water and those costs correlated with the household's monthly income. Households spent money hiring trucks to deliver water in the case of Goboti. The issue of water insecurity in Goboti provides an interesting insight into the findings as participants indicated that they hired a truck to ferry water from a small stream on which villagers depend for water supplies. They indicated that they sometimes did their laundry in the river, sharing the water with animals.

The villages reportedly engaged in various coping mechanisms to supplement water access, such as drilling boreholes, installing storage tanks, buying water, and re-using water as temporary and long-term solutions to the challenge of water insecurity. For instance, the cost of hiring a truck ranged from R700 to R800, depending on how many vertical water storage tanks the truck could carry, which was more often a capacity of 5 000 litres per tank. Such money could otherwise be used to pay school fees, buying clothes, and food; however, it is diverted for use in water acquisition. A shift towards accessing more household water by hiring trucks to ferry water indicates possible adjustments designed to mitigate water shortages. The correlation between these adjustments and household income, which is inadequate, highlights its probable link with remittances. The households invested in their own water sources. The findings suggest that water security amongst rural households, especially in Goboti, will not be achievable soon, seemingly because no interventions are in place yet, judging by the responses from the officials:

> "Advancement in technology becomes an issue, which I believe shall not be applicable soon in rural areas because it is very expensive and budget constraints, and the magnitude of work are among the limiting factors. Rural communities can use ground water because it is not only inexpensive, but free from pollutants. Moreover, the geographical conditions do not allow the place to have much water. Due to mismanagement of funds, Engcobo is no longer a water service provider".

Water insecurity is synonymous with lack of income generating activities (Milbourne, 2016). Moreover, service delivery enhanced by water governance should promote responsiveness to the client in an equitable and efficient distribution, resulting in end users receiving quality water (Woodhouse, 2017; Moore, 2014). Meanwhile, the findings revealed that the two district municipalities were not doing enough to provide water to their residents. In Goboti, 38.4% of the household members responded in the affirmative whilst 61.6% of them indicated that municipalities were not providing enough water. In Khubvi, 61.1% of the household members agreed that municipalities were doing enough whilst 38.9% gave a dissenting response. Accordingly, this explains the Water Allocation Reform Programme that was rolled out in 2001 should measure the impact of water allocation in rural areas, however its slow in redressing imbalances in access to water. The research established that the struggles over water governance systems should highlight an interconnected ensemble of political, socio-economic, and administrative elements that perform water governance functions (Pahl-Wostl, 2019). Clearly, redistributive reform programmes have not determined the level of administrative, fiscal, and political decentralisation policies designed to benefit the rural poor.

The literature posits that water is a multifaceted natural resource due to its multiple uses in manufacturing industries, agriculture, energy, household, and municipal water supply; it therefore creates multi-layered governance (Masuku and Jili, 2019). Therefore, water distribution poses challenges as water are deliberately diverted to those who pay for the commodity under the prevailing political economy in South Africa, despite a rights framework; according to the Constitution (1996), the rural poor also have the right to access water. For instance, there were difficulties balancing the established view that water is a public good and the modern view that water has a commercial value. After 1994, the South African government sought greater efficiency by allowing private concession, while paying attention to a social obligation to the historically marginalised people (Song, 2020). As a result, the National Water Act, No. 36 of 1998 classifies water into four broad categories: domestic, industrial, agricultural, and recreational. The community members believe water is a natural resource, with officials perceiving it as a commodity that should be paid for. These contentions centre on whether rural areas should be billed or not, sometimes creating confusion among rural people. The constraints that lead to tensions between water as a right and as a commodity in rural areas should be ameliorated by an approach that builds more on the community's strengths and collaboration, rather than on a one-size-fits-all approach (Wesdyk, 2019). Socially, rural households cannot gain from being billed for water. Politically, politicians cannot entirely gain from decisions made on equitable distribution of water as they seek votes from marginalised people.

Daily water consumption practices were examined as a way of recounting household experiences on water practice. The results showed the prevailing water-related conditions and the trends in domestic water use across households. Households facing water insecurity employed various strategies and unsustainable practices like, re-use of water, sharing water with animals and storage of water in buckets and drums. Table 3 shows dominant water practices and summarises households' responses, indicating the survival and coping techniques they adopted. The need for water security is high in both villages as indicated by the preferred sources of water, which is a tap in this case.

Table 3: Rural household water access prevalence in Goboti and Khubvi villages

Practices	**Goboti village**		**Khubvi village**	
Preferred sources of water in this area	90% (Indicated taps as preference)		78.9% (Indicated taps as preference)	
What do you regard as enough water in a single day?	500 litres	9.6 %	500 litres	9.5%
	300 litres	16.4%	300 litres	22.1%
	250 litres	8.2%	250 litres	10.5%
	150 litres	8.2%	200 litres	26.3%
	50 litres	11.0%	150 litres	11.6%
	75 litres	11.0%	75 litres	10.5%
	2 litres	35.6%	50 litres	9.5%
Do you think you have enough water per day?	67.1% (Yes) 32.9% (No)		64.2% (Yes) 35.8 (No)	
How do you store water?	Buckets	42.5%	Buckets	40.0%
	Drums	39.7%	Drums	38.9%
	Tank	17.8%	Tank	21.1%
What do you personally use the water mainly for?	72.6% (Bathing, cooking and laundry)		68.4% (Bathing, cooking and laundry)	
Do animals share the same river water or dam water with you?	60.3% (Yes) 39.7% (No)		50.5% (Yes) 49.5% (No)	
Re-use of water	52.1% (Yes) 47.9 (No)		40.0% (Yes) 60.0% (No)	
Suitability of water for everyone	52.1% (Yes) 47.9% (No)		43.2% (Yes) 56.8% (No)	

A common finding was that in Goboti, 67.1% of the households indicated that they had sufficient water per day compared to 64.2% in Khubvi. It emerged that an overwhelming majority of the households preferred taps as a source of water in their area, with Goboti constituting 90% and Khubvi constituting 78.9% of the sample population. This clearly indicates the need for water security, which presents a form of convenience to the members of the households. Clearly, 35.6% of Goboti households regarded two litres of water as enough for a single daily use. In Khubvi, the high usage of water per day indicates the type of storage facility they had. Generally, households in both villages re-used water; however, in Goboti, water was re-used mainly for bathing and laundry. In Khubvi, water was re-used mainly for irrigating gardens. For instance, in Goboti, respondents indicated that the same bath water could be used by two to three different members of the household. Thus, most households that indicated that they re-used water adopted survival strategies. The respondents also indicated that they shared water with animals. Despite this finding, participants in both villages indicated that no cases of water-borne diseases were reported. A professional nurse from the local clinic in Engcobo was interviewed and responded:

> "So far, there are no water-borne diseases. What are common are sores. However, if there are outbreaks, we then report to the Municipality, and they provide water for the affected community. We also send out health promoters and care givers to conduct health education in the communities".

Findings also revealed that in Limpopo province, malaria was the most prevalent disease because the area is typically tropical and characterised by very hot and humid summers, though it is not water-borne. The Department of Health implements programmes meant to curb such calamities as the outbreak of malaria, which is often prevalent along the border with Mozambique. For instance, community members have been free from water-borne diseases such as cholera, typhoid, fever, diarrhoea, and guinea worm.

A comparative analysis of the two villages shows how the long-running structural conditioning designed by apartheid had differential impacts on water governance in the two villages. It is critical to understand how local and contextual factors can influence huge differences in outcomes in terms of the provisioning of water in rural areas. This analysis clarifies the prevailing post-apartheid conditions and the State's failure to remove the structural elements that negatively impact on the quality of life for rural dwellers at the household level. In general, the findings show that in Goboti, improvement in water supply manifested in the form of a reservoir that was built during the homeland regime. The reservoir is regulated to preserve the little water that is available. Most villagers do not entirely rely on the reservoir, preferring storage tanks. Lack of access to water or lack of water sources for both household and food garden development remains a challenge. Even though a food garden and better access are experienced in Khubvi, there are times when there is no water in communal taps. The applicability of water reallocation depends on the development and observation of water rights, as well as institutional, and infrastructural development (Marstonand Cai, 2016). Further, water reallocation to rural households is an important water management tool, which can reduce the economic, social, and environmental harm caused by lack of water (Rawlins, 2019). Hence, the legislative and policy frameworks in water institution should resolve the barriers impeding water reallocation.

The study has confirmed the academic consensus stating that South Africa's post-apartheid extractive political economy constrains development and water management objectives because of the priority given to profit-oriented sectors and manufacturing industries (Woodhouse, and Muller, 2017). The main contribution of the study is that regional differences in political structures and power relations can differentially affect water access outcomes, even though both areas are affected by the general historical constraint of inequities in distribution and allocation of water. Water is a desired resource amongst rural households as well, as it constitutes a human development objective and a vital governance as well as political and economic matter.

Conclusion

This study has shown how rural communities in the Eastern Cape and Limpopo Provinces grapple with inadequate water supply resulting from shortage of sources of quality water and the requisite infrastructure to facilitate access to potable water in resource-constrained rural settings. Employing the sequential explanatory mixed-methods approach, the study effectively investigated the nature and pattern of water provision. The researchers examined rural household water insecurity against the historical background of access to water in the two study areas and how this resource was used as a neoliberal tool limiting rural dwellers from accessing water. The arguments presented by the respondents resonate with the art of governmentality and the participants' frame of mind regarding water issues. Water governance should set rules regulating how water should be allocated and managed (Smith *et al.,* 2019).

The evidence from Goboti and Khubvi has indicated that rural household water insecurity is mainly linked to socio-economic factors, political relations, and ecological systems. In the two cases the geographical and historical problems include unemployment, poverty, and lack of proper education. Water provision in rural areas is practically limited to domestic use, yet findings indicate that illegal connection by communities are rife to access the pleasantries and benefits of having water at one's disposal. The area of Goboti draws raw water from the mountains and water officials are discouraged by the high costs associated with setting up the water infrastructure needed to mitigate the water crisis. In Khubvi, a dam services the area, and households use communal taps to water their vegetable gardens. There is also a surge in the use of boreholes by villagers. Further, communal taps are 200 metres apart, unlike in Goboti where they were between 600 and 800 metres apart.

The implementation of policies that seek to overcome spatial challenges in water-depressed areas needs proper and meaningful government intervention. The economic and spatial planning in the context of unevenly distributed and variable resources can be an indispensable element in the management of human dependency on water. Apparently, the broad political discourse on water is muddy and the intention is not only to determine how marginalised groups receive a reliable supply of water, but it is also a capitalist agenda. A spatial framework and a local map of river system, streams and springs could decisively assist inform decisions.

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Note:

Stokvels: The word "stock fairs," which was used to describe livestock auctions held in South Africa during the 19th century by English settlers, gave rise to the name "stokvel." Currently, it refers to a savings or investing initiative where members get a lump sum payment in addition to making recurring contributions of a certain amount. Stokvel is a peculiar South African phrase that is typically used in Black communities. Stokvels are collective savings plans that meet needs for social and recreational activities, as well as for mutual and financial well-being (Bophela and Khumalo, 2019)

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