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Implications for Social Justice in South Africa's Water Law**

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Public Trusteeship, the Reserve and the Water-Energy-Food (WEF) Nexus: Implications for Social Justice in South Africa's Water Law

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ABSTRACT

This study explores how South Africa's water law has evolved to ensure fair and equitable access to water resources after the country's transition to democracy. Emphasis is placed on the transformative impact of the National Water Act 36 of 1998 (NWA), which effectively 'nationalised' the country's water resources. The NWA asserts water as 'a scarce natural resource that belongs to all people'. To facilitate the notion of water belonging to all, the NWA introduced ground-breaking concepts like public trusteeship and the Reserve to the landscape of South African water law. The paper delves into the legal intricacies of the novel concepts, and enhances their practical application by integrating them within the Water-Energy-Food (WEF) Nexus framework. The paper critically reflects on the WEF Nexus framework and explores the extent to which the WEF framework supports or undermines gains made by the concepts of public trusteeship and the Reserve. The overarching aim is to elucidate their combined implications for social justice in the context of South Africa's water law.

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INTRODUCTION

Water, as an essential natural resource, sustains and supports diverse life forms and acts as a catalyst for driving socio-economic growth.¹ The reality, however, is that this vital resource has become alarmingly scarce, globally.² This is acutely felt in Southern African countries, and especially in South Africa, where the water demand often surpasses its availability. The challenge of water scarcity takes on an even deeper meaning when linked to the principles of social justice.³ In fact, water scarcity is a multifaceted challenge that intertwines with the broader dynamics of fairness, inclusivity and the equitable distribution of resources within society. In South Africa, the scarcity of water resources often disproportionately affects marginalised and vulnerable communities.⁴ Naturally, as water resources continue to become scarcer, the effects on these already marginalised groups intensify.

Moreover, the nexus of water, energy and food (WEF nexus),⁵ albeit underdeveloped in the context of law, underscores the intricate links between water and other essential dimensions of human life, such as energy and food.⁶ Within the nexus, inequalities in water access can ripple into challenges in energy and food sectors, mag-

nifying social justice concerns, at community level,⁷ but also at national, regional and global scale.⁸

In response to these challenges and driven by the vision of creating a society rooted in democratic values, social justice and fundamental human rights,⁹ South Africa's democratic Government enacted the *Constitution of the Republic of South Africa*, 1996 (Constitution). Within this Constitution, section 27(1)(b) explicitly recognises the right to have access to sufficient water. This right, coupled with section 24 of the Constitution (which guarantees the right to an environment that is not harmful to health or well-being; and which ensures its protection for both present and future generations, while balancing ecologically sustainable development with justifiable economic and social development), resulted in the adoption of a suite of transformative environmental legislation. One such law is the *National Water Act* 36 of 1998 (NWA).

Upon its introduction, the NWA was celebrated as one of the most progressive environmental Acts worldwide, notable for pioneering the ideas of public trusteeship and the Reserve. Since its statutory introduction, the concept of public trusteeship has been the subject of extensive research. Existing scholarship shows that the concept of public trusteeship places all South Africa's water resources under the control of the national government as public trustee to, *inter alia*, improve the allocation, management, use, conservation, and equality of access to this scarce resource.¹⁰

Another core responsibility of the public trustee is to determine and implement the concept of the Reserve. The Reserve is defined in the NWA,¹¹ and refers to the quantity and quality of water required to satisfy basic human needs and ecosys-

¹ Water is crucial for the survival of people, plants and animals on earth. Beyond sustaining life, it plays a vital role in health, religious practices and socio-economic development. Carlos Corvalan, Simon Hales and Tony McMichael, 'Ecosystems and Human Well-being: Health Synthesis' (2005) World Health Organisation, Millenium Ecosystem Assessment 1-5; Hubert Thompson, *Water Law a Practical Approach to Resource Management & the Provision of Services* (Juta 2006) 3.

² Niruban Chakkaravarthy and T Balakrishnan, 'Water Scarcity - Challenging the Future' (2019) 12(3) *International Journal of Agriculture, Environment and Biotechnology* 187.

³ 'Social justice is primarily concerned with the eradication of poverty and extreme inequalities in access to material resources in order to ensure that all citizens command the resources needed to equally participate in socio-political life.' Oliver Fuo, 'A Critical Investigation of the Relevance and Potential of IDPs as a Local Governance Instrument for Pursuing Social Justice in South Africa' 2013 (16) 5 *Potchefstroom Electronic Law Journal* 222.

⁴ This reality underscores the deep-seated inequalities that can be traced back to historical and political injustices, unequal access to resources and systemic biases.

⁵ The WEF nexus was first highlighted at the World Economic Forum in 2008. WE Forum, *Water Security: The Water-Food-Energy-Climate Nexus* (World Economic Forum 2011).

⁶ Joel Botai and others, 'A Review of the Water-Energy-Food Nexus Research in Africa' (2021) 13(1762) *Sustainability* 2.

⁷ For instance, water scarcity, or limited access, can hamper agricultural productivity, leading to food insecurity, which in turn affects the well-being and livelihoods of communities. Botai and others, *ibid* 2.

⁸ Botai and others (n 6) 2.

⁹ See the preamble to the *Constitution of the Republic of South Africa*, 1996.

¹⁰ Section 3 of the NWA.

¹¹ Section 1(xviii) of the NWA.

tem protection respectively.¹² The Reserve is expected to ensure a ring-fenced approach that will reserve portions of South Africa's available water resources for basic human needs and environmental sustainability, as a requisite for the judicious allocation and distribution of water resources across diverse sectors – including the agricultural or food and energy sectors – even in times of scarcity.

Despite their promising potential, the concepts of public trusteeship and the Reserve remain in their legal infancy. It is still to be determined, for example, to what extent the concept of public trusteeship has led to changes in institutional regimes; and how the concept is operationally implemented, especially in terms of defining responsibilities and establishing accountability mechanisms for effective governance. In fact, although South African courts have mentioned 'the State acting as a custodian, holding the environment in public trust for the people',¹³ there has not been a detailed analysis in reported case law of how public trusteeship impacts water governance in South Africa.¹⁴ Equally pertinent are questions related to the meaning, determination and implementation of the Reserve; the justiciability of the Reserve;¹⁵ and their implications for different sectors. Given the objectives of the transformed water regulatory regime, it is critical to clearly define and operationalise public trusteeship and the Reserve, ensuring a distinct allocation of responsibilities and mechanisms for effective governance.

This paper sets out to achieve four objectives: 1) to unravel the significance and transformative potential of the concepts of public trusteeship and the Reserve; 2) to explore the meaning and relevance of the WEF Nexus framework, particularly for in South Africa; 3) to investigate how public

trusteeship and the Reserve are incorporated within the WEF Nexus, and to determine the extent to which this integration either hinders or promotes the progress already made by the concepts of public trusteeship and the Reserve, and 4) to determine their subsequent implications for social justice in the South African context.

The discussion unfolds as follows: the first part briefly contextualises the legal evolution of water governance in South Africa since its democratic transition in 1996. The subsequent sections, two and three, respectively analyse the transformative impacts of public trusteeship and the Reserve in reshaping water resource governance and water use allocation in South Africa. Part four introduces the WEF Nexus framework, critiques it, and continues to demonstrate how both public trusteeship and the Reserve can be positioned within this WEF nexus framework. The paper concludes by leveraging from the lessons learned to determine the extent to which the WEF framework supports or undermines gains made by the concepts of public trusteeship and the Reserve. The overarching aim is to elucidate their combined implications for social justice in the context of South Africa's water law and governance.

¹² See the explanatory notes in chapter 3 of the NWA.

¹³ *Hichange Investments (Pty) Ltd v Cape Produce Co (Pty) Ltd t/a Pelts Products* 2004 2 SA 393 (E) 418B-C.

¹⁴ Brief reference thereto has been made in *Minister of Water and Sanitation and Others v Lotter N.O. and Others*; *Minister of Water and Sanitation and Others v Wiid and Others*; *Minister of Water and Sanitation v South African Association for Water Users Associations* 2023 (4) SA 434 (CC).

¹⁵ Derick du Toit, Sharon Pollard and Ramin Pejan, 'A Rights Approach to Environmental Flows: What does it Offer?' (2009) <<https://cer.org.za/news/a-rights-approach-to-environmental-flows-what-does-it-offer>>.

DEMOCRATIC TRANSITION AND WATER LAW TRANSFORMATION

South Africa, being a water scarce country, has historically seen its limited water resources unevenly distributed. Following the formal inception of apartheid, the *Water Act* 54 of 1956 was applied in South Africa. Regrettably, this Act reflected the apartheid policies that were in place in South Africa at the time.¹⁶ The 1956 Act differentiated between private and public water,¹⁷ which inherently encouraged the segregated development of different ethnic groups. Although the *Water Act* did not explicitly specify the owner of water, it permitted landowners to exclusively use private water originating from or flowing over their property.¹⁸ Since land, and by extension, water access, was primarily owned by the white minority, actual access to water was severely limited to many South Africans.¹⁹ Consequently, low-income individuals, predominantly black South Africans, were deprived of adequate access to water as they either could not afford it or did not have riparian land rights.

As previously mentioned, South Africa's first democratic government promulgated the Constitution to bridge historical divides and to build a society based on fundamental rights.²⁰ As a cornerstone of this commitment, section 27(1)(b) of the Constitution explicitly guarantees the right to have access to sufficient water for everyone (the constitutional water right). In fact, section 27 of the Constitution cloaks the state with explicit

responsibilities²¹ to ensure everyone has access to sufficient water.²² This commitment is reinforced by section 27(2), which requires the state to progressively realise the constitutional water right through reasonable legislative and other measures. In line with this mandate, a comprehensive review of South Africa's water laws commenced in May 1994.

The first significant outcome of this review process was the adoption of the *Fundamental Principles and Objectives for the New Water Law in South Africa* in 1996 (see Appendix 1 of the *White Paper on a National Water Policy for South Africa* of 1997). The 28 principles and objectives set out the country's policy positions for the protection, use, development, conservation, management and control of South Africa's water resources. For purposes of this paper, some of these principles are highlighted. Principle 1 declares that the water law should align with the Constitution. Principle 2 declares all water, regardless of its stage in the water cycle, as a shared resource under national control. The third principle clarifies that water use rights are distinct from ownership, granting rights solely for environmental and basic human needs, along with specified authorisations for use. Principle 4 eliminates the riparian principle from the country's water law. Principle 8 is dedicated to ensuring that everyone has access to sufficient water and provides for the reservation or 'setting aside' of water to ensure access. Principle 9 focuses on the protection of water quality, quantity and reliability necessary to sustain the ecological functions of water critical for human survival. Finally, principle 10 introduced the 'Reserve', prioritising water for basic human needs and environmental sustainability above other uses. These principles, along with the other 21, underscore the emphasis on equitable access, sustainability, and the prioritisation of basic human and environmental needs in South Africa's new water law framework.

Although the *Fundamental Principles and Objectives for the New Water Law in South Africa* of

¹⁶ Germarié Viljoen, 'The Transformed Water Regulatory Regime of South Africa [Discussion of South African Association for Water User Associations v Minister of Water and Sanitation [2020] ZAGPPHC 252 (19 June 2020)]' (2022) Stellenbosch Law Review 148.

¹⁷ See ss 1(xiii) and 1(xiv) of the *Water Act* 54 of 1956.

¹⁸ See s 5(2) of the *Water Act*.

¹⁹ Germarié Viljoen, 'South Africa's Water Crisis: The Idea of Property as Both Cause and Solution' (2017) 21(1) *Law Democracy & Development* 177.

²⁰ See the preamble to the Constitution.

²¹ Section 7(2) of the Constitution places a various positive and negative duties on the state to respect, protect, promote and fulfil all of the rights in the Bill of Rights.

²² Section 7(2) read with section 27(1)(b) of the Constitution.

1996 were not legally binding,²³ they played a critical role in steering a consultation and research process that led to the development of the 1997 *White Paper on a National Water Policy for South Africa* (NWP). The NWP introduced comprehensive policy directions for the protection, use, development, conservation, management and control of South Africa's water resources.²⁴ The policy positions included affirming and formalising the nation's water resources as an indivisible national asset, designating the national government as the custodian of these resources, recognising that the government's powers in this regard would be exercised as a public trust, and ensuring that only water necessary for basic human needs and environmental sustainability will be guaranteed as a right, which will be recognised as the Reserve.

Following the NWP, the *Water Services Act* 108 of 1997 (WSA), the *National Water Act* 36 of 1998 (NWA), and the National Environmental Management Act 107 of 1998 (NEMA), among others, were drafted and subsequently promulgated. Along with the *National Water Resources Strategies* of 2004, 2013 and 2023, these legislative instruments catalysed a transformation of South Africa's water regulatory framework.²⁵

The NWA was promulgated primarily to facilitate a 'fundamental reform of the law relating to water resources'.²⁶ The NWA transformed the water regulatory framework from where access to water was tied to landownership and distinguished between private and public water, to a more inclusive framework that covers 'all water' in South Africa, underlining the principles that 'water belongs to all people'.²⁷ To reinforce the transformation, the legislature introduced the concepts of public trusteeship and the Reserve into the country's water law.

THE CONCEPT OF PUBLIC TRUSTEESHIP

The introduction of the NWA marked a significant evolution in the water regulatory framework, which in the past tethered water access to land ownership²⁸ and drew distinctions between private and public water.²⁹ The regulatory framework evolved to apply to 'all water' in South Africa, embracing the concept that 'water belongs to all people'.³⁰

The NWA broke new ground by integrating the concept of public trusteeship into the South African water law.³¹ In fact, this concept was statutorily enshrined as the mechanism for achieving the desired water reforms.³² Section 3 of the NWA provides:

3(1) As the public trustee of the nation's water resources the National Government, acting through the Minister, must ensure that water is protected, used, developed, conserved, managed and controlled in a sustainable manner, for the benefit of all persons and in accordance with its constitutional mandate.

(2) Without limiting subsection (1), the Minister is ultimately responsible to ensure that water is allocated equitably and used beneficially in the public interest, while promoting environmental values.

(3) The National Government, acting through the Minister, has the power to regulate the use, flow and control of all water in the Republic.

Despite extensive research within the broader South African legal discourse, the South African concept of public trusteeship remains an elusive concept, without strong connections to traditional jurisprudential principles. This vacuum prompted

²³ Thompson (n 1) 162.

²⁴ *ibid.*

²⁵ Elmarie Van der Schyff and Germarié Viljoen, 'Water and the Public Trust Doctrine - A South African Perspective' (2008) 4(2) *The Journal for Transdisciplinary Research in Southern Africa* 340.

²⁶ Long title and section 2 of the NWA.

²⁷ Long title of, and preamble to the NWA.

²⁸ See the introduction of the *White Paper on a National Water Policy for South Africa*; Van der Schyff and Viljoen (n 25) 340.

²⁹ See section 1 of the *Water Act* 54 of 1956.

³⁰ The long title of the NWA articulates that the Act provides for fundamental reform of the law relating to water resources in South Africa.

³¹ See section 3 of the NWA.

³² Germarié Viljoen, 'Water as Public Property: A Parallel Evaluation of South African and German Law' (unpublished LLD thesis, North West University 2016) 151.

scholars to seek parallels and interpretations from Roman and foreign law frameworks that recognise public trusteeship and related concepts in the water context. Studies exploring the Anglo-American public trust doctrine and the German concept of '*öffentliche Sache*' are particularly noteworthy. The Anglo-American doctrine emphasises public ownership, the public's rights in natural resources, the state's duty to act as a fiduciary, and the safeguarding of the public interest, especially regarding natural resources.³³ Meanwhile, the German law concept of '*öffentliche Sache*' posits the state as the 'public owner' of essential resources.³⁴ Essentially, '*öffentliche Sache*' mirrors the core principle of the Anglo-American public trust doctrine: the idea of 'public ownership', asserting the state's obligation to protect the public interest in natural resources and to regulate public rights over them.³⁵

Public Interest

Van der Schyff,³⁶ in exploring the interpretative guidance provided by foreign legal constructs, contends that public trusteeship is to be understood with reference to the legal principle of 'stewardship'. She claims that public trusteeship is often viewed as a particular form of stewardship.³⁷ Within the realm of environmental law, stewardship represents a broad obligation toward the care and management of natural resources which gives rise to a spectrum of duties. These may include, for example, ensuring that natural resources are sustainably managed, controlled, and governed through careful decision-making and planning. Notably, stewardship also

speaks to the nature of care concerning these duties. To this end, the literature further adds the term 'custodianship' to describe the normative content of these duties.³⁸ Accordingly, this approach should also include the protection and conservation of resources in a manner that benefits everyone, particularly by fulfilling basic human needs equitably and by promoting environmental values.

Drawing inspiration from these international models and established principles, South African legal scholars interpreted the concept of public trusteeship as follows: The government, as public trustee, is endowed with the authority and fiduciary duty to protect and manage the country's water to the benefit of its citizens, who are the 'beneficiaries' of this public trust.³⁹ In this context, it is important to note that water resources in South Africa are not 'owned' by the state in the traditional conventional sense found in private law.⁴⁰ Rather, the national government is the custodian or steward of these resources, holding and overseeing them for the benefit and well-being of benefit of all its people. Furthermore, in the context of water law, the 'community of people', as beneficiaries, collectively share interests in the nation's water resources. The concept of public trusteeship is not only about holding water resources in trust, but also about ensuring that the public trust is upheld through strict adherence to principles of accountability and responsibility.⁴¹ Regrettably, the NWA itself does not provide a legal framework to enable accountability or responsibility. Rather, the concept of public trusteeship, with reference to the principles of stewardship and custodianship,⁴² demarcates the moral, legal, and ethical obligations of the state

³³ Elmarie Van der Schyff, 'The Constitutionality of the Mineral and Petroleum Resources Development Act 28 of 2002' (unpublished LLD thesis, North West University 2006) 280-281; Germaïe Viljoen, 'The Transformed Property Regime of the National Water Act 36 of 1998: Comparative Reflections on South Africa's Water in the "Public Space"' (2019) 52(2) *Verfassung und Recht in Übersee* 176.

³⁴ Hanno Kube, 'Private Property in Natural Resources and the Public Weal in German Law - Latent Similarities to the Public Trust Doctrine?' (1997) 37(4) *Natural Resources Journal* 862.

³⁵ Michael C Blumm, 'The Public Trust Doctrine and Private Property: The Accommodation Principle' (2010) 27 *Pace Environmental Law Review* 658.

³⁶ Elmarie Van der Schyff, 'Stewardship Doctrines of Public Trust: Has the Eagle of Public Trust Landed on South African Soil?' (2013) 130(2) *The South African Law Journal* 370-371.

³⁷ Van der Schyff, *ibid* 371.

³⁸ Emily Barritt, 'Conceptualising Stewardship in Environmental Law' (2014) 26(1) *Journal of Environmental Law* 2.

³⁹ Viljoen (n 33) 174.

⁴⁰ Viljoen (n 32) 151.

⁴¹ Viljoen (n 19) 200-203.

⁴² The WSA, however, makes provision for accountability. See section 2(i) of the WSA.

towards its citizens in the context of critical resources.⁴³

Consequently, all of South Africa's water resources, encompassing both surface and ground-water, are deemed an 'inalienable public trust' under the national government's trusteeship.⁴⁴ This role endows the public trustee with fiduciary duties, including the protection, use, development, conservation, and sustainable management of water resources for the benefit of present and future generations.⁴⁵ Moreover, the NWA mandates the public trustee to publicly allocate and regulate South Africa's water resources, in the public interest, through a licensing or permitting system.

Public Rights

Chapter 4 of the NWA sets out the legal framework by which the national government, or public trustee, is expected to publicly allocate and regulate the use of South Africa's water resources by means of an authorisation system. As it is not possible to regulate each individual activity that may potentially affect a water resource, only those activities that pose significant threats to the water resource or to other users of the water resource require regulatory intervention. Section 21 of the NWA describes several activities as 'water uses' which require authorisation. It follows that all water uses, including the taking and storing of water,⁴⁶ activities which reduce stream flow,⁴⁷ waste discharges and disposals,⁴⁸ controlled activities (activities which impact detrimentally on a water resource),⁴⁹ altering of a water-

course,⁵⁰ removing water found underground for certain purposes,⁵¹ and recreation,⁵² are subject to official government authorisation by way of a licence or permit.

Under subsection 22(1) of the NWA, a water use defined in section 21 necessitates a Water Use Licence (WUL), unless such water use is permissible under Schedule 1 of the NWA; is a continuation of an Existing Lawful Use (ELU); is permissible through a General Authorisation issued under section 39 by Notice in the Government Gazette; or if the Minister of the Department of Water and Sanitation (DWS) waives the need for a WUL. Notably, administrative law usually permits all individuals impacted by decisions regarding water resource allocation to share their perspectives and participate in the decision-making process, through public participation.

Notably, the concept of public trusteeship emphasises and prioritises the public interest over individual interests.⁵³ In fact, this dimension of public trusteeship plays a decisive role in determining personal-use rights and water use entitlements that individuals or entities might seek under the NWA. Consequently, a water use right will only be granted if the water use application aligns with the broader public interest.⁵⁴

⁴³ Germarié Viljoen, 'The Transformed Property Regime of the National Water Act 36 of 1998: Reflections on the Conception of Stewardship and the Dominion over Water as a "God-given Resource"' in Manitzia Kotzé and Kobus van der Walt (eds), *Living Water: An Interdisciplinary Exploration of Water as a Theological Theme* (AOSIS Publishing 2023) 136-39.

⁴⁴ Viljoen (n 33) 190.

⁴⁵ Section 2(a) of the NWA.

⁴⁶ Section 21(a) and (b) of the NWA.

⁴⁷ Section 21(c) and (d) of the NWA.

⁴⁸ Section 21(f) of the NWA.

⁴⁹ Section 21(e) of the NWA.

⁵⁰ Section 21(i) of the NWA.

⁵¹ Section 21(j) of the NWA.

⁵² Section 21(k) of the NWA.

⁵³ See section 3(1) and (2) of the NWA; Viljoen (n 33) 194.

⁵⁴ See section 3 and the explanatory note of chapter 4 of the NWA; Within South Africa's water regulatory framework, this 'public interest' is shaped by the Constitution's values and fundamental rights, supplemented by the objectives of the NWA.

THE RESERVE

Chapter 3 of the NWA outlines a series of measures designed to comprehensively protect South Africa's water resources. These measures, which are to be developed progressively⁵⁵ include the establishment of a classification system, with guidelines and procedures for identifying various classes of water. The Minister is tasked to use the classification system to assign class and resource quality objectives (RQOs)⁵⁶ to all or portions of water resources deemed significant. Following the classification, the Minister must, by notice in the Gazette, declare and publish the Reserve.⁵⁷

Essentially, the Reserve encapsulates the foundational principle which establishes water as a national resource or public good, held in public trust, and earmarked to be allocated to the benefit of its users – but only after a minimum core has been safeguarded (reserved) for basic human needs and the protection of the aquatic ecosystem respectively. Reserve determinations are therefore intended to aid the public trustee in the decision-making process for evaluating Water Use Authorisation applications and in setting licensing conditions.

Determination of the Reserve

The *Fundamental Principles and Objectives for the New Water Law in South Africa* of 1996, particularly principles 8 to 10, provided the foundational framework for 'reserving' or 'demarcating' water for basic human needs and ecological functions. Subsequently, in 1997, the NWP further refined the concept of the Reserve. It recognised that the Reserve has two critical components: (a) securing a basic water supply to meet the essential human needs, as prescribed in the WSA, and (b) protecting aquatic ecosystems to promote ecologically sustainable water resource development and utilisation. Notably, the NWP elevated the status of the Reserve as the 'only right to wa-

ter.'⁵⁸ The NWA consolidated the Reserve as a central principle and explicitly defines the two components of the Reserve:

The 'Reserve' means the quantity and quality of water required -

a) to satisfy basic human needs by securing a basic water supply, as prescribed under the Water Services Act (Act No. 108 of 1997), for people who are now or who will, in the reasonably near future, be -

i. relying upon

ii. taking water from; or

iii. being supplied from, the relevant water resource; and

b) to protect aquatic ecosystems in order to secure ecologically sustainable development and use of the relevant water resource.

The determination of the two-part Reserve is, however, a complex process.

Basic Human Needs Reserve

The Constitution, despite guaranteeing the right of access to sufficient water, , does not specify the exact volume or quality of water that would fulfil the criteria of sufficiency. However, the WSA, which was enacted to operationalise the constitutional right of access to sufficient water, offers some clarity. According to section 3(1) of the WSA, every individual is entitled to a 'basic water supply'. Section 1(iii) of the WSA further elaborates on basic water supply' as the prescribed minimum standard of water services needed to ensure a reliable provision of a sufficient quantity and quality of water to households for sustaining life and personal hygiene⁵⁹This minimum standard for basic water supply was further fleshed out in Regulation 3 of the *Regu-*

⁵⁵ See the explanatory note of chapter 3 of the NWA.

⁵⁶ Sections 13 and 14 of the NWA.

⁵⁷ Section 16(1) of the NWA.

⁵⁸ See the NWP; Principle 10 of the 'Fundamental Principles and Objectives for the New Water Law in South Africa of 1996'.

⁵⁹ Section 1(iii) of the WSA.

lations Relating to Compulsory National Standards and Measures to Conserve Water (Water Regulations), as published in Government Notice R509 in Government Gazette 22355 of 8 June 2001. According to these Regulations, the minimum amount of potable water to be provided is set at 25 litres per person per day or 6 kilolitres per household per month.

As evident from the trilogy of the much-debated *Mazibuko* judgments,⁶⁰ the minimum core for basic human needs is not uncontested,⁶¹ especially from a social justice perspective,⁶² but the quantification continues to be generally observed. In fact, in its attempt to interpret what constituted 'sufficient water' in terms of section 27(1)(b) of the Constitution, the Constitutional Court decided it to be 25 litres per person per day.

As will be argued in more detail below, the assertion that allocating 25 litres per person per day as a universal standard must be challenged. This is particularly relevant considering South Africa's uneven distribution of water resources, a result of varied weather patterns. These conditions may justify a higher or even lower 'minimum core' in different areas, depending on the availability of water in the region. Moreover, another issue with the quantification of a 'minimum core' is that it concentrates exclusively on basic human needs, disregarding the equally important second part of the Reserve, namely the ecological component. In fact, the court's oversight in the *Mazibuko* judgments of the ecological component of the reserve brings into question the complete fulfilment of this essential right.

Ecological Reserve

The Ecological Reserve refers to the water set to be retained in the river to ensure the long-term sustainability of aquatic and associated ecosys-

tems.⁶³ Notably, however, the determination of the minimum core for the Ecological Reserve, or the amount of water that will remain in the river to ensure the long-term sustainability of aquatic and associated ecosystems is, much more complex to determine than the Basic Human Needs component, making it problematic from a legal point of view. This difficulty is due to its intricate relationship with the environment and may vary significantly based on diverse ecosystems, biodiversity, and the interplay of environmental factors.

To comprehend and interpret the Ecological Reserve from a legal perspective, Bourblanc, for example introduced the respective foreign notions of 'minimum flow',⁶⁴ 'environmental flow'⁶⁵ and the 'minimum flow requirement'⁶⁶ to understand the idea of 'water for the environment' in South Africa. Another notable concept is found in the 1994 Council of Australian Governments Agreement on Water Reform. The Agreement explicitly refers to 'the allocation of water to the environment'. The Agreement specifies that when setting aside allocations for the environment, these decisions should be based on the best available scientific evidence and consider the varying water needs over time and space necessary to preserve the health and sustainability of river systems and groundwater basins.

In relation to water allocations, the Agreement furthermore stipulates that 'States would give priority to formally determining allocations or en-

⁶⁰ *Mazibuko v The City of Johannesburg and Others* 2010 3 BCLR 239 (CC); *Mazibuko v The City of Johannesburg* Case No 13865/06; *City of Johannesburg and Others v Lindiwe Mazibuko and Others* Case No 489/08 2009 ZA (SCA) par 20.

⁶¹ For the High Court this was 50 litres per person per day and for the Supreme Court of Appeal it was 42 litres.

⁶² Louis J Kotze, 'Phiri, the Plight of the Poor and the Perils of Climate Change: Time to Rethink Environmental and Socio-economic rights in South Africa?' (2010) 1(2) *Journal of Human Rights and the Environment* 152.

⁶³ It is noteworthy that the NWA takes such a strong ecological stance, especially seen against the country's context with significant challenges in basic water service delivery.

⁶⁴ Magalie Bourblanc, 'The South African "Ecological Reserve", A Travelling Concept' (2015) 42(2) *Politikon South African Journal of Political Studies* 4; In the 1800's, England introduced legislation focusing on maintaining the 'minimum flow' in rivers to ensure navigable canals and protect the rights of downstream users.

⁶⁵ The Brisbane Declaration describes Environmental Flows as the amount, timing and quality of water flows necessary to support freshwater and estuarine ecosystem, along with the human livelihoods reliant on these ecosystems' < <https://www.conservationgateway.org/Documents/Brisbane-Declaration-English.pdf> >.

⁶⁶ In response to ecological consequences caused by dam construction, particularly in the United States of America, the concept of 'minimum flow requirement' emerged. Bourblanc (n 64) 4.

titlements to water, *including allocations for the environment as a legitimate user of water*.⁶⁷ While this marks a notable progression towards the notion of 'water for the environment', unfortunately, it appears as though the environment is merely considered one among several water users. It follows that, in times of competition over water usage, such as times of droughts, 'environmental needs' will not necessarily be prioritised.⁶⁸

In contrast, South Africa's legal framework elevates the Ecological Reserve to more than a 'legitimate water user'. In fact, alongside the basic human needs reserve, the two-part Reserve is regarded as the only water right in South Africa. Consequently, only the water that remains accessible after satisfying these reserves can be allocated for other functions like agriculture, industry, and non-essential domestic use. This approach differs significantly from most global practices. Evidently, the concept of the Ecological Reserve is an endogenous concept of South Africa.⁶⁹ In fact, there is increasing evidence to suggest that South Africa is at the forefront in developing methods for determining the Ecological Reserve.⁷⁰

Since the promulgation of the NWA, the Department has made notable progress in determining the Reserve for significant water resources. Available determinations vary from basic desktop evaluations to comprehensive hydro-ecological scientific analyses. Reserve studies conducted thus far have been plotted spatially, and Reserve maps have been developed.⁷¹ In addition, a limited suite of Gazetted Reserves is available and ac-

cessible.⁷² However, as the Reserve is not fully determined, it is not yet fully functional.⁷³

Setting Basic Human Needs and Ecological Sustainability on Equal Footing

The Reserve, as conceptualised above, harmoniously integrates both basic human needs and principles of ecological sustainability. To date, however, available constitutional jurisprudence on water rights in South Africa seems to have deviated from the original intent of the Reserve. Precedents⁷⁴ show a disproportionate focus on basic human needs, whilst often neglecting the ecological or environmental component of the Reserve. The case law may lead to misunderstandings about what it would mean to determine and sustainably steward the Reserve in terms of public trusteeship responsibilities.⁷⁵

Instead, the ecological component of the Reserve should stand on equal footing with basic human needs requirements. This parity is underscored by the NWP, which designated both components of the Reserve as the only 'right to water' in South Africa. In fact, sound management of the Ecological Reserve would result in more water availability in the short and long term for basic human needs.⁷⁶

Beyond their respective importance, it is also essential to acknowledge and understand the interwoven nature of the Reserve's two components.

⁶⁷ Own emphasis.

⁶⁸ Bourblanc (n 64) 4.

⁶⁹ *ibid* 2.

⁷⁰ *ibid* 2.

⁷¹ Department of Water & Sanitation, 'National State of Water Report 2022' Water Resource Protection 8 <<https://www.dws.gov.za/Projects/National%20State%20of%20Water%20Report/Documents/National%20State%20of%20Water%20Report%202022.pdf>>.

⁷² GN 189 in Government Gazette No 41473 of 2 March 2018; GN 932 in Government Gazette No 41887 of 7 September 2018; GN 1097 in Government Gazette No 41970 of 12 October 2018; GN 998 in Government Gazette No 42584 of 19 July 2019; GN 1019 in Government Gazette No 43734 of 25 September 2020; GN 1559 in Government Gazette No 45568 of 3 December 2021; GN 1669 in Government Gazette No 45735 of 14 January 2022; GN 2428 in Government Gazette No 46798 of 26 August 2022; GN 2751 in Government Gazette No 47526 of 18 November 2022.

⁷³ David Takacs, 'South Africa and the Human Right to Water: Equity, Ecology, and the Public Trust Doctrine' (2016) 34(2) *Berkeley Journal of International Law* 82.

⁷⁴ See, for example, *Mazibuko v The City of Johannesburg and Others* 2010 3 BCLR 239 (CC); *Mazibuko v The City of Johannesburg* Case No 13865/06; *City of Johannesburg and Others v Lindiwe Mazibuko and Others* Case No 489/08 2009 ZA (SCA).

⁷⁵ Takacs (n 73) 92.

⁷⁶ *ibid* 82.

The natural water resources, and the myriad life it supports emphasises the need for water governance that protects the ecological system from which all water originates. Maintaining the Reserve in such a way that the ecological system, at its core, remains healthy and sustainable is paramount to serve the needs of the most indigent.

The intricate relationship between basic human needs and the environment should not only be legally acknowledged but also emphasised in law-making and policy debates. The balance between catering to basic human needs and ecological sustainability should be integral to decisions and planning regarding water allocation and governance. To this end, the Reserve extends beyond a mere conceptual framework; it calls for diligent stewardship to equitably address both human and environmental needs.

THE WEF NEXUS

Regrettably, despite the encouraging developments brought about by the concepts of public trusteeship and the Reserve, significant water governance challenges persist for many South Africans. The dire state of people's access to water in South Africa is reflected in three reports published by the Department of Water and Sanitation in 2023.⁷⁷ These realities may bring into question the transformation project, the successful implementation of the NWA, and the optimal use of public trusteeship and the Reserve in pursuance of the intended purposes of the Act.

In their pursuit of solutions, scholars have identified several challenges to effective water governance in South Africa.⁷⁸ One notable obstacle

is the traditional sector-led, often termed 'silo' approach, to water-related decision-making and its pursuant institutional management. The silo approach arguably poses substantial barriers to the integration of social, economic and environmental dimensions into decision-making and governance practices. In fact, governance issues transcend the domain of water, and include a broader range of natural resources. This holistic perspective is underscored globally by the Sustainable Development Goals (SDGs).⁷⁹

Recent Developments

The WEF nexus is increasingly coming under academic scrutiny and policy consideration. It aims at delving into the complex interactions among multiple resource systems.⁸⁰ This framework, which extends the principles of integrated water resources management (IWRM),⁸¹ was initially introduced at the World Economic Forum in 2008 and subsequently refined during the Bonn conference in 2011.⁸² The conceptualisation of the WEF nexus has evolved in complexity.⁸³

In early framings of the WEF Nexus, studies primarily focus on identifying and uncovering the interrelationships between water, energy, and food and how to manage those interlinkages efficiently.⁸⁴ Studies further aim to develop an analytical framework and formulate methodolo-

⁷⁷ Department of Water and Sanitation, *Green Drop Watch Report 2023* (DWS 2023) <<https://ws.dws.gov.za/IRIS/releases/GDWR.pdf>>; Department of Water and Sanitation, *Blue Drop Watch Report 2023* (DWS 2023) <<https://ws.dws.gov.za/IRIS/releases/BDWR.pdf>>; Department of Water and Sanitation, *No Drop Watch Report 2023* (DWS 2023) <<https://ws.dws.gov.za/IRIS/releases/NDWR.pdf>>.

⁷⁸ Amid South Africa's current water crisis, some contend that the adoption of the new transformed regime has been slow, some even deem it a policy failure. The author, however, holds that such arguments overlook the immense challenges of this transformation, especially considering basic human needs and the long-term sustainability of aquatic and associated ecosystems. Viljoen (n 19) 199.

⁷⁹ United Nations 2030 Agenda for Sustainable Development Resolution A/Res/70/1 adopted by the General Assembly on 25 September 2015.

⁸⁰ Jack W Lodge, Andrew P Dansie and Fiona Johnson, 'A Review of Globally Available Data Sources for Modelling the Water-Energy-Food Nexus' (2023) 243 *Earth Science Reviews* 1.

⁸¹ *ibid* 1.

⁸² Botai and others (n 6) 2.

⁸³ Tamee R Albrecht, Arica Crootof and Christopher A Scott, 'The Water-Energy-Food Nexus: A Systematic Review of Methods for Nexus Assessment' (2018) 13(4) *Environmental Research Letters* 1; Morgan Bazilian and others, 'Considering the Energy, Water and Food Nexus: Towards an Integrated Modelling Approach' (2011) 39(12) *Energy Policy* 7896. Mary Leigh Wolfe and others, 'Engineering Solutions for Food-Energy-Water Systems: It is More than Engineering' (2016) 6 *Journal of Environmental Studies and Sciences* 172-182.

⁸⁴ Ximing Cai and others, 'Understanding and Managing the Food-Energy-Water Nexus - Opportunities for Water Resources Research' (2018) 11 *Advances in Water Resources* 259-273.

gies for analysing the WEF nexus.⁸⁵ The WEF nexus is also widely acknowledged for its ability to illuminate not only the interconnections between water, energy and food systems, but also the synergies and trade-offs involved.⁸⁶ The nexus approach is designed to address the issue of compartmentalised governance, focusing on efficiency, sustainability and improved decision-making across the interconnected sectors.⁸⁷

As the understanding of the WEF nexus evolves, it now also includes environmental and social dimensions.⁸⁸ This broader view aims to strengthen cross-sectoral integration and improve governance mechanisms, recognising the impact of these systems on society and the environment. Scholars⁸⁹ have also addressed the fact that the WEF nexus inherently involves political questions related to resource management and governance. These include issues like the securitisation of resources,⁹⁰ the causes of resource scarcity,⁹¹ and the (re-)production of inequalities.⁹²

Recent scholarly debates involve arguments that the WEF nexus framework is incomplete, suggesting that a critical resource or aspect is missing from the current model. Scholars therefore propose adding a fourth element to address this shortfall. Proposals include the water-energy-land-food (WELF) nexus,⁹³ or the water-energy-

food-carbon (WEFC) nexus to provide for a more comprehensive framework.⁹⁴ While the question falls beyond the scope of this article, it may be useful to conceptually test whether the three-part WEF is indeed sufficient for addressing South Africa's water challenges. This debate nevertheless highlights the need for a more nuanced and critical approach within the WEF framework.

Legal Frameworks and Social Justice

The WEF Nexus, increasingly recognised across various disciplines, is yet to be fully developed within legal contexts and its incorporation into legal frameworks and policies is still emerging. From a legal perspective, a deeper examination of the connection between the WEF Nexus and human rights could be particularly beneficial. This link is fundamentally grounded in the recognition that access to water, food, and by implication also energy,⁹⁵ constitutes basic human rights. An enhanced understanding of the WEF Nexus could provide a framework to effectively manage the intricate interdependencies among these critical systems, ensuring the fulfilment and protection of human rights.

Furthermore, despite the growing evidence supporting the efficacy of nexus governance models, there remains a significant gap in understanding their implications for social justice. This lack of clarity is especially critical given the role of legal frameworks in shaping equitable access and distribution of resources. Therefore, a more comprehensive and nuanced incorporation of the WEF nexus into legal and policy structures is essential, not only to acknowledge the interconnectedness of these resources but also to ensure that governance models adequately address social justice concerns and promote, fulfil, and protect basic human rights.

⁸⁵ Mo Li and others, 'An Optimal Modelling Approach for Managing Agricultural Water-Energy-Food Nexus under Uncertainty' (2019) 651(part 1) *Science of the Total Environment* 1416-1434.

⁸⁶ Botai and others (n 6) 2.

⁸⁷ Venla Niva and others, 'China's Sustainable Water-Energy-Food Nexus by 2030: Impacts of Urbanization on Sectoral Water Demand' (2020) 251 *Journal of Cleaner Production* 119755.

⁸⁸ Botai and others (n 6) 3.

⁸⁹ Antje Bruns and others, 'Nexus Disrupted: Lived Realities and the Water-Energy-Food Nexus from an Infrastructure Perspective' (2022) 133 *Geoforum* 80.

⁹⁰ Matthias Leese and Simon Meisch, 'Securitisating Sustainability? Questioning the Water, Energy and Food-Security Nexus' (2015) 8(1) *Water Alternatives* 695.

⁹¹ Bruns and others (n 89) 80.

⁹² Jeremy Allouche, Carl Middleton and Dipak Gyawali, 'Technical Veil, Hidden Politics: Interrogating the Power Linkages behind the Nexus' (2015) 8(1) *Water Alternatives* 610-626.

⁹³ Claudia Ringler, Anik Bhaduri and Richard Lawford, 'The Nexus across Water, Energy, Land and Food (WELF): Potential for Improved Resource Use Efficiency?' (2013) 5(6) *Current Opinion in Environmental Sustainability* 617.

⁹⁴ Zeinab Chamas and others, 'Sustainable Resource Optimization under Water-Energy-Food-Carbon Nexus' (2021) 278 *Journal of Cleaner Production* 1.

⁹⁵ Germarié Viljoen and Felix Dube, 'Realising the Right to Electricity Through Off-Grid Power Solutions in South Africa' (2023) 26 *Potchefstroom Electronic Law Journal* 5-6.

POSITIONING THE CONCEPTS OF PUBLIC TRUSTEESHIP AND THE RESERVE WITHIN THE WEF FRAMEWORK

The WEF framework considers all three sectors, water, energy, and food, equally. It is, however, essential to recognise the unique and irreplaceable role of water compared to energy and food, as in many applications and contexts, water cannot be replaced with alternative resources.⁹⁶ Due to the central role of water within the WEF nexus, the next logical step is to weave the core water law principles into the wider context of the WEF Nexus. This integration is crucial for several reasons. By incorporating water law principles into the WEF framework, researchers, practitioners and policymakers can ensure that the interplay between water, energy, and food is governed in a way that safeguards and secures access to sufficient water resources. This approach also informs and shapes decisions within the energy and food sectors. Consequently, the integration of these principles is likely to lead to a more holistic and informed approach to policymaking. Moreover, the integration of the concepts of public trusteeship and the Reserve is crucial for sustainability as it ensures that policies and practices across these sectors do not compromise the availability and accessibility of water for all, particularly for marginalised communities.

The Concept of Public Trusteeship

The integration of the concept of public trusteeship, as statutorily introduced into South Africa's water law by the NWA, into the WEF Nexus framework represents a revolutionary step in reimagining how the country approaches the sustainable

and equitable governance of its natural resources. As argued above, the essence of public trusteeship lies in its focus on preserving and managing water resources on behalf of the public. Its core principles revolve around the equitable and sustainable management and allocation of these resources, with an emphasis on accountability and responsibility. These principles are not just confined to theoretical paradigms but are seen in the practical fiduciary responsibility vested in the state. This responsibility mandates the protection and management of water resources to ensure that both present and future generations can benefit from them.

However, when one views public trusteeship through the lens of the WEF Nexus, its significance elevates. The WEF Nexus, emphasising the intricate interplay between water, energy, and food resources, provides public trusteeship with a broader operational context. Such a framework allows for a more holistic view of resource governance, one that is not limited to just water but considers the ramifications of water governance on energy and food sectors.

The governance standards under public trusteeship, infused by the principles of stewardship, may ensure that the intricate balance between water, energy, and food systems remains uncompromised. This balance is further strengthened by the shared emphasis of both public trusteeship and the WEF Nexus on inclusive decision-making and governance. Such a combined approach promotes a more holistic form of governance, wherein a range of stakeholders, from policymakers to local communities, are actively involved in the sustainable governance of the country's critical resources.

Another important point of synergy between the concepts of public trusteeship and the WEF Nexus is their shared commitment to equity. While public trusteeship is unwavering in its advocacy for equitable access to water, the WEF Nexus broadens this perspective, emphasising fair allocation across water, energy, and food sectors. The amalgamation of these two frameworks ensures that strategies for resource governance are not just sustainable but also rooted in justice and fairness.

Melding public trusteeship with the WEF Nexus is therefore not just an expansion of the former's

⁹⁶ Brenda Cansino-Loeza and Jose Maria Ponce-Ortega, 'Sustainable Assessment of Water-Energy-Food Nexus at Regional Level through a Multi-Stakeholder Optimization Approach' (2021) 290 *Journal of Cleaner Production* 1.

operational domain; it is a transformative leap that compels the concept to continually adapt, emphasising its impact and reshaping governance standards. This integration promises a future where the governance of interconnected resources in South Africa is marked by inclusivity, sustainability, and heightened responsiveness towards social justice.

The Reserve

Rooted in prioritising human well-being and the health of aquatic ecosystems, the Reserve establishes a threshold that ensures that basic human and ecological needs are met before any other water allocations are made. When one positions the Reserve within the intricate framework of the WEF Nexus, its role evolves.

By integrating the Reserve into the WEF framework, it is possible to ensure that the water that is earmarked for fundamental human and ecological needs remains ring-fenced and secured. This implies that developments in energy or food systems should not encroach upon the stipulated water quality and volumes reserved by the Reserve. The Reserve can thereby navigate environmental challenges and uncertainties. Given the uncertainties presented by climate change, for example, the Reserve is a proactive measure that provides a buffer against potential water scarcity. The unallocated portion of the Reserve, judiciously managed, effectively allows for flexibility in navigating such unforeseen challenges. Within the WEF nexus, this buffer is vital for maintaining energy and food production even in times of environmental stress or water scarcity.

It follows that the Reserve, when viewed through the lens of the WEF Nexus, evolves from being a protective measure to a dynamic tool that actively shapes policy, governance, and sustainable resource management. This integration ensures that the needs of both present and future generations are met without compromising the delicate ecological balance, paving the way for a sustainable, just, and equitable future.

Moreover, the integration of the Reserve into the WEF framework may have specific ramifications for the country's energy and food sectors. In fact, linking the energy component of the WEF nexus

with the concept of the Reserve involves recognising the water demands of energy production, integrating water sustainability into energy planning and policy, and adopting technologies and practices that reduce the water footprint of energy production while ensuring the ecological and social functions of the Reserve are maintained.

In turn, connecting the food component of the WEF framework to the Reserve is critical because agriculture is often the largest consumer of water. The integration will ensure that agricultural practices and food production systems are aligned with the management of water resources in a way that respects and preserves the water Reserve, ensuring that agricultural practices are sustainable and do not compromise the ecological integrity and the long-term availability of water resources.

CONCLUDING REMARKS

South Africa's post-constitutional water regulatory framework has gained international recognition for its progressive approaches to ensuring equitable water access, addressing water scarcity, and promoting sustainable development. Central to this framework are the concepts of public trusteeship and the Reserve, as statutorily introduced by the NWA. This paper navigated the evolution and transformational significance of these concepts, discussing the key policy and legislative provisions that have shaped its current form.

This article not only deepens the comprehension of public trusteeship and the water Reserve within South African water law but also enriches the discourse on sustainable resource management by situating the concepts within the dynamic framework of the WEF Nexus. Amidst the backdrop of South Africa's environmental and social challenges, integrating public trusteeship, the Reserve within the WEF framework provides a roadmap for sustainable and equitable development, and ultimately, social justice.

Progress and Challenges

By integrating the WEF Nexus with the concepts of public trusteeship and the Reserve, a comprehensive framework for sustainable resource management emerged. This integrated approach revealed the interconnectedness and the mutually supportive nature of these concepts, enhancing the gains already made through the introduction of the concepts of public trusteeship and Reserve. The integration, for example, bolstered awareness and recognition of the need for an integrated approach, fostering increased collaboration across various sectors. In fact, policies are increasingly reflecting the principles of the WEF Nexus.

However, despite the progress made, challenges remain. These include a limited understanding of the complex interrelations within the WEF nexus, which can impede effective decision-making and policy development. Moreover, institutional bar-

riers continue to exist, complicating the integration of these concepts into practical governance and management strategies.

Implications for Social Justice

When positioned within the WEF framework, the concepts of public trusteeship and the Reserve present a distinct number of opportunities to further social justice. Firstly, both public trusteeship and the Reserve are founded on the tenets of equitable and sustainable resource access and allocation. Within the WEF context, these ideals amplify, ensuring that every individual, regardless of socio-economic background, has just and equal access to vital resources such as water, energy, and food.

Another implication for social justice relates to the prioritisation of basic needs. The Reserve concept underscores the importance of earmarking or setting aside a specific quantity and quality of water for basic human needs. Within the WEF Nexus, this ensures that no matter the demands from agriculture, industry, or energy sectors, critical human needs remain uncompromised. Along similar lines, a healthy environment is pivotal to social justice. The Reserve's allocation of water for ecological purposes sustains ecosystems vital for the agriculture (food) and energy sectors. Sustainable development is therefore intrinsically linked to social justice.

An important contribution of this paper is the emphasis placed on the fiduciary responsibility placed on the public trustee towards its citizens, while the WEF Nexus rather promotes cross-sectoral collaboration. Merging or integrating these two ensures that decision-making processes are more inclusive, involving various stakeholders ranging from local communities to the national government. This inclusivity ensures that policies and strategies align more closely with societal needs and aspirations and ultimately promotes social justice. Furthermore, the principles of accountability and responsibility inherent in public trusteeship, when extended to the wider WEF framework, ensure open and responsible governance. Such transparency can prevent corruption, misallocation, or mismanagement of

resources, which often adversely affect the marginalised.

Given uncertainties like climate change and the growing global population, positioning the Reserve within the WEF context allows for anticipation of potential shortages. Such foresight can safeguard marginalised communities from being denied essential resources during times of scarcity.

In conclusion, the integration of public trusteeship and the Reserve within the WEF framework offers a robust mechanism to ensure that the intertwined challenges of water, energy, and food security are addressed in a manner that promotes social justice. As the threat of water scarcity intensifies worldwide, the insights gleaned from this study extends beyond territorial and legal boundaries, serving as a resource for policymakers, scholars, and practitioners eager to forge robust, integrated resource management systems in the name of social justice.

LEAD Journal is a peer-reviewed journal which publishes - on lead-journal.org - articles, case notes and documents of interest to professionals, practitioners, researchers, students and policy-makers in the field of international and regional environmental law and domestic environmental laws of developing countries. It emphasises a comparative approach to the study of environmental law and is the only journal in the field to carry a North-South focus. It is unique in providing perspectives from both developed and developing countries. Bearing in mind the principles of "sustainable development", LEAD Journal also solicits writings which incorporate related concerns, such as human rights and trade, in the study of environmental management, thus adopting a contextual approach to the examination of environmental issues. LEAD Journal encourages scholarship which combine theoretical and practical approaches to the study of environmental law and practice.

