

The History of Water as an Economic or Social Good in Post- Colonial Botswana, 1966–2020

Mark Nyandoro

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abstract

Throughout history, water has been important for sustaining life. In southern Africa and in global literature, water is variously construed. It is perceived in diverse disciplines including water history either as a social, economic or political good. This article argues that conceptions of the commodity in post-colonial and predominantly arid to semi-arid Botswana varied historically between the social and economic value of water. However, this analysis of the social versus the economic value of water is one of the first in economic history to be undertaken outside pure and more technical economics research. Water is a scarce, perennially sought-after commodity. The search for water in Botswana stimulated conversations among community players and government on how historically endemic water scarcity had to be addressed from 1966 to 2020. In light of scarcity, the pursuit and goal of supplying water to the ever-growing population is a persistent theme in Botswana's water landscape. This transdisciplinary economic historical investigation of the societal value of water in Botswana, thus, fits into that dominant water history paradigm. The study's overarching significance is that water cannot merely be analysed in a pre-independence social goods mainstream to the detriment of its economic fundamentals in the country..

keywords: *Botswana, water, economic and social good, water history, environmental history*

In economic history, history, global environmental literature, the history of water (water history), sociology and other disciplines such as economics and science (multi-disciplinary perspectives), water is perceived as a commodity for sustaining human, animal and plant life throughout history. Water is an important commodity both for its social value and economic value (including water pricing). It is also an environmentally significant good. Water history, clearly a subdivision of environmental history, aims to foster historical understanding of the interaction between water and humankind. The purpose of this paper, using the case of post-colonial Botswana (from 1966–2020) and some international comparisons, is to examine the theory and practice of the country in terms of wide-ranging discussions on whether water is an

economic good or a social good. The implications of the framework on this debate adopted by Botswana are evaluated in order to appreciate why the country chose to combine the social goods theory with the economic value perspective.

In ancient civilisations (and even in contemporary times), water served or serves multiple roles as an economic, social, political and environmental good. To qualify these concepts, an economic good is a good or service that a producer provides to meet the needs and wants of consumers, for example, private and public goods. It provides utility to the consumer and is usually a commodity or service that is useful to humankind but must be paid for.¹ A social good is something that benefits the largest number of people in the largest possible way, such as clean water, clean air, healthcare and literacy and education. Also known as ‘common good’, social good traces its history to Ancient Greek philosophers and implies a positive impact on individuals or society in general. Broadly, it contributes to and provides the basis for charity, humanitarian or philanthropic work.² In the water sector, social good broadly refers to services or products that promote human wellbeing on a large scale. This includes services or products such as clean water and equitable distribution of water as fundamental human rights or social determinants of human well-being which also encompass health and other instruments of social justice and equality.³ A political good or public good is a product that one individual can consume without reducing its availability to others and from which no one is excluded.⁴ Last but not least, environmental goods (a sub-category of public goods) and ser-

¹ Merriam Webster Dictionary: <https://www.merriam-webster.com/dictionary/economic%20good> (accessed 19 June 2023).

² W. Kenton, ‘Social good: Definition, benefits, examples’, Updated 26 Aug. 2022: https://www.investopedia.com/terms/s/social_good.asp (accessed 18 July 2023).

³ M.E.M. Barak, ‘The practice and science of social good: Emerging paths to positive social impact’, *Research on Social Work Practice* **30** (2) (2020): 139–50.

⁴ J. Fernando, ‘What are public goods? Definition, how they work, and example’, Updated 20 Mar. 2022: <https://www.investopedia.com/terms/p/public-good.asp> (accessed 19 June 2023).

vices are products that are manufactured or rendered for the purpose of (a) preventing or minimising pollution, degradation or natural resources depletion; (b) repairing damage to air (to provide clean air), water (to provide clean water), waste, noise, biodiversity and landscapes; (c) reducing, eliminating, treating and managing pollution, degradation and natural resource depletion; and (d) carrying out other activities such as measurement and monitoring, control, research and development, education, training, information and communication related to environmental protection or resource management.⁵

In exploring issues of ‘water and economy’ in ancient Rome, Berking conceded that water was vital for agriculture, and agricultural prosperity grew with the availability of fresh water.⁶ As a consequence, the economic value of water was considered very high, especially in agricultural regions such as Middle and Lower Mesopotamia, with hot and dry climates or pronounced seasonality in water availability, where the climate made rain-fed farming almost impossible.⁷

Early societies frequently combined economic with social and political control and management of water.⁸ Water supply and distribution for irrigation and other uses led to the emergence of early regulatory institutions with major cultural and social dimensions. Social organisation with respect to water management involved how water was shared, provided and utilised among individuals and/or groups in society. Societies developed distinct governance structures to regulate water as either an economic or social resource. For example, water was used for domestic and drinking purposes (social good); for energy or hydropower generation and food production based on crop and livestock farming (economic good); for provision of transport; and for the enhancement of status (political good

⁵ EU, ‘Glossary: Environmental goods and services sector (EGSS)’: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Environmental_goods_and_services_sector_\(EGSS\)](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Environmental_goods_and_services_sector_(EGSS)) (accessed 16 May 2024).

⁶ J. Berking (ed.), *Water Management in Ancient Civilizations* (Berlin: Berlin Studies of the Ancient World, 2018).

⁷ Ibid.

⁸ Ibid.

or political power).⁹ This partly explains how great civilisations historically developed along river banks with water being utilised for drinking; bathing, cleaning, laundry (washing); cooling; cooking; watering crops and animals (in both rainfed and irrigation agricultural contexts); and transportation (travel) among other uses.

The first and significant river valley civilisations emerged along the River Nile in Egypt, the Tigris and the Euphrates in Mesopotamia (modern Iraq), the Indus River in India, and the Yellow and Blue rivers in China. Historically the first farmers to produce food thousands of years ago needed water to irrigate their land and indeed for myriad other uses in Africa, Asia, North America, South America (Latin America), Europe and other parts of the world.¹⁰ In these societies, water had economic, social and political significance. However, water was not only an economic, social or political good, but also an environmental good. It was, of course, at times, used without paying much heed to environmental implications,¹¹ in spite of being a scarce commodity in arid to semi-arid or desert environments. The known and perceived value of water for development from ancient to modern times has directly or indirectly contributed to and stimulated perceptions of water as an economic good or a social good in Botswana – one of the fast-growing economies in the Southern African Development Community (SADC) sub-region.

In southern Africa, Botswana experiences phenomenal dryness

⁹ Ibid.

¹⁰ M. Nyandoro, 'Water and the environment in Southern Africa: A review of the literature since 1990', *TD: The Journal for Transdisciplinary Research in Southern Africa* **15** (1) (2019): 1–12; M. Nyandoro, 'Citizen engagement circumvented: An analysis of liquid waste information/knowledge, control and environmental policy perspectives in Harare, Zimbabwe', *Environment and History* **25** (4) (2019): 575–611.

¹¹ Before the ninth century BC, early warnings of environmental degradation were mostly ignored. The 'factual knowledge of [people's] impact on natural systems, still deficient today, was little more than fragmentary at the earlier stages of human civilisation'. For detail on these observations on the environment, see T. Kwiatkowska and A. Holland, 'Dark is the world to thee: A historical perspective on environmental forewarnings', *Environment and History* **16** (2010): 455–82; Nyandoro, 'Citizen engagement circumvented'.

and water scarcity because it is situated in an arid and desert environment. The country, therefore, requires sustainable water supply, conservation and management. Historically, 'tribal' administrations and governments were at the core of water provision, infrastructure development and management systems.¹² The 'tribal' and traditional institutions, together with the modern Department of Water Affairs (DWA) and Water Utilities Corporation (WUC), continued to perform water supply and management functions after independence, though with a lesser mandate for the 'tribal' structures than before.¹³ However, this article (which covers the period 1966–2020) shows that there were many debates and contestations around water. It demonstrates that the debates on water either as an economic or social good were rather subdued during the Bechuanaland Protectorate or in the colonial period. But the persistence of these debates into the post-colony emphasised the importance and value of water in terms of how efficiently and sustainably the commodity should be delivered in a historically drought-endemic region. The article considers the vitality and value of water in the post-1966 era. With water increasingly considered a prerequisite for development, Botswana's view of the commodity as a social or economic good had to be clearly enunciated in contrast to the narrative of neglect of water development that dominated the colonial or Protectorate era.¹⁴

The paper, which is divided into three parts, starts by briefly examining how water was supplied and managed under the Protectorate government in order to historically contextualise water management in the post-colony. This opening section provides a historical background of the evolution of water policy and development in post-Protectorate Botswana. It illustrates the paper's transdiscipli-

¹² M. Nyandoro, 'The discourse of water development in Bechuanaland Protectorate, 1900–1965', *Botswana Notes and Records Journal (BNR)* 52 (2020): 10; C.J. Makgala, 'Provision of local services by tribal administrations in Bechuanaland Protectorate, 1900–1966', *South African Historical Journal* 64 (4) (2012): 801.

¹³ M. Nyandoro, 'Water provision, governance and management in post-colonial Botswana: Policy development and practice in a semi-arid environment, 1966–2020', *Botswana Notes and Records (BNR)* 55 (2023): 37, 34–47.

¹⁴ Nyandoro, 'The discourse of water development', 8–21.

nary contribution by not only situating Botswana within the broader southern African transboundary water discourse but showing how the discussion contributes significantly to the historic evolution, practice, development and efficacy of water policy in a country without a history of water. The second part analyses and answers the question of whether water was perceived as a social or economic good in post-colonial Botswana. The section comprises the main discussion where the value of water is interrogated in relation to the post-colony water management and in line with growth in water demand.¹⁵ The third part assesses the extent to which Botswana was in conformity with the broad transboundary or international endorsement of water as more of an economic than a social good. The two theories were seen as catering for two different water-user constituencies, the former seemingly targeting large mining enterprises and the livestock industry, while the latter catered for the low-income population with limited capacity to pay huge water tariffs or charges. The most critical moment for water provision and management in the country was when water policy was significantly transformed following independence, leading to a virtual abandonment of the Protectorate and immediate post-independence government's social good focus in favour of the economic good theory. This third section is the conclusion to the paper. Overall, the paper, which concludes by evaluating the efficacy of the economic versus the social good theory, adds to the literature on the subject and is a novel contribution to water history, water supply and management discourse, benchmarked on the important value of water. It should be of interest to economic historians, water historians, development studies scholars, development practitioners, political scientists, policy-makers and state water institutions in Botswana such as the DWA, WUC and institutions in southern Africa or across the globe that are currently grappling with how best to apportion value to water.

The paper illustrates that water provision alone without the man-

¹⁵ Nyandoro, 'Water provision, governance and management', 44; K. Seitshiro, 'Botswana's water demand to reach 340 million m³ by 2035', *Sunday Standard*, 20 Aug. 2020.

agement side posed serious challenges to the population and the country's mining and agro-industries (crop and animal farming) operating in an unfavourable aquatic environment. To this end, the aim of this study is to evaluate water management scenarios in Botswana, at the same time weighing the validity of the country's choice between the social and economic good theories. For post-colonial Botswana, 1967 historically marked the beginning of a major policy focus (with the promulgation of the *Water Act*) to value water as a commodity that could be sold or simply provided as a public utility or service.¹⁶ This development coincided with an increase in aggregate water demand due to the rapidly growing population. The Act was also in response to the neglect of water development and other development sectors like education, health and transport (e.g. roads) in colonial Botswana.¹⁷ However, Steenkamp categorically refuted this neglect of water resource development by paying tribute to Charles Rey, the Resident Commissioner at the time, who he argues responded to the needs of the then Bechuanaland's economy with a comprehensive water development strategy that revived the cattle industry.¹⁸

Signs of improvement in supply, management and control of water as a key social-services good (not quite an economic product) became more manifest in the period after 1966.¹⁹ This was because Botswana attained independence in 1966 amidst one of the severest droughts in living memory.²⁰ According to the United Nations Convention to Combat Desertification (UNCCD), the severe drought conditions that prevailed throughout the decade resulted in devas-

¹⁶ Nyandoro, 'Water provision, governance and management', 36; Government of Botswana, *Water Act No. 40(67)* (Gaborone: Government Printer, 1967).

¹⁷ Nyandoro, 'The discourse of water development'; Report on the Financial and Economic Position of the Bechuanaland Protectorate, *Pim Commission Report* (London: Cmd. 4368, 1933), p. 110; P.E. Peters, 'Struggles over water: Struggles over meaning: Cattle, water and the state in Botswana', *Africa* 54 (3) (1984): 34, 29–49; T. Tlou and A. Campbell, *History of Botswana* (Gaborone: Macmillan, 1997), p. 130.

¹⁸ P. Steenkamp, "'Cinderella of the empire?': Development policy in Bechuanaland in the 1930s', *Journal of Southern African Studies* 17 (2) (1991): 292–308.

¹⁹ Nyandoro, 'Water provision, governance and management'.

²⁰ Ibid.

tating crop losses, low yields and great mortality among livestock and this necessitated emergency drought relief and the importation of maize and other supplies in large volumes.²¹ Frequent droughts exacerbated water scarcity and had informed the founding head of government, Sir Seretse Khama's, water improvement policy after 1966, since water (then perceived as a social good) and its scarcity had hindered development mainly in the agriculture and cattle industries.²² The genesis of a new, proactive and socially-oriented post-colonial state water policy is thus traceable to President Khama (1966–1980).

For this paper, a variety of data collection methods was used. The primary methods were an analysis of primary or archival documents, data collection using field interviews, direct participation in Botswana water forums and personal observations during work engagements and water research while at the University of Botswana. Empirical and nonempirical research methods and data collection tools were combined. Methodologically, the study particularly benefitted from qualitative research data derived from the Botswana National Archive and Records Services (BNARS), official or government documents housed in the Botswana National Archives, primary documents, reports and confidential correspondence from major stakeholders in the water sector. The stakeholders included the Permanent Secretary of the Ministry of Minerals, Energy and Water Resources (MMEWR) which formulates water policy, the DWA and WUC. Personal interviews with key informants²³ and secondary literature were important to analyse the history of water and investigate whether water was an economic or social good in post-colonial Botswana.

In Botswana, the connection between water development, water supply, water management, population growth and the environment

²¹ N. Batisani, *National Drought Plan Botswana: The UNCCD Drought Initiative* (Bonn, Germany: UNCCD, 2020).

²² Nyandoro, 'Water provision, governance and management'.

²³ The interviews targeted government officials and major stakeholders in Botswana's water sector.

has been explored in historical studies by Nyandoro, Makgala, Peters, Parsons and Crowder,²⁴ to name a few. Focus on the connection between these aspects is not particularly new, as the literature shows. The analysis and perception of water as an economic or social good in post-colonial Botswana's water history is also not overly new. However, it definitely warrants further scholarly research as it is one of the emerging themes in economic history and history outside pure and more technically-oriented economics research in the country.

The promotion of astute water management was paramount in a water-scarce and arid environment. In Botswana, efforts to supply water for cattle, small animals like goats and the growing mining industry were made by state and corporate stakeholders since the 1960s.²⁵ Major stakeholders strove to provide water to these main sectors of the economy, but seemingly not much attention was paid to providing affordable water for the poor, vulnerable and historically deprived sections of the population living in the villages.²⁶ The latter then became a priority group in the post-colonial period, although considerations to uphold water as an economic good were voiced in circles that felt a price had to be attached to water for efficient supply.²⁷ In spite of these expectations to regard water as an economic commodity Botswana, however, went for the sustainable solution and consideration that was enshrined in the United Nations (UN) Sustainable Development Goals (SDGs) and Agenda 2030 at the 2015 Rio+20 Summit. Among other things, the Summit uni-

²⁴ M. Nyandoro, 'A state and corporate undertaking in water supply and management in Botswana, 1966–2014', *Botswana Notes and Records (BNR)* 50 (2018): 97–111; Nyandoro, 'Water and the environment in Southern Africa'; Nyandoro, 'The discourse of water development'; Makgala, 'Provision of local services by tribal administrations', 787–806; Peters, 'Struggles over water'; N. Parsons and M. Crowder, *Monarch of all I Survey: Bechuanaland Diaries 1929–37 by Sir Charles Rey* (London: James Currey, 1988).

²⁵ Nyandoro, 'A state and corporate undertaking'.

²⁶ *Ibid.*, 97, 103; Nyandoro, 'Water provision, governance and management', 40, 42.

²⁷ *Ibid.*; R. Grynberg, Botswana Institute for Development Policy Analysis (BIDPA), The Botswana Society and Livingstone Kolobeng College water forum series (Gaborone: Botswana Society, 2012).

versally sought to strike a balance between the environmental, social and economic dimensions of development.²⁸ This paper, therefore analyses (from an economic history standpoint) Botswana's choice in water provision, management and development based on the extant local, regional and global debates²⁹ that primarily see water as more of an economic than a social good. This southern African nation apparently chose a middle of the path approach where it tried to mix the two. While in the colonial period Botswana viewed water largely as its social responsibility to the nation, in the post-colonial period the country saw merit in the economic goods approach or theory, but never entirely abandoned its social responsibility philosophy, which ensured water supply to meet rising local demand for water in the growing towns and villages.³⁰

The main contention of the paper is thus, while Botswana historically perceived water purely as a social responsibility up to 1965, the government after independence in 1966 made a major policy shift towards viewing water as an economic commodity that should be priced through the imposition or introduction of water charges.

²⁸ United Nations Environment Programme (UNEP), 'Embedding the environment in sustainable development goals', *UNEP Post-2015 Discussion Paper 1*, Version 2, 19 July 2013. See also T.T. Muzorewa and M. Nyandoro, 'Water sources and urban expansion in Ruwa Town in post-colonial Zimbabwe, 1986–2020', *Global Environment: A Journal of Transdisciplinary History* **14** (2) (2021): 239–68.

²⁹ For these debates, see D. McNeill, 'Water as an economic good', *Natural Resources Forum* **22** (4) (1998): 253–61; P. Rogers, R. de Silva and R. Bhatia, 'Water is an economic good: How to use prices to promote equity, efficiency, and sustainability', *Water Policy* **4** (2002): 1–17; W.L. Nieuwoudt, G.R. Backeberg and H.M. Du Plessis, 'The value of water in the South African economy: Some implications', *Agrekon* **43** (2) (2004): 162–83; P. Van Der Zaag and H.H.G. Savenije, 'Water as an economic good: The value of pricing and the failure of markets', *Value of Water Research Report Series No. 19* (Delft, the Netherlands: UNESCO-IHE Institute for Water Education, 2006); SADC, *Standardised Methodologies for Economic Accounting for water* 1–3 (2010); E.C. Makwara 'Water: an economic or social good?' *Journal of Social Development in Africa* **26** (2) (2011): 141–63; T. Setlhogile, J. Arntzen and O.B. Pule, 'Economic accounting of water: The Botswana experience', *Physics and Chemistry of the Earth* (2016): 1–18; Nyandoro, 'A state and corporate undertaking'.

³⁰ Nyandoro, 'A state and corporate undertaking', 97, 101.

Clearly, these were two different state systems and hence there was not going to be seamless transition. The early independence government adopted a social responsibility approach to water,³¹ but afterwards the government abandoned this social good mode.³² For example, given the finite nature of the resource (water), price reforms after independence alongside the 2009 and 2013 water sector initiatives – adopted and planned³³ following the National Water Master Plan (NWMP) of the 1990s – were deemed necessary, but these could be lenient towards the ordinary urban and village or rural consumer.³⁴ However, this new focus was not without its fair share of controversy as the poor living mainly in urban areas felt that water tariffs tended to be on the high side and invariably, they (the poor) were not a lone voice in this as opposition political formations (particularly after 1966) added their voice to the growing outcry in support of the poor's right to water and against exorbitant water tariffs.³⁵

The argument on Botswana's post-colonial water supply certainly dovetails with the economic goods theory propounded by economists. Although some national governments maintain that water is not an economic good because of its specific historical characteristics, economic theory states that water should be considered as a

³¹ A. Nurcahyono, F. Fadhly Jambak and A. Rohman, 'Shifting the water paradigm from social good to economic good and the state's role in fulfilling the right to water', *F1000Research* **11** (490) (2022): 1–15. <https://doi.org/10.12688/f1000research.111254.1>

³² Nyandoro, 'A state and corporate undertaking'. For comparison, see N.K. Atapattu, 'Economic valuing of water', Proceedings of the workshop on the WWAP Sri Lanka, 1 Jan. 2002, 201–13.

³³ It is important to note that a new water policy for Botswana was planned for implementation in 2013, but ten years on (by 2023) the country was still pursuing the three overarching principles of equity, efficiency and sustainability. See Nyandoro, 'Water provision, governance and management', 44.

³⁴ Nyandoro, 'A state and corporate undertaking', 101; Nyandoro, 'Water provision, governance and management', 42.

³⁵ Nyandoro, 'Water provision, governance and management', 39; Department of Environmental Affairs, *Water Accounts of Botswana (1992–2003)* (Gaborone: Government of Botswana, 2006); Anon, 'Water tariffs will not go down – MP', *Botswana Daily News*, 21 Jan. 2013; Anon, 'Potable water: Serowe thorny issue', *Botswana Daily News*, 26 Sept. 2019.

normal economic good³⁶ that contributes to national development. Because water is a relatively or absolutely scarce good, it is therefore an economic good. Economics focuses on human behaviour as a relationship between ends and scarce means that have alternative uses. Welfare economics postulates that economic goods should be allocated in such a way that the highest level of welfare is attained. This criterion is called 'economic efficiency' and entails an implicit allocation mechanism for water (i.e. cost), which is the subject of concern with the social goods theory. Usually, economic measures are used or deployed to evaluate economic efficiency. However, because monetary measures depend on income levels, the value or utility expressed in monetary units can (as already observed) discriminate against lower income groups, and can ignore the value and cost for future generations. On this basis, therefore, there is a gap between the theoretical foundation of the 'economic efficiency' criterion for water use and its practical application and implementation in Botswana, if not in the southern African region at large. Although 'economic efficiency' is a prudent measure for water allocation decisions, not all choices are measured in monetary terms. This partly explains why Botswana has thus wavered between the social and economic good choice in the post-colonial history covered in this paper.

Over many decades, there has been stimulating transdisciplinary debate about whether or not water should be viewed as an economic good in the context of sustainable development and in regard to the implications for governments and the people. McNeill argues that there are disagreements and that it is difficult to reach a consensus as to whether water is an economic good or not.³⁷ Rogers et al. submit that water is viewed as an economic good in many countries in the world, while Nieuwoudt et al. contend that the value of water can be determined based on different sectors of the economy (agriculture and non-agriculture sectors) and in different parts of a southern

³⁶ G. Meijerink and A. Ruijs, 'Water as an economic good: Points of interest for policy', *Project Report 62804* (LEI, The Hague, February 2003).

³⁷ McNeill, 'Water as an economic good'.

African country like South Africa.³⁸ For Van Der Zaag and Savenije, water is a special good for which there is no substitute, hence its allocation is a societal question that cannot be left to market forces alone.³⁹ The price of water, for instance, should not be determined by the market or left solely to the market. Thus, water should have a price in order to recover the cost of providing water services to the people and to give a signal to the users or consumers that water is a scarce good that should be used wisely.⁴⁰ Makwara's contribution to the debate is that water is a critical natural resource for life and for development – hence, this vital resource has to be managed from both economic and social standpoints (or as an economic and a social good) or some people will go without water.⁴¹ Trade-offs and compromises should be made between treating water as an economic good and as a social good. Two different positions have been adopted in the debate where the treatment of water as a social good is viewed as encouraging the inefficient and 'wasteful' use of water, while treatment of water as an economic good would exclude other people from accessing a vital resource.⁴² Therefore, in providing water to users, consideration must be given to both its economic and social value. The side of the debate taken by Makwara and others dovetails with Setlhogile et al. and Nyandoro's analysis of water provision, management and the value of water in Botswana.⁴³ Therefore, in southern Africa and in global literature water is variously perceived from transdisciplinary angles. It is construed either as a

³⁸ Rogers et al., 'Water is an economic good'; Nieuwoudt, Backeberg and Du Plessis, 'The value of water in the South African economy'.

³⁹ P. Van Der Zaag and H.H.G. Savenije, 'Water as an economic good: The value of pricing and the failure of markets', *Value of Water Research Report Series No. 19* (Delft, the Netherlands: UNESCO-IHE Institute for Water Education, 2006).

⁴⁰ Ibid.

⁴¹ Makwara 'Water: an economic or social good?.'

⁴² Ibid.

⁴³ Setlhogile, Arntzen and Pule, 'Economic accounting of water'; SADC, *Standardised Methodologies for Economic Accounting for water* 1–3 (2010); Nyandoro, 'A state and corporate undertaking'.

social, economic, political or even environmental good. However, this is a false division which cannot be sustained as water is used in Botswana and other countries to serve nearly all these purposes.

While the social value (public good or collective good value) of water was generally emphasised during the Protectorate era (1885–1965), its economic utility features prominently in analyses of demand, supply, management and governance of the finite commodity in independent Botswana (1966 to date).⁴⁴ Water is, therefore, a commodity whose scarcity is detrimental to lives, but its availability and accessibility positively impacts livelihoods by contributing to people's economic and social welfare (sustenance). Availability, though desirable, is a rare phenomenon in Botswana's desert environment. The country, which is remote from moisture-laden air flows, is characterised by high rainfall variability and frequent climate-induced droughts. Hence, water – a giver of life – is a perennially sought-after commodity.

A *longue durée* analysis of Botswana's water development process from 1900 to the end of colonial rule, which also informs important water sector dynamics in the post-colonial period has been provided by Nyandoro.⁴⁵ The historical search for water has stimulated debates and discussions among community stakeholders and the state on how endemic water scarcity can be addressed in Botswana.⁴⁶ The scarcity of this finite natural resource has led the government (in the years since independence) to provide hands-on solutions to the challenge of water-shortage through investing in climate adaptation and mitigation measures such as effective water demand, management and governance policies to help the growing but vulnerable potable water, dryland agricultural, industrial and mining sectors of the economy. The goal of water provision to the ever-growing population is a persistent theme in Botswana's water history.

The central focus of this article, therefore, is to examine water as

⁴⁴ Nyandoro, 'A state and corporate undertaking', 101; Nyandoro, 'Water provision, governance and management'.

⁴⁵ Nyandoro, 'The discourse of water development'.

⁴⁶ Ibid; Nyandoro, 'Water provision, governance and management'.

an economic or social good while paying attention to perceptions of water in a country which perennially experiences water challenges. Emerging from a colonial background of state reluctance to support comprehensive water development, it became the responsibility of the post-protectorate government to reverse and rectify water provision and management challenges of the past in the best interests of the people and the primary sectors of the economy. In the era of the post-colony, to improve the lives of people affected by inadequate water supply, the state committed itself to the goal of overhauling the colonial water structure to promote sustainable economic and social growth.⁴⁷ The government of Sir Seretse Khama, notwithstanding some challenges, worked tirelessly to overhaul the dilapidated water distribution infrastructure of the colonial period through the 1967 Water Act, the establishment of the Department of Water Affairs (DWA) in 1968 and the Water Utilities Corporation (WUC) in 1970.⁴⁸ A major concern for Seretse Khama's government was the increasing and intensifying periodic droughts and this was a key factor in driving the post-colonial government to improve water policy and infrastructure. The state thus accepted the inevitability of developing major water policy to address water shortages because the country had no perennial rivers under its full control (apart from the tail-end of the Okavango), and no access to major transboundary water except for the exploration still under way to transfer or convey transboundary water from Lesotho.⁴⁹ Water supply thus had to be improved in the wake of scarcity, a fast-increasing population and the growth of water-based agricultural and industrial activities. Water policy was also meant to ensure that water was available for

⁴⁷ Nyandoro, 'Water provision, governance and management', 35.

⁴⁸ E. Roe, 'Development of livestock, agriculture and water supplies in Botswana before independence: A short history and policy analysis', *Occasional Papers* (New York: Rural Development Committee (RDC), Centre for International Studies, Cornell University, 1980). This is a rare and unpublished document but can be found at BNARS under BNB 4468; Peters, 'Struggles over water'; Nyandoro, 'A state and corporate undertaking'.

⁴⁹ Nyandoro, 'The discourse of water development'. Nyandoro, 'Water provision, governance and management'.

primary economic sectors such as ranching and mining. Drought-induced water scarcity and water shortages (experienced due to the years of ‘episodic’ droughts since 1980 and other factors)⁵⁰ in a water-stressed environment not only affected these and other sectors but national development,⁵¹ hence astute water development and governance was seen as a crucial element for development.

Historical background: Evolution of water policy and development in post-protectorate Botswana

The evolution of water policy has a long history throughout the world. It is situated in the *longue durée* history context of water management and its impact on modern water development. In 1992 the Dublin Water Principles claimed ‘water as an economic good’ for the first time in a United Nations setting.⁵² Social policy was discredited for failing to adequately account for the true social value of water (constituting the quality of this natural resources capital). Many social policies, especially those for consumptive water use, remain within a fundamentalist economic paradigm, sometimes with

⁵⁰ J. Holm and M. Cohen, ‘Enhancing equity in the midst of drought: The Botswana approach’, *Journal of Social Development in Africa* 3 (1) (1988): 31–38; T.T. Fako and L. Molamu, ‘The seven-year drought, household food security and vulnerable groups in Botswana’, *Pula: Botswana Journal of African Studies* 9 (2) (1995): 48–70; K. Mogotsi, M.M. Nyangito and D.M. Nyariki, ‘The perfect drought? Constraints limiting Kalahari agro-pastoral communities from coping and adapting’, *African Journal of Environmental Science and Technology* 5 (3) (2011): 168–77; Nyandoro, ‘A state and corporate undertaking’, 106; Nyandoro, ‘Water provision, governance and management’.

⁵¹ Roe, ‘Development of livestock, agriculture and water supplies’; Makgala, ‘Provision of local services by tribal administrations’; Nyandoro, ‘The discourse of water development’.

⁵² M. Solanes and F.G. Villarreal, *The Dublin Principles for Water as Reflected in a Comparative Assessment of Institutional and Legal Arrangements for Integrated Water Resources Management*, TAC Paper 3, Stockholm: Global Water Partnership/Swedish International Development Cooperation Agency, 1999; Nyandoro, ‘A state and corporate undertaking’, 106.

environmental concessions. The dominance of water as an economic good and commodity overshadows the wider, but arguably little recognised, social good or community value of water.⁵³

Commodification of water recognises price, markets, growth, profit, efficiency, costs of production and redistribution. These factors may have substantial conflict with the community value of water which incorporates spiritual, aesthetic and environmental dimensions (i.e. water for religious, recreational and biodiversity needs). So, water has value as an economic resource, but it also has value in the southern African context as a cultural and environmental resource. Although discredited by some scholars, the social good theory has been applied to ensure political survival by governments in developing countries beyond Botswana, for example in Zimbabwe.

The role of the Botswana state in ensuring water was both a social and economic good and in stimulating stakeholder participation in the water sector became the dominant paradigm after independence. Important water sector reforms were instituted and implemented in the 1990s, illustrating the value of water.⁵⁴ The Botswana government's approach, especially after the January 1992 Ireland Dublin International Conference or Statement on Water and the Environment (ICWE) and the Rio de Janeiro Summit on Water and Sustainable Development, was therefore characterised by the combination of its social goods philosophy with the fourth Dublin Conference principle that stated that 'water has an economic value in all its competing uses and should be recognised as an economic good'. In its broad[est] sense, the Dublin Conference produced four principles – which became known as the Dublin Principles – one of which unequivocally affirmed that:

⁵³ D. Day, 'Water as a social good', *Australian Journal of Environmental Management* 3 (1) (1996): 26–41. <https://doi.org/10.1080/14486563.1996.10648341>

⁵⁴ Interview with B.K. Paya, Permanent Secretary of the MMEWR, MMEWR Head Office, Gaborone, Botswana, 22 Sept. 2011; B.K. Paya, Permanent Secretary of the MMEWR responding to questions during the Botswana Society and Livingstone Kolobeng College Water Forum Series, Gaborone, 2012; Department of Water Affairs (DWA), Various Annual Reports, 1968–; Water Utilities Corporation (WUC), 'Water in an urbanising world', *Annual Report*, 2010/11.

water has an economic value in all its competing uses and should be recognized as an economic good. [Hence] within this principle, it is vital to recognize first the basic right of all human beings to have access to clean water and sanitation at an affordable price. Past failure to recognize the economic value of water has led to wasteful and environmentally damaging uses of the resource. Managing water as an economic good is an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources.⁵⁵

Apparently, water (for which states use prices to promote equity, efficiency and sustainability) was recognised as an economic good for many centuries before 1992. Throughout Europe and the early United States, private water supply companies thrived in a wide variety of historical settings.⁵⁶ Water management is a crucial aspect of all societies and Botswana is no exception. The way Botswana manages water resources has a significant and positive impact on its population and industry. Botswana's water management history dates back to when water was used in pre-colonial Tswana society for drinking, agriculture, cattle husbandry, establishment of central 'towns' and other purposes.⁵⁷ As in pre-colonial Botswana and other parts of the world, over millennia water helped to cultivate civilisations. People's ability to harness nature allowed them to develop settlements, food production ecosystems and food surpluses – the basis of life beyond subsistence in global regions like Mesopotamia where irrigation permitted humans to settle in areas that did not have consistent rainfall or were not directly next to an available water source. Irrigation, however, was not a common phenomenon in Botswana where early forms of this practice were confined to and facilitated mainly through the watering of animals (cattle) using hand-dug wells and later boreholes.

The main goal of early political leadership or ancient govern-

⁵⁵ Republic of Botswana, 'Botswana national water policy', *Government Paper No. ... of 2011*, Ministry Minerals, Energy and Water Resources, Oct. 2012; Nurcahyono et al, 'Shifting the water paradigm'.

⁵⁶ Rogers et al., 'Water is an economic good'.

⁵⁷ Peters, 'Struggles over water', 31; Nyandoro, 'The discourse of water development', 12.

ments was to consolidate power. Control of water was historically essential for domination over nature and subject people. The central authority of early civilisations was based on organising citizens and subjects to develop agriculture and food supplies through maintaining irrigation canals, and in most ancient civilisations – including ancient Chinese, Incan and African communities – the populations were obligated to participate.⁵⁸ Ancient techniques of land exploitation and water use in agriculture go back 5,000 years in Central Asia and a great deal further in Mesopotamia. They were used in Imperial China, in old Laos, in old America before the advent of the Spanish and in ancient Africa (e.g. Tanzania and Egypt).⁵⁹ In China, Mexico, Turkey, India and the United States of America (USA), water and irrigation development entailed the construction of water delivery systems, dams, reservoirs and canals.⁶⁰ In other parts of the world, farmers used aqueducts, ditches and furrows with crude sluices to divert water to their crops, giving them increased yields.⁶¹ Irrigation, though, was rare among the African farmers of Botswana since water was (and still is) generally scarce and humans were given first priority to water supplies and livestock second.⁶²

Ancient governments controlled water resources for economic and political reasons. Government control over water resources continued as history progressed, as seen with ‘tribal’ leaders’ control over water and water sources in Botswana in pre-colonial times and during the protectorate era where responsibility over water and water development was exercised by the Tribal Administration under the *Dikgosi*.⁶³ Water administration and control in pre-colonial Tswana society was executed by traditional chiefs. In a country where water-

⁵⁸ C. Graber, ‘Farming like the Incas’, 6 Sept. 2011: <https://www.smithsonianmag.com/history/farming-like-the-incas-70263217/> (accessed 18 May 2024); Nyandoro, ‘Citizen engagement circumvented’, 576.

⁵⁹ Nyandoro, ‘Citizen engagement circumvented’, 576.

⁶⁰ Ibid.

⁶¹ Ibid.

⁶² M. Upton, ‘A report on the economic potential for irrigation in Botswana’, *Development Study* 5, May 1969, 3.

⁶³ Nyandoro, ‘The discourse of water development’, 9.

shortages caused by the vagaries of the weather were more endemic than in many parts of Southern Africa, the chiefly elite traditionally exercised hegemonic powers over water supply. The *Kgosi* and his *kgotla* or public assembly exercised central authority over water and land.⁶⁴ With the historic prevalence of drought and water-scarcity, people largely resorted to sinking wells to tap groundwater before the drilling of boreholes which started in the 1920s.⁶⁵ The centrality of control over water points characterised the political organisation of pre-colonial Tswana polities in the sandveld, although Tswana groups in other parts of the region like the Transvaal (South Africa), where water was more abundant, did not experience similar centralisation of water.⁶⁶

Before colonialism, water sources were communally or corporately managed through traditional Tswana institutions with a long history of centralised and hierarchical authority, which also guaranteed user rights to water for all recognised members of the community, at least in principle. Centralisation actually persisted as a key feature of colonial era water management in Botswana. In 1885, Botswana became a British Protectorate, and water management continued to evolve, albeit under racially oriented British influence (to serve isolated white enclaves), particularly after 1900 when some big villages such as Serowe and Kanye started to have new technologies such as piped water supply to improve access to clean water.⁶⁷ But, when Botswana gained independence, the government not only directed water policy, but took over responsibility for water management. Water provision, water policy and management of water were imperative given a growing population. The Permanent Secretary in the Ministry of Minerals, Energy and Water Resources (MMEWR) confirmed that, from the 1960s to the 2000s, government emphasis was on augmenting water supply.⁶⁸ Water supply had to be improved

⁶⁴ Ibid; Peters, 'Struggles over water'.

⁶⁵ Nyandoro, 'The discourse of water development', 12.

⁶⁶ Ibid.

⁶⁷ Ibid., 8.

⁶⁸ Interview with B.K. Paya, Permanent Secretary of the Ministry of Minerals, Energy and Water Resources (MMEWR), MMEWR Head Office, Gaborone,

in the wake of a fast-increasing population and the growth of many water-based industrial activities such as agriculture, livestock ranching and mining. For instance, the population of Lobatse⁶⁹ which was 7,613 in 1964 (two years prior to Botswana's independence) rose to more than 10,000 in 1971 and to about 19,000 in 1978. In the same period, the population of Francistown (the second largest town in Botswana which became a city in the late 1990s) increased from 9,521 to 20,000 then to approximately 38,000, and that of Gaborone from 3,855 in 1970 to 20,000 a year later and to just below 45,000 by 1978.⁷⁰ Botswana faced the problem of how to equitably distribute water among its rapidly growing population (estimated at 500,000 in 1966, over two million in 2010, 2.169 million by 2014 and 2,719,694 in 2024).⁷¹ These figures not only demonstrate population growth, but are a reflection of the resultant increase in water demand throughout the country, hence the need for policy change. In these and other towns and villages (which are much bigger than towns and cities in other countries), Botswana experienced 'water stress' which was related to factors such as rapidly increasing population leading to a sharp increase in water demand, low and variable rainfall, high rates of evaporation, and the high cost of exploiting existing water resources.⁷² The population increases in Gaborone, Francistown and the other centres affected people or

Botswana, 7 Feb. 2012.

⁶⁹ Lobatse is home to vital industries including cattle and meat abattoirs.

⁷⁰ M. Nyandoro, 'Water resource management perspectives in Botswana: A contrast between the colonial and the post-colonial periods up to 2010', *UNU-INRA Working Paper* 2, 2013, 1–35; Nyandoro, 'Water provision, governance and management', 36.

⁷¹ Nyandoro, 'A state and corporate undertaking', 103; M.G. Charumbira, A.N. Majelantle, V.K. Dwivedi and T.B. Manatsha, 'A history of census taking in Botswana, 1904–2011', *Botswana Notes and Records* 46 (2011): 12–22; Anon, 'Botswana Population 1950–2024: Botswana – Historical Population Data': <https://www.google.com/search?client=firefox-b-d&q=what+is+the+populated+of+botswana+in+2024%3F> (accessed 12 May 2024).

⁷² A.J.E. Du Plessis and K.M. Rowntree, 'Water resources in Botswana with particular reference to the Savanna Regions', *South African Geographical Journal* 85 (1) (2003): 42–49.

stressed the water distribution network thus forcing the country to think about policy restructuring – a restructuring that took into account the valuation of water as an economic or social good.

The 2000s, up to 2020 and further, witnessed continued and intensified government efforts to end water shortages in Botswana under the 2009 and 2013 water sector initiatives or reforms.⁷³ At the highest state level, in 2011 former President Ian Khama acknowledged the legacy of an inadequate water-infrastructure inherited from the colonial government and the importance of water to twenty-first century Botswana when he stated that ‘there are state initiated projects such as water and electricity that are running that will not be allowed to suffer as they are central to the development of the country’.⁷⁴ As drought conditions intensified in the face of increased global warming, water demand, which was low in 1990, increased considerably by 2020 and beyond.⁷⁵ Projections during the 2012 water *pitso* in Gaborone confirmed that in the face of escalating demand, water-shortage in the future was a likely prospect if sufficient measures were not taken to avoid it.⁷⁶ As indicated in a media report on Nyandoro’s Botswana Society water forum presentation, contemporary water sector policies needed to be adjusted in line with increasing demand and changing climatic conditions to save this finite national resource (water) from running dry in a few

⁷³ Nyandoro, ‘Water provision, governance and management’, 43.

⁷⁴ I. Khama, State of the Nation Address by his Excellency Lt. Gen. Seretse Khama Ian Khama President of the Republic of Botswana to the Third Session of the Tenth Parliament ‘Botswana First’ 7 November 2011, Gaborone: <http://www.gov.bw/en/News/State-of-the-Nation-Address-to-the-3rd-Session-of-the-10th-Parliament/> (accessed 29 May 2018).

⁷⁵ Nyandoro, ‘A state and corporate undertaking’, 105; Nyandoro, ‘Water provision, governance and management’, 43.

⁷⁶ M. Nyandoro, ‘Is Botswana going to run dry?’ Paper delivered at a Public Forum on Water Policy and Botswana’s Future, Botswana Society and Livingstone Kolobeng College Water Forum Series, Gaborone, 30 May 2012; M. Nyandoro, cited by T.P. Nkani, ‘As precious drops dry up’, *The Botswana Gazette*, 6–12 June 2012; F. Morton, ‘Water as a privilege, not a right’, Keynote address, Botswana Society and Livingstone Kolobeng College Water Forum Series, Gaborone, 2014.

years.⁷⁷ Confirming the media observation, on 21 September 2015, Bloomberg reported that the Botswana capital's water supply options could dry up amid drought and as South Africa threatened to cut off supplies to Gaborone in October 2015.⁷⁸ Parts of the city were already without water for up to three weeks at times.⁷⁹ The scarce commodity (water) was further envisaged by the United Nations (UN) to be under threat of depletion.⁸⁰ Thus, agreeing with the sentiments raised by Nyandoro at the water forum, Kabelo Seitshiro of the *Sunday Standard* in 2020 reported that the permanent secretary in the Ministry of Land Management, Water and Sanitation Services (MLWS), Bonolo Khumotaka, said Botswana's total annual water-demand at 245 million cubic metres was expected to increase to 340 million cubic metres per year by 2035.⁸¹ Khumotaka stated that her ministry was working diligently on the Botswana Water Security Strategy to address short, medium to long-term solutions to water deficits countrywide.⁸²

If predictions by scholars at the forum, the media and other agencies were correct, Botswana was likely to be 'very thirsty' and among the first nations to feel the water crunch under drought conditions.⁸³ All the projections in the face of increasing water demand, therefore, pointed in the direction of needing to harness efficient water demand measures – controlling demand, for policymakers, was an important way of increasing supply and water use efficiency.⁸⁴ The country thus faced a new set of challenges as population growth, the development of villages, urbanisation and industrialisation in

⁷⁷ Nyandoro, cited by Nkani, 'As precious drops dry up'.

⁷⁸ Bloomberg, 'Botswana capital's water-supply options dry up amid drought', 21 Sept. 2015: <https://www.bloomberg.com/news/articles/2015-09-21/botswana-capital-s-water-supply-options-dry-up-amid-drought> (accessed 3 Feb. 2022).

⁷⁹ Ibid.

⁸⁰ Nyandoro, 'Water provision, governance and management', 43.

⁸¹ K. Seitshiro, 'Botswana's water demand to reach 340 million m³ by 2035', *Sunday Standard*, 20 Aug. 2020; Nyandoro, 'Water provision, governance and management', 44.

⁸² Seitshiro, 'Botswana's water demand to reach 340 million m³ by 2035'.

⁸³ Nyandoro, 'Water provision, governance and management', 44.

⁸⁴ Ibid.

the post-colony led to an increase in water demand. To address these challenges, the government had to implement policies aimed at increasing water supply, improving water quality and managing water resources more efficiently. Its water policy, which primarily had a social good orientation, had an incredibly positive impact on the local population's lives. For a water stressed country, scarcity affected Botswana's development, but in the post-colonial period the government, with some exceptions, came up with new ways to rectify water accessibility and provision challenges in the country in light of endemic dryness. For instance, the proportion of the population with access to reliable and improved drinking water supply increased.⁸⁵ Improved drinking water sources included the provision of safe drinking water via piped water into dwelling or yard or piped household water connection, public tap or standpipe, bore well, protected spring or dug well.⁸⁶ However, whilst government policy on water was commendable, there were some implementation inefficiencies and capacity problems. For example, even after heavy rains which occasionally fill up dams, water scarcity and shortage remained a serious problem in villages next to the Gaborone or the Bokaa dams and indeed other reservoirs or water impoundments all over the country.⁸⁷

In colonial Botswana, the management of bulk water and its supply to the largely sparsely populated African areas was traditionally provided by 'tribal' administrations, the borehole syndicates and to some extent the Protectorate administration itself.⁸⁸ Historically, water development was a key responsibility of the 'tribal' administration, usually with the help of the government. This pre-independence structure, however, had to change to counteract episodes of water shortage and/or water-scarcity. Water scarcity was arguably the biggest limiting factor to national development in Botswana where large volumes of water were required for the water intensive

⁸⁵ Ibid, 35.

⁸⁶ Ibid.

⁸⁷ Nyandoro, 'A state and corporate undertaking', 107.

⁸⁸ Ibid.; Makgala, 'Provision of local services by tribal administrations'.

diamond mining and livestock industries.

The pre-independence Botswana administration had failed to improve water provision, water access, delivery and management.⁸⁹ In fact, the inherited colonial water infrastructure was grossly inadequate to address the developmental demands of the country from the early twentieth century to 1965. Bechuanaland's colonial administration did not have a futuristic focus on water provision for the ever-expanding water-deprived African villages. The lack of water development and the historical inadequacies of the colonial water supply infrastructure was bemoaned by the Tswana or African chiefs.⁹⁰ Before 1965, water development and the development of other social sectors such as education, health and transportation were lagging behind because of a poor economy which relied basically on cattle and no minerals.⁹¹ Water was scarce. However, this was not the case only in Botswana, but in other parts of the SADC region and beyond.⁹²

Water-shortage, as illustrated by one pre-eminent southern African water historian, J.W.N. Tempelhoff, is one of the peculiarities of the region since water has a long history as a notoriously scarce resource in southern Africa.⁹³ In Botswana, water management – except in limited instances where it was provided by the Protectorate administration – was evidently carried out through decentralised non-state structures or actors such as local committees or 'tribal' ad-

⁸⁹ Bechuanaland Protectorate, *Annual Report 1927–1928* (Mahikeng: Government Printer, 1929). This rare publication is referenced Botswana National Bibliography (BNB) 25, 1424/1929 at Botswana National Archive and Records Services (BNARS); Bechuanaland Protectorate, Minutes of the eighteenth session of the European Advisory Council, 3–6 December 1934 (Mahikeng: Bechuanaland Printer, 1934). This rare document is referenced BNB 730 at BNARS.

⁹⁰ Nyandoro, 'The discourse of water development', 14.

⁹¹ *Ibid.*, 9.

⁹² Nyandoro, 'Water and the environment in southern Africa'; A.R. Turton and L. Ohlsson, *Water Scarcity and Social Stability: Towards a Deeper Understanding of Key Concepts Needed to Manage Water Scarcity in Developing Countries* (London: School of Oriental and African Studies (SOAS), 1999).

⁹³ J.W.N. Tempelhoff, *South Africa's Water Governance Hydraulic Mission (1912–2008) in a WEF Nexus Context* (Durbanville, Cape Town: AOSIS, 2018).

ministrations (located in the large and sparsely populated African areas, known then as reserves), borehole syndicates (a group form of private ownership of the 1920s and 1930s) and traditional chiefs.⁹⁴ This function was, however, centralised after independence as the state implemented more tangible and proactive policies to address water-scarcity in a country which receives low rain (*pula*⁹⁵ in Setswana), thereby deconstructing the pessimism that the post-colonial government, like its pre-independence counterpart, was going to fail to provide water to the people who needed it.

Given little rain (up to 600 mm per annum),⁹⁶ access to water as a vital natural resource and water distribution over a wide national area was subject to mixed views in Botswana. The views, though restricted and not completely silenced by the colonial authorities, became more pronounced in the post-colony. After independence, comprehensive water resource planning and development approaches were stressed through diverse stakeholder views in this endemically dry region in order to provide a complete framework for addressing all sectoral and sub-sectoral needs of a growing economy in the southern African context. The views on water by stakeholders in the public, private and civic sectors of the economy changed for various reasons, not simply due to independence, but to history. During the Protectorate era, comparably strong and vociferous sentiments about the historical inadequacy of the country's water sector to sustain people's livelihoods, animal needs and contribute to development were expressed, *inter alia*, by traditional authorities.⁹⁷

⁹⁴ Nyandoro, 'The discourse of water development', 9–10.

⁹⁵ Pula is the official currency of Botswana. Pula literally means 'rain' in Setswana. Because rain is very scarce in Botswana – a country largely covered by the Kalahari Desert – it is therefore valuable and a blessing. The word *Pula* (rain) also serves as the national motto of the country.

⁹⁶ Rainfall in Botswana ranged from 250–600 mm per annum and there were very high rates of evaporation of approximately 2,000 mm per annum from dams alone. See P.K. Kenabatho and M. Montshiwa, 'Integrated water resources management as a tool for drought planning and management in Botswana: A diagnostic approach', *International Journal of Sustainable Development and Planning* 1 (1) (2006): 61–75.

⁹⁷ Nyandoro, 'The discourse of water development'; Nyandoro, 'Water provi-

The conversations persisted but with more vigour in the post-1965 period. Botswana's aquatic situation was exacerbated not only by low precipitation and excessive evaporation rates, but also by limited groundwater recharge from surface water resources due to uncontrolled welling and drilling and demands for water which were rising in Gaborone (the capital) and the surrounding towns and villages since independence. Erratic precipitation and Botswana's proneness to drought due to the precariousness of rainfall introduced intense competition for water between people, animals, industry and mining. There was, therefore, need not only to review and change colonial water policy after the attainment of independence, but to understand the role and value of water as well as the efficacy, implications and positive impact of policy in a drought prone country. Hence, with the incessant dryness of the environment and broad historical uncertainties of water supply, the imperativeness of prioritising impeccable water management and conservation and the value of water were emphasised.

Discussion. Value of water: post-colony water management and growth in water demand

Water: An economic or social good in post-colonial Botswana?

In interrogating the value of water and water's contribution to economic development in post-colonial Botswana, water management has taken in its stride the historical population growth which, in turn, translates to growth in water demand – a scenario common to the transdisciplinary water history of southern Africa. The problem the post-colony faced, however, was the availability of water (which in a desert environment with growing mining and industrial activities was decreasing in both quantity and quality) to meet human needs. With increasing scarcity of water resources and the great demand for water from various economic and social sectors, the tra-

sion, governance and management', 34.

ditional approach was abandoned in Botswana because of its inadequacy as an allocation mechanism. The insatiable demand for water came from such water intensive sectors as mining, industry, agriculture, wildlife, environmental services and the potable water sector in the country's sparsely populated villages and communities.⁹⁸ The challenge in identifying a mechanism for better water allocation was how to prioritise water supply between the different sectors competing for water. Large-scale consumers like mining obviously needed more incentives to increase water use efficiency and sustainability.⁹⁹

Water development, a part of the social services sector, can historically be traced to 1900 when the population was still economically very small. Although the protectorate began in 1885, meaningful though limited water development took place at the turn of the twentieth century. Some bigger villages such as Serowe and Kanye started having piped water and even medical service in about 1900. In 1900 the total population of the then Bechuanaland Protectorate was 165,360 while in 1950 it was 412,830. Lobatse town alone had a mere 7,613 people in 1964.¹⁰⁰ Before independence, water demand was, thus, not high due to small population size but the state response to population growth through water development programmes and the economic demand for the resource by affected African communities, mining and industrial enterprises in subsequent years was significant.

Botswana perennially faced the problem of how to equitably distribute water among its rapidly growing population. After independence, Government emphasis was on augmenting water supply to all economic sectors in the wake of water-scarcity. Botswana, like other southern African models of water management, relied on a state-initiated management style based on the centralisation of water power. That style historically perceived water as a public good or

⁹⁸ Nyandoro, 'A state and corporate undertaking'; Nyandoro, 'Water provision, governance and management'.

⁹⁹ C. Lado, 'Socio-economic factors influencing sustainable water supply in Botswana', *GeoJournal* 41 (1) (1997): 43–53.

¹⁰⁰ Republic of Botswana, 'Evolution of total population, 1800–2000', available at <https://clio-infra.eu/Countries/Botswana.html> (accessed 22 April 2023).

public commodity over which the country had a social responsibility, with the state having a role in water delivery and management through state or public water enterprises such as the Water Utilities Corporation established in 1970. The government then decentralised water services after independence (to embrace corporate partners) as it increasingly perceived water more as an economic than a social good.¹⁰¹ The government used state-controlled water institutions such as the WUC and the Department of Water Affairs (formulated after the promulgation of the *Water Act*) to respond to inadequate water resources.¹⁰² Botswana achieved more decentralisation of water by giving autonomous power to civic organisations, private institutions (water privatisation), the corporate sector and other water users. But, the state often cast an eye over its shoulder to embrace the social value and utility of water which seemed historically proven. Hence, for Botswana, this makes the dichotomous nature of water evident.

In a Policy Statement in 2012, 'Water for Growth', the government of independent Botswana said 'water must be considered as an economic good which supports cross-sectoral economic integration and efficiency in allocation and application and it is central to ensuring equity and sustainable development, as well as addressing poverty eradication' in the twenty-first century.¹⁰³ In addition to efforts at poverty alleviation through augmenting supplies, the state strove to achieve high levels of water management as a security and conservation measure. This is illustrated by the adoption of water demand management (WDM) – defined at the Dublin Conference as 'actions which promote more desirable levels and patterns of water use'.¹⁰⁴

From the 1970s to the 1990s the economic growth of Botswana was driven by agriculture (livestock rearing and to some extent crop cultivation) and mining, all facilitated by an astute and economic

¹⁰¹ Nyandoro, 'A state and corporate undertaking'.

¹⁰² Water Utilities Corporation (WUC) Act, Act of parliament (Laws of Botswana Cap: 74:02), 1970; Water Utilities Corporation (WUC), 'Water in an urbanising world', *Annual Report*, 2010/11.

¹⁰³ Republic of Botswana, 'Botswana national water policy', *Government Paper No. ... of 2011*, Ministry of Minerals, Energy and Water Resources, Oct. 2012.

¹⁰⁴ Solanes and Villarreal, *The Dublin Principles for Water*.

use of limited water resources. The development of the livestock ranching, dryland agriculture, irrigation agriculture and mining sectors brought the need for optimal water management by embracing post-colonial water institutions and WDM measures to achieve sustainability. Rising economic development led to improvements in water infrastructure to support the industrial growth experienced before the major economic turnaround that came with mining developments in the 1980s.

Successive decades from the 1980s witnessed concerted efforts to improve water supply and management in Botswana. Water supply projects in the form of dams and boreholes, first in major villages and then in smaller ones, gave virtually everyone access to potable water. The Gaborone and Shashe Dams, constructed in the mid-1960s and early 1970s respectively, also boosted access to water. Access to good, safe and clean water, knowledge acquisition, education (primary-to-tertiary level), health care, better road and communication infrastructure, and better access to markets for livestock and crops were in fact major priorities for the districts, representing government focus on both social and economic goods. Clamours for water had existed since the colonial period and these persisted into the post-colonial period.¹⁰⁵ The ruling Botswana Democratic Party (BDP) knew that society expected them to effectively serve the people who constituted the electorate.¹⁰⁶ The people expected a lowering of water tariffs.¹⁰⁷ Although the rulers listened to the people's demands for social services in water, energy and prices, they could not do some things, like providing large subsidies for urban water and power services in spite of diamond revenue. From the 1970s to 2020, this phenomenon resulted in a growing outcry from oppo-

¹⁰⁵ Nyandoro, 'The discourse of water development'; Nyandoro, 'Water provision, governance and management'.

¹⁰⁶ Ibid. See also B. Seabo and K. Molebatsi, 'Botswana's dominant party system: Determinants in the decision to vote for the ruling party', *Journal of African Elections (JAE)* 16 (2) (2017): 1–23; K. Alexander and G. Kaboyakgosi (eds), *A Fine Balance: Assessing the Quality of Governance in Botswana* (Pretoria: Idasa, An African Democracy Institute, 2012).

¹⁰⁷ Nyandoro, 'Water provision, governance and management'.

sition political formations especially the Botswana National Front (BNF)¹⁰⁸ against a growing economic focus and rising water charges by the Water Utilities at a time when the country was emerging into one of the world's and Africa's leading diamond and precious stones producers.

In a country not endowed with the numerous natural resources of other regional examples like South Africa and Zimbabwe, diamonds thus accounted for much of the growth of Botswana's Gross Domestic Product (GDP) after De Beers announced a discovery at Orapa in 1967.¹⁰⁹ Benefiting from a rapidly expanding economy in the 1970s and 1980s, Botswana extended basic infrastructure for mining development and basic social services (including water) for its population. More diamond mines were opened, on relatively favourable financial terms for the state.¹¹⁰ By 1982, the country had two major mines at Orapa and Jwaneng, and by 1990 it was the world's largest producer of diamonds.¹¹¹ However, support to the social services sector such as water still remained thin. Although the importance of minerals in general and diamonds in particular to wealth creation and the growth of Botswana's economy cannot be over-emphasised, in post-colonial Botswana innovative research or knowledge also drives the economy in addition to minerals. The country's limited natural resources and the well-documented limited water-resources would not have spurred the economy to much greater heights without the country's quest for knowledge and the deployment of knowledge for production. Mining institutions like Debswana contributed to the production of diamond by value and volume. Thus, notwithstanding the paucity of water and the relative lack of mineral and other natural resources knowledge, education (a social and economic services sector), people's resourcefulness and in-

¹⁰⁸ The BNF is a social democratic political party, which has been the main opposition party in Botswana since the 1969 elections. The party achieved its greatest electoral success in the 1994 elections when it won 37.1% of the vote and 13 of 40 parliamentary seats.

¹⁰⁹ Nyandoro, 'Water provision, governance and management'.

¹¹⁰ Ibid.

¹¹¹ Ibid.

novativeness launched post-colonial Botswana on the path towards phenomenal economic growth by southern African standards.¹¹² With a not very diversified economy based largely on diamonds and cattle, by 2020 Botswana was doing far better than many other southern African countries at comparable levels of economic development and with relatively ample water resources. This was partly due to the realisation of water not so much as a social but as an economic good to serve the expanding economic sectors of the country like ranching and mining which required huge volumes of water.

Botswana: Transboundary and international endorsement of water as economic good

Globally, the growth in population in the new millennium has created greater pressure on water resources by increasing water demand and pollution. About 1.4 billion people worldwide have no access to clean and drinkable water, while almost 2.5 billion, including almost a billion children, have no or poor sanitation.¹¹³ Approximately 2 billion people around the world did not have access to clean, safe drinking water, and about 3.6 billion people – 46 per cent of the world's population – lack adequate sanitation services.¹¹⁴ Demand for scarce and finite water resources led to the historical evolution of state water policies in broad regions of Europe, Asia, North America, Latin America and Africa. In some countries in Africa, like Botswana, access to fresh water is limited while, in many parts of the world, such as the Middle East, demand far exceeds supply. For Botswana where resort to groundwater and boreholes has grown over time, water demand increased (in the urban and rural areas from a low water consumption of surface and groundwater of 41.9 mm³ per annum in 1990 to a high of 75.7 mm³ per annum in 2020, with water consumption reaching 186.2 mm³ per annum and 140.3 mm³ per annum for the same categories of water respectively

¹¹² Nyandoro, 'A state and corporate undertaking', 108.

¹¹³ UN World Water Assessment Programme (WWAP), UNDP (2006).

¹¹⁴ UN World Water Development Report (22 Mar. 2023).

by 2020)¹¹⁵ due to population and industrial growth. The growth and expansion of water intensive industries in the post-colony thus made Botswana fit the international perception of water holding more economic than social value. Looking at water challenges in other global regions, there is a strong resonance between Botswana's focus after colonial rule on water as an economic good with the lessons the Mediterranean region learned from the European Water Framework Directive on water price versus value, generally seen as a way of achieving rational water use.

In the Mediterranean, as in Botswana, the increasing demand for water due to growth of both population and economy put intense pressure on the need to deliver water in sufficient quantity and quality.¹¹⁶ Water was, therefore, increasingly valued as an economic resource, with its price depending on quantity and quality as much as on the behaviour of people and the market. So, the value of water not only for economic purposes but also for society, people's health and the environment using historical precedent are important factors in the valuation process. However, when pricing is intended to recover the full costs of infrastructure, management, maintenance, operation and water conservation,¹¹⁷ as in the water pricing policy in Jordan, this may lead to the economic pricing of water, which, in most Global South regions such as Botswana, damages the interests of the poor and compromises the thriving livestock and mining industries. For example, since 1992, much attention in Botswana has focused on water pricing and the design of economic instruments for

¹¹⁵ L.A. Swatuk and D. Rahm, 'Integrating policy, disintegrating practice: Water resources management in Botswana', *Physics and Chemistry of the Earth* 29 (2004): 1357–64.

¹¹⁶ M. Shatanawi and S. Naber, 'Valuing water from social, economic and environmental perspective', in S. Junier, M. El Moujabber, G. Trisorio-Liuzzi, S. Tigrek, M. Serneguet, R. Choukr-Allah, M. Shatanawi and R. Rodríguez (eds), *Dialogues on Mediterranean Water Challenges: Rational Water Use, Water Price Versus Value and Lessons Learned from the European Water Framework Directive* (Bari: CIHEAM, 2011), pp. 109–17.

¹¹⁷ See also Botswana Water Forum arguments by T. Molebatsi, 'Conservationist and Hydrogeologist, Aqualogic' (Gaborone: Botswana Society, 2012).

cost recovery but this has raised concern among the poor consumers of water (as already discussed). However, the state could not reduce water tariffs. Therefore, by the 2020s there were incessant outcries for a reduction of water charges. In other parts of Africa, for instance Egypt, valuing water for domestic purposes using different valuation techniques has also shown the limits of the end-users' willingness to pay for the commodity.¹¹⁸ Botswana, to this day, continues to grapple with how to combine more effectively the economic and social good theories and practice of water use.

Conclusion

In summary, this article demonstrates that, in the colonial period, Botswana perceived water purely as a social responsibility. However, although the government still valued its social responsibility, the post-colonial state perceived water differently and viewed it as critically important for economic development. Water provision and the management of water supply were, thus, significantly improved to promote socio-economic development through state, strategic corporate partners and other actors' efforts. Water became a paramount resource for economic sectors and water intensive industries such as ranching, agriculture and mining. The scarcity of this finite natural resource, led the government to provide hands-on solutions to the challenge through a mixture of its social goods philosophy with the Dublin Conference principle that recognised water as an economic good. To address water-scarcity, the government also invested in climate adaptation and mitigation measures to help the growing but historically vulnerable potable water, dryland agricultural, industrial and mining sectors of the economy. Overall, benefiting from a historical and interdisciplinary investigation of the societal value of water in Botswana (and the country's water policy interface with other African and global players), this article's overarching significance is that water cannot merely be analysed in a pre-independence social-

¹¹⁸ Shatanawi and Naber, 'Valuing water'.

goods mainstream to the detriment of its economic fundamentals in the country, region and the world. This economic history and wide-ranging multidisciplinary conversation on whether water can be considered an economic or social good in post-colonial Botswana illustrates the efficacy, challenges and opportunities of water policy in a predominantly desert environment and growing economy by southern African standards. The efficacy of water history and the economic contribution of Botswana's water policy can be measured by the myriad benefits the country's urban and village population have enjoyed since the attainment of independence. Certainly, the water intensive potable, livestock and mining sectors benefitted from the development of water resources, notwithstanding the incessant water-shortages besetting the country over time, but the benefits to Botswana of subscribing to an economic or social goods philosophy of water will definitely need to be interrogated more.

Mark Nyandoro is an Economic History Professor, Department of History Heritage and Knowledge Systems, University of Zimbabwe; Extraordinary Professor research, School of Social Sciences, Subject Group – History, Faculty of Humanities, North-West University (Vaal Triangle Campus), South Africa. He taught at the University of Botswana; and is a United Nations University-Institute for Natural Resources in Africa (UNU-INRA) visiting research fellow, consultant to the Third National Communication to the UNFCCC, and member of the international African Economic History Network (AEHN). Nyandoro has published extensively on water, water-borne-diseases, state-institutions, migration, poverty, land, irrigation agriculture, drought, food security, climate change and the environment in *Environment and History*, *Global Environment*, *Journal of Southern African History*, *Botswana Notes and Records*, *Journal of African Historical Review*, *Journal for Contemporary History*, *TD: The Journal for Transdisciplinary Research in Southern Africa* and other refereed journals. He has also published book chapters and academic book reviews and is currently writing an NRF COVID-19 Africa Rapid Grant Fund (CARGF) Book.

Email: nyandoromark@gmail.com