

Olayinka Adeniyi

Researcher, Centre
for Human Rights,
University of Pretoria;
Women on the Watch
(WOW) Society Initiative,
Pretoria, South Africa.
ORCID: 0000-0002-
9686-3614

Amos Adeniyi

Department of Chemical,
Metallurgical and
Materials Engineering,
Tshwane University of
Technology, Pretoria.
ORCID: 0000-0002-
7186-9171

DOI: <https://dx.doi.org/10.18820/24150517/JJS45.i1.5>

ISSN 0258-252X (Print)
ISSN 2415-0517 (Online)

Journal for
Juridical Science
2020:45(1):93-119

Date Published:
11 June 2020



Published by the UFS
<http://journals.ufs.ac.za/index.php/jjs>

© Creative Commons
With Attribution (CC-BY)



WOMEN'S ACCESS TO WATER FOR SUSTAINABLE DEVELOPMENT IN NIGERIA: DRAWING LESSONS FROM SOUTH AFRICA'S WATER- RENEWABLE TECHNIQUES

SUMMARY

Water is an indispensable natural resource, which, apart from its importance in the industrial sector, is mostly used by women at the domestic level everywhere, particularly in Africa. While industrialisation has made quality potable water accessible to women in cities and urban areas, this is unfortunately not the case in rural areas and thus poses a major challenge to the realisation of the United Nations (UN) Sustainable Development Goals in Nigeria. In cities and urban areas, people have managed to establish reliable water sources through boreholes, for example, while rural dwellers are still dependent on government intervention, philanthropies and non-governmental organisations to be able to have access to water of adequate quality. Considering the geographic location of South Africa, its peculiar water problem could be expected to be worse than in Nigeria. On the contrary, the South African government's involvement in water-renewable techniques and other strategies in making quality water available to all its citizens differs from the situation in Nigeria. This article illustrates that the right to water as a natural resource, to which citizens are entitled as a component of the right to development, is anchored in law. To ensure the realisation of this right, we draw inspiration from academic and industrial approaches and water-renewable techniques for development, improvement, and implementation in South Africa to suggest ways for Nigeria to improve on its water strategy.

1. INTRODUCTION

Water is one of the most important natural resources for mankind.¹ The importance of water is underscored by the fact that it is the single greatest power to drive industrialisation, health and gender equality across Africa.² Although water is relevant to all aspects of human

- 1 Gomez *et al* 2019:11; Niyi-Gafar 2016:20.
- 2 CNBC Africa 'Africa has a water crisis, but these innovations could fix it', CNBC Africa.com, 16 February 2018, <https://>

development, its availability and quality is a challenge in Africa.³ Africa is still the least irrigated and least industrialised region of the world.⁴ Although it is reported that 67 per cent of people in Nigeria have basic water supply, access is uneven. While 82 per cent of people in the cities have a basic supply of water, only 54 per cent do in rural areas. In all, only 19 per cent of Nigeria's population has access to safe drinking water.⁵ Rural women comprise a considerable percentage of the agricultural workforce worldwide, whereby they feed their families, maintain homes and communities.⁶

Women are, therefore, important to every society as well as the instruments or resources to accomplish these tasks. The fact is that, while they are needed in the community to perform their task and to participate in decision-making, they lack equal access to the most vital resources, clean water in particular. In many rural areas in developing countries, women and girls often spend a significant amount of time collecting water, which limits their engagement in other activities such as paid work and education.⁷ The United Nations (UN) Sustainable Development Goals (SDGs) make provision for development for rural women, by regulating the provision of, and access to clean water and sanitation.⁸ This underscores the importance of water in achieving sustainable development and, more particularly, with regard to rural women.⁹

The international community is working in several ways to ensure universal access to safe water by 2030, which is identified as a critical component of the 2030 Agenda for Sustainable Development that aims to eradicate extreme poverty.¹⁰ Ways to achieve this goal include improving access to clean water for domestic and industrial use. Experts estimate that lack of ready access to clean water causes annual economic losses of up to 7 per cent of Gross Domestic Product (GDP) in some countries.¹¹ In response to the SDGs, the government of countries such as South Africa have embarked on improving access to water for their citizens. The question that needs responding to is what lessons

www.cnbcfr.com/zdnl-mc/2018/02/16/africa-water-crisis-innovations-fix/ (accessed on 10 May 2019).

3 Omonona & Ajiboye 2011:154.

4 Rathgeber 1996:49.

5 Odume & Slaughter 'How Nigeria is wasting its rich water resources', <https://theconversation.com/how-nigeria-is-wasting-its-rich-water-resources-83110> (accessed on 13 May 2019).

6 Bachelet 'Rural women and sustainable development', <http://www.unwomen.org/en/news/stories/2012/2/rural-women-and-sustainable-development> (accessed on 10 May 2019).

7 Sangodoyin 1993:255-261; Evans 'To realize the Sustainable Development Goals, focus on rural women', <https://news.globallandscapesforum.org/30371/to-realize-the-sustainable-development-goals-focus-on-rural-women/> (accessed on 10 May 2019).

8 Sustainable Development Goal 6.

9 Geere & Cortobius 2017:513-540.

10 Cornell 'Water access is a gender equality issue', <https://www.cfr.org/blog/water-access-gender-equality-issue> (accessed on 10 May 2019).

11 Cornell 'Water access is a gender equality issue', <https://www.cfr.org/blog/water-access-gender-equality-issue> (accessed on 10 May 2019).

the Nigerian government could learn from South Africa's water-renewable techniques? Gender mainstreaming can be the process to achieve this.

Gender mainstreaming is the public policy of assessing the different implications for women and men of any planned policy action, including legislation and programmes, in all areas and levels, with the aim of achieving gender equality.¹² Gender mainstreaming "involves ensuring that gender perspectives and attention to the goal of gender equality are central to all activities". Mainstreaming generally refers to a comprehensive strategy that involves both women-oriented programming and the integration of women/gender issues into overall existing programmes throughout the programme cycle.¹³ Gender is a central concern in water and sanitation, and women's participation improves project performance.¹⁴ Mainstreaming women in the issue of water will mean thinking, including and involving women in the comprehensive strategy of planning, budgeting and implementation of programmes on water governance. Policymakers need this to better understand the drivers for water access, so that they might make better evidence-based decisions in future.¹⁵

This article compares Nigeria and South Africa with regard to women's access to water, the *status quo* of water, the efforts of the governments, and applicable processes or procedures. It suggests means of improvement for the failing state, particularly ways of mainstreaming rural women's access to water. The article also explores the relevance of water as a natural resource for the realisation of the right to development. It argues that sustainable development and economic growth are possible only by improving the economic, social, political, legal and cultural status of women. Accordingly, drawing inspiration from the South African renewable energy technology, the article further explores the challenges that rural women face in accessing water in Nigeria and suggests how the situation in Nigeria could be improved.

2. PROBLEM OF ACCESS TO WATER FOR RURAL WOMEN IN AFRICA

2.1 Water issues for Nigeria's rural women

It is trite that there is a water problem in Africa, particularly in the rural areas. In discussing those who are probably the most seriously affected by a lack of

12 Republic of South Africa 'Environment sector gender strategy 2019', https://www.environment.gov.za/projectsprogrammes/environment_sector_genderstrategy (accessed on 4 July 2019).

13 Republic of South Africa 'Strategy toward gender mainstreaming in the environment sector 2016-2021', https://www.environment.gov.za/sites/default/files/docs/publications/strategytowardgendermainstreamingintheenvironmentsector2016_2021.pdf (accessed on 4 July 2019).

14 United Nations Development Programme 2006:10.

15 Gomez *et al* 2019:11.

clean water, women cannot be exempted.¹⁶ Paradoxically, Nigeria is so rich in water resources that many of its 36 States are named after rivers.¹⁷ In addition to surface water found in nearly every part of the country, there is also plenty of water stored in the ground. The country has 215 cubic kilolitres a year of available surface water.¹⁸ This is much higher than in many African countries, particularly those in the southern and northern regions of the continent. South Africa, for example, has only roughly 49 cubic kilolitres a year.¹⁹

Over two thirds of Nigeria's population reside in rural areas. Poverty in the country is increasingly wearing a rural face.²⁰ One of the many contributory factors to this is lack of access to water. Women and girls are the worst hit,²¹ especially in many rural communities, because they must walk miles every day to find any water at all, and the water they find is usually polluted and infested with contaminants.²² These contaminants affect both surface and underground water. Toxic chemicals such as metals, pesticides, oil and sewage, as well as seepage from waste dump sites are common contaminants.²³ In Nigeria, over 70 million people do not have access to safe drinking water; over 110 million do not have access to proper sanitation, and 124,000 children under the age of five years die every year from waterborne diseases such as diarrhoea.²⁴ Nigeria thus ranks as one of the top ten countries in the world where rural women face water insecurities.²⁵

The situation is general in Nigeria, because even urban areas lack access to water; it is only worse in rural communities. Citizens in urban areas and cities do not have easy access to tap water and there is no provision or maintenance of the drainage system in communities.²⁶ One of the reasons to

-
- 16 CNBC Africa 'Africa has a water crisis, but these innovations could fix it'. <https://www.cnbc.com/africa/2018/02/16/africa-water-crisis-innovations-fix/> (accessed on 10 May 2019).
 - 17 Cross River, Port Harcourt, Rivers State, Osun, Niger State, Benue.
 - 18 Odume & Slaughter 'How Nigeria is wasting its rich water resources', <https://theconversation.com/how-nigeria-is-wasting-its-rich-water-resources-83110> (accessed on 13 May 2019).
 - 19 Odume & Slaughter 'How Nigeria is wasting its rich water resources', <https://theconversation.com/how-nigeria-is-wasting-its-rich-water-resources-83110> (accessed on 13 May 2019).
 - 20 World Bank 'Nigeria: Expanding access to rural infrastructure issues and options for rural electrification, water supply and telecommunications', <https://openknowledge.worldbank.org/handle/10986/17991> (accessed on 13 May 2019). Poverty among the rural population has grown from 28.3 per cent in 1980, to 51.4 per cent in 1985, has since risen to 69.8 per cent in 1996.
 - 21 Geere & Cortobius 2017:513.
 - 22 Graham *et al* 2016:1-14; Ishaku *et al* 2011:598-606.
 - 23 Odume & Slaughter 'How Nigeria is wasting its rich water resources', <https://theconversation.com/how-nigeria-is-wasting-its-rich-water-resources-83110> (accessed on 13 May 2019).
 - 24 Kirker 'Vast improvements in Nigeria's water quality', <https://borgenproject.org/improvements-in-nigerias-water-quality/> (accessed on 13 May 2019).
 - 25 Parker *et al* 'Gender, agriculture and water insecurities', <https://www.odi.org/publications/10355-gender-agriculture-and-water-insecurity> (accessed on 20 December 2019).
 - 26 Imonikhe & Moodley 2018:1696-1705.

be argued for this is probably that the water corporation, unlike the power or energy sector, has not been publicly privatised, despite the fact that it cannot be said to be functioning. However, the circumstances notwithstanding, there have been steps towards improvements in Nigeria's water quality. This is not to say that these improvements proceed mainly from the government, but rather from international communities, non-governmental organisations (NGOs), philanthropists and faith-based organisations. Politicians seeking votes often only engage in making water available to the electorate, particularly in rural areas, by providing boreholes and deep wells during pre-election times as a means of boosting their campaigns for the election. Citizens themselves take the initiative through community contribution to improve the water situation in their communities.

2.2 The water situation in South Africa

South Africa is a water-scarce (often described as "water-stressed") country, based on the *per capita* water availability that is below the expected number.²⁷ Studies, as at 2009, reported that, while there was no cause for alarm, effective water management was necessary for the country to achieve optimal social and economic performance in a sustainable manner.²⁸ Presently, however, there is a water crisis in South Africa,²⁹ because, practically, no new water source is available in the country, owing to the fact that the water reserve officially declared as 98 per cent allocated in 2002 has been exhausted.³⁰

The situation in South Africa is similar to that in Nigeria, particularly with regard to rural areas and the circumstances of women. Women and girls in these rural communities spend hours searching for water that is often dirty and unsafe.³¹ The time spent searching for water prevents them from engaging in other areas of development such as school attendance and skills learning.³² It can be argued that water renewal or water purification is what is currently obtainable in South Africa.³³ From a research point of view in South Africa, the government invests heavily in research on water-purification processes to benefit the population of the country and for industrial use. As for Nigeria,

27 Karuaihe *et al* 2014:332-344; Donnenfeld *et al* 2018:10.

28 Muller *et al* 2009:5.

29 Gosling 'South Africa could run out of water by 2030', <https://www.news24.com/SouthAfrica/News/south-africa-could-run-out-of-water-by-2030-govt-draft-plan-20180329> (accessed on 14 May 2019).

30 Davies 'While electricity hogs headlines, South Africa's water situation is another unfolding crisis', <https://www.dailymaverick.co.za/article/2019-02-13-while-electricity-hogs-headlines-south-africas-water-situation-is-another-unfolding-crisis/> (accessed on 14 May 2019).

31 CNBC Africa 'Africa has a water crisis, but these innovations could fix it'. <https://www.cnbc africa.com/zdnl-mc/2018/02/16/africa-water-crisis-innovations-fix/> (accessed on 10 May 2019).

32 CNBC Africa 'Africa has a water crisis, but these innovations could fix it'. <https://www.cnbc africa.com/zdnl-mc/2018/02/16/africa-water-crisis-innovations-fix/> (accessed on 10 May 2019).

33 This is discussed under the subhead of government intervention and water purification process in South Africa.

there is a lack of effective government management and distribution of water use, besides other challenges.³⁴ This may be one area of difference between Nigeria and South Africa.

2.3 Impact of water problems on development for rural women

Water problems including its lack, shortage, or insufficient quality have an enormous effect on the development of a country. These problems affect the general population, especially as they may cause children to miss school and adults to miss work, consequently creating social and economic problems for the population.³⁵ There is no gainsaying that gender is a key issue in any analysis of poverty and water governance. Poverty affects women disproportionately and this is exacerbated by the fact that they also have to confront the problem of access to water. Women face the burden of fetching water for use in the home, of coping when there is not enough water for domestic needs, and of caring for those who are ill due to poor-quality water.³⁶ Where water is lacking and citizens can only access dirty water for use and consumption, the negative effect is reflected on health and quality of life, which, in turn, impacts negatively on productivity, human welfare and the development of the country.³⁷

Waterborne diseases such as typhoid fever, cholera, dysentery, guinea worm, bilharzia, hookworm and malaria parasites are common in rural areas that face water problems in Nigeria.³⁸ The right to sufficient water intersects with environmental rights, which is an enabling right for the enjoyment of other rights such as health, education and safety. Rural populations, particularly women, make up a larger proportion of citizens engaged in farming activities.³⁹ Where people are deformed, maimed by diseases or death as a result of inadequate water or access to dirty water, the farm yields for the general population is limited.⁴⁰ This is not inclusive of the fact that the time women and girls spend in sourcing water for domestic use prevents them from education and from contributing to the economy and, by extension, the development of society.

This contributes to poverty and underdevelopment of the affected communities.⁴¹ The lack of accessible, reliable and safe drinking water, together with poor sanitation and hygiene, is estimated to cost Nigeria approximately USD1.3 billion per year in access time, loss due to premature death, productive time lost, and healthcare costs.⁴² While the water problem in South Africa may not be associated with many diseases, as in Nigeria,

34 Babatunde 2018:997-1014; Akper & Munchie 2011:480-489.

35 Graham *et al* 2016:1-14.

36 Omononan & Ajiboye 2011:154.

37 Gomez *et al* 2019.

38 Ishaku *et al* 2011:598-606.

39 Omononan & Ajiboye 2011:154.

40 Omononan & Ajiboye 2011:155.

41 Gbadegesin & Olorunfemi 2007:iii.

42 Odume & Slaughter 'How Nigeria is wasting its rich water resources', <https://theconversation.com/how-nigeria-is-wasting-its-rich-water-resources-83110> (accessed on 13 May 2019).

its effect on women and girls, particularly in rural areas, is similar, with the resulting adverse impact on the realisation of their right to development, as explained in the ensuing sections.

3. RIGHT TO WATER AS A COMPONENT OF THE RIGHT TO DEVELOPMENT

Water is an essential natural resource⁴³ that constitutes both a source of life and a means of sustaining life and thus human development. In South Africa, in the *Mazibuko & Others v City of Johannesburg* case on the right to adequate water, Justice Kate O'Regan acknowledged that "water is life".⁴⁴ To say that water is life means that human existence is unavoidably connected to water and without it the human being cannot survive. Accordingly, access to adequate and quality water, which the United Nations (UN) legally recognised as a human right in 2002, guarantees that "the human right to water entitles everyone to sufficient, affordable, physically accessible, safe and acceptable water for personal and domestic uses".⁴⁵ Water is crucial for business, industry, livelihood, and subsistence.⁴⁶ Lack of access to water in sufficient quantities may cause serious and irreparable damage to life.⁴⁷ Water is critical for socio-economic development and is at the core of sustainable development.⁴⁸

The UN Committee on Economic, Social and Cultural Rights (UNCESCR) recognises water as a human right.⁴⁹ In July 2010, the UN General Assembly adopted a resolution that recognises the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights.⁵⁰ Water is, therefore, a human right. State governments are obligated to ensure its availability, quality and accessibility to their citizens. Access to reliable and clean water is widely accepted as essential for the realisation of a healthy and productive life.⁵¹ The *Mazibuko* case⁵² is one of the most prominent and instructive cases on the discourse of water as a human right and activism on a rights-based approach in favour of strategies for accessing water justice.⁵³

43 Dubreuil 2006:3.

44 *Mazibuko & Others v City of Johannesburg* 2010 4 SA 1 (CC);par. 1.

45 Ahlenius 'Natural resource – water (freshwater run-off)' UNEP/GRID-Arendaat, <http://www.grida.no/resources/7298> (accessed on 17 Dec 2019); Scanlon *et al* Water as a human right? <https://portals.iucn.org/library/sites/library/files/documents/EPLP-051.pdf> (accessed on 21 December 2019).

46 Aulenbach 1968:535-552.

47 Maran De Oliveira 2017:985-1000.

48 United Nations 'Water for life decade/water for life and sustainable development', https://www.un.org/waterforlifedecade/water_and_sustainable_development.shtml (accessed on 17 December 2019).

49 United Nations Committee on Economic, Social and Cultural Rights:General Comment 15.

50 United Nations General Assembly A/RES/64/292.

51 Hall *et al* 2014:849-868.

52 *Mazibuko & Others v City of Johannesburg* 2010 4 SA 1 (CC).

53 Clark 2017:231-260.

Both human rights and development aim to promote human well-being and freedoms, based on the inherent dignity and equality of all peoples. The concept of human development derives from this understanding, and aims at the realisation, by all, of basic human rights and freedoms.⁵⁴ The right to development is conceived as “an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized”.⁵⁵ The UN Declaration on the Right to Development (UNDRD) further stipulates that:

The human right to development also implies the full realization of the right of peoples to self-determination, which includes, subject to the relevant provisions of both International Covenants on Human Rights, the exercise of their inalienable right to full sovereignty over all their natural wealth and resources.⁵⁶

Related to the guarantee of full sovereignty over natural resources as a prerequisite for the realisation of the right to development, the Declaration provides that states are obligated to provide their citizens access to basic resources,⁵⁷ including access to adequate water, which in itself, as the UN General Assembly reaffirms, is a fundamental human right.⁵⁸ The right to water is, accordingly, embodied in the right to development, which is a composite of all human rights guaranteed to be enjoyed by the human being as the central subject of development.⁵⁹ It also entails that the processes of development should respect all human rights.⁶⁰ The Convention on the Elimination of all forms of Discrimination against Women (CEDAW) highlights that (rural) women should be provided access to good water and that governments should be responsible to ensure that this is achieved.⁶¹

The African Charter on Human and Peoples’ Rights provides for the right to natural resources⁶² and the right to development.⁶³ It can be argued that these two provisions are linked to the right to water as a natural resource for the realisation of the right to development, which entails improving human well-being for the peoples of Africa, including especially the women who are predominantly impoverished. The African Women’s Protocol also articulates the obligation of governments to ensure that women have access to clean, available, acceptable, accessible, and affordable water and sanitation.⁶⁴

54 United Nations Declaration on the Right to Development: art. 8.

55 United Nations Declaration on the Right to Development: art. 1(1).

56 United Nations Declaration on the Right to Development: art. 1(2).

57 United Nations Declaration on the Right to Development: art. 8 adds that “effective measures should be undertaken to ensure that women have an active role in the development process”.

58 United Nations General Assembly GA/RES/54/175, 15 February 2000.

59 United Nations Declaration on the Right to Development: art. 2(1).

60 United Nations Declaration on the Right to Development: art. 1(2).

61 Convention on the Elimination of all forms of Discrimination against Women 1979:art. 14(2)(h).

62 African Charter on Human and Peoples’ Rights: art. 21.

63 African Charter on Human and Peoples’ Rights: art. 22.

64 African Women’s Protocol: art. 15(a).

The UN Millennium Declaration has established the possibility of a stronger linkage in recognition of the common objectives between all human rights and development.⁶⁵ The aspiration to implement sustainable development can be advanced to link development and human rights.⁶⁶ One of the sustainable development goals is access to clean water.⁶⁷ The SDGs are a collection of 17 global goals set out by the UN and designed to be a “blueprint to achieve a better and more sustainable future for all and which has been accepted by government[s] all over the world”.⁶⁸

As a basic and inevitable natural resource, water is essential for preserving human dignity, health and life and, therefore, every aspect of socio-economic and cultural development. The right to water is thus conceived as an inherent element of the rights to health, life, dignity and even housing.⁶⁹ Without access to adequate water quality and quantity, the more explicit (parent) rights cannot be realised and there can be no development.⁷⁰ The unavailability of good water supply hampers development.⁷¹ This is the current situation in many developing countries.⁷² One way of making clean water available is through effective water management.

Recognising women's positive impact on sustainable development and the extent to which slow progress on attaining sustainable development affects the condition of women and hampers gender equality is a necessary consideration in developing countries, because of women's strategic positioning and the role they play at home and in society.⁷³ The importance of water to human life and sustenance – particularly for women – is also a crucial consideration with regard to development programming.⁷⁴ Because women are generally the principal domestic consumers of water, they deserve recognition as the central subjects for the provision, management and safeguarding of water.⁷⁵ This entails the inclusion or involvement of women in water-related processes and decision-making as well as water management and renewable techniques.

65 Scanlon *et al* 'Water as a human right?', <https://portals.iucn.org/library/sites/library/files/documents/EPLP-051.pdf> (accessed on 21 December 2019).

66 Scanlon *et al* 'Water as a human right?', <https://portals.iucn.org/library/sites/library/files/documents/EPLP-051.pdf> (accessed on 21 December 2019).

67 Sustainable Development Goal 6.

68 About the Sustainable Development Goals, <https://www.un.org/sustainable-development/sustainable-development-goals/> (accessed on 19 December 2019).

69 Bulto 2011:341-367.

70 Sustainable Development Goal 6: Ensure access to water and sanitation for all Sustainable Development Goals, <https://www.un.org/sustainabledevelopment/water-and-sanitation/> (accessed on 19 December 2019).

71 Matchaya *et al* 2018:1-21.

72 Sustainable Development Goal 6.

73 Policy Coherence for Sustainable Development and Gender Equality Fostering an Integrated Policy Agenda.

74 United Nations Development Programme 2015.

75 United Nations Development Programme 2015.

4. LEGAL FRAMEWORK ON WOMEN AND THE RIGHT TO WATER

The legal framework on the right to water for many countries can be traced to three major sources, namely international human rights conventions, regional conventions and domestic laws and policies. As members of the international community, the Nigerian and South African governments as duty bearers are obligated, under relevant international and regional conventions, to make access to water available to their citizens. Both countries being sovereign states have their legal and policies framework that regulates the rights of citizens, gender issues as well matters relating to development. Domestic laws will include their constitutions as well as other legislative provisions.

On the international framework list, the UN General Assembly declared clean drinking water and sanitation as a human right.⁷⁶ The International Covenant on Economic, Social and Cultural Rights (ICESCR) can be mentioned,⁷⁷ in which this provision has long been interpreted to include water.⁷⁸ The right to water is a human right⁷⁹ that is related to the right to the highest attainable standard of health.⁸⁰ Another treaty, the CEDAW, obliges states to eliminate discrimination against women in rural areas and to ensure that women have the “right to enjoy adequate living conditions, particularly in relation to housing, sanitation, electricity and water supply, transport and communication”.⁸¹ It recognises the particular needs of women to have access to water.

The Convention on the Rights of the Child (CRC) also provides that states are obliged to take steps to ensure the realisation of a child’s right to health and, in particular, to take appropriate measures to combat disease and malnutrition, including within the framework of primary healthcare, by, *inter alia*, the application of readily available technology and the provision of adequate nutritious foods and clean drinking water, taking into consideration the dangers and risks of environmental pollution.⁸² In addition to these, for the UN, the right to water and sanitation is contained in existing human rights treaties and, therefore, legally binding. On 30 September 2010, the UN Human Rights Council (UNHRC), responsible for mainstreaming human rights within the UN system, adopted by consensus a resolution affirming that the right to both water and sanitation are human rights. The UNHRC took an important further step in affirming that the human right to safe drinking water

76 United Nations General Assembly Resolution A/RES/64/292, 28 July 2010.

77 International Covenant on Economic, Social and Cultural Rights:art. 11.

78 United Nations Committee on Economic, Social and Cultural Rights: General Comment 15. The WaterAid and rights and humanity. The right to water: A legal obligation, <http://www.righttowater.info/ways-to-influence/legal-approaches/> (accessed on 21 December 2019).

79 United Nations Committee on Economic, Social and Cultural Rights:General Comment 15.

80 International Covenant on Economic, Social and Cultural Rights:arts. 12(1) and 11(1).

81 Convention on the Elimination of all forms of Discrimination against Women 1980:art. 14(2).

82 United Nations Convention on the Rights of the Child:art. 24(2).

and sanitation is derived from the right to an adequate standard of living and inextricably related to the right to the highest attainable standard of physical and mental health, as well as the right to life and human dignity.

The Beijing Conference encouraged mainstreaming women or women inclusion, by actively involving women in environmental decision-making at all levels; integrating gender concerns and perspectives in policies and programmes for sustainable development, and strengthening or establishing mechanisms at national, regional and international levels to assess the impact of development and environmental policies that are specific to women.⁸³

At regional level, the African Charter on Human and Peoples' Rights can be a good starting point for the right to water. Although the right to water is not explicitly enshrined in the African Charter, it can be read into the provisions on the right to natural resources as well as the right to development.⁸⁴ As it concerns Nigeria, the African Commission on Human and Peoples Rights reiterated, in the *Social and Economic Rights Action Centre and the Centre for Economic and Social Rights v Nigeria (SERAC)* case,⁸⁵ that the African Charter is justiciable before Nigerian courts and obligates the government to prevent pollution and ecological degradation, to promote conservation, and to secure ecologically sustainable development and use of natural resources, including water. The right to water is, however, provided for in the Protocol on the Rights of Women in Africa, which deals specifically with issues related to women.⁸⁶ The African Charter on the Rights and Welfare of the Child (1990) is also relevant to consider, although with regard to children.⁸⁷

At domestic level, the constitutions or bills of right as well as policies on development provide the legal framework for a reading of the right to water and to development. Constitutionalising water rights can be a powerful tool for achieving sustainability, although it is possible that where states do not provide for the right to water, such rights could be read into existing rights such as the right to life or the right to a healthy environment.⁸⁸ An example of reading water

83 Bulto 2011:345. The Beijing conference 1995 is the fourth world conference on women. In its Platform for Action (1995) in 254. Governments and international organizations and private sector institutions, as appropriate should : (a) Take gender impact into consideration in the work of the Commission on Sustainable Development and other appropriate United Nations bodies; (b) Promote the involvement of women and the incorporation of a gender perspective in the design, approval and execution of projects funded under the Global Environment Facility and other appropriate United Nations organizations; Strategic objective K.2. Integrate gender concerns and perspectives in policies and programmes for sustainable development.

84 African Charter on Human and Peoples' Rights: arts. 16, 21, 22, 24.

85 Fifteenth Annual activity report of the African Commission on Human and Peoples' Rights 2001-2002. Communication 155/96, Decision of the African Commission on Human and Peoples' Rights, 30th Ordinary Session, held in Banjul, Gambia, 13-27 October 2001 (interpreting this right under the African Charter), <http://www.cesr.org/downloads/AfricanCommissionDecision.pdf> (accessed 31 December 2019).

86 African Women's Protocol: art. 15(a).

87 African Children's Charter: art. 14(2)(c).

88 Soyapi 2016:4.

rights as being contemplated within other existing human rights can be found in the Botswana case of *Matsipane Moseithanyane v the Attorney General*.⁸⁹ In that case, the Court of Appeal made reference to General Comment 15 on the right to safe and clean drinking water and affirmed that water is a human right linked to both the right to health and the right to life.⁹⁰

4.1 South African legislative and policy framework on water

South Africa has a robust legal framework and policies for basic services,⁹¹ including a constitutional right of access to sufficient water and a Free Basic Water (FBW) policy to actualise this right to water for its citizens.⁹² For South Africa, the right to water is a human right, equal to all other human rights, which implies that it is justiciable and enforceable.⁹³ The South African *Constitution* provides that “everyone has the right to have access to sufficient food and water”.⁹⁴ It provides the right to secure ecologically sustainable development and use of natural resources, while promoting justifiable economic and social development. This obligation extends the responsibility of the state to take reasonable legislative and other measures, within its available resources, in order to achieve the progressive realisation of these rights.⁹⁵ The South African government also has systems in place with regard to implementing the right to water, which constitutionally is a shared competency of the national, provincial, and local government structures.

The national government, through the Department of Water Affairs (DWA), is responsible for setting national policy frameworks and standards for the delivery of water services. The *National Water Act* 36 of 1998 (*NWA*) creates a comprehensive legal framework for the management of water resources in South Africa, which remains the responsibility of the national government. The preamble to the *NWA* acknowledges “the National Government’s overall responsibility for and authority over the nation’s water resources and their use, including the equitable allocation of water for beneficial use, the redistribution of water, and international water matters”.⁹⁶

The South African Department of Provincial and Local Government (DPLG) Guidelines for the Implementation of the National Indigent Policy by Municipalities (2005) also exists. An indigent policy is designed to allow municipalities to target the delivery of essential services to citizens who experience a lower quality of life. These services include, *inter alia*, free basic water: a minimum of 6 kilolitres of water per household per month. The National Development Plan (NDP) developed by the National Planning Commission (NPC) is the government’s strategy to deal with South Africa’s development challenges.

89 (Court of Appeal) Civil Appeal No. CACLB-074-10 of 27 January 2011.

90 *Matsipane Moseithanyane v the Attorney General*: paras. 20-24

91 Soyapi 2016:4.

92 Niyi-Gafar 2016:100.

93 Niyi-Gafar 2016:180.

94 *Constitution of the Republic of South Africa*: sec. 27(1)(b).

95 *Constitution of the Republic of South Africa*: sec. 27(2).

96 *National Water Act* 36/1998.

The vision statement of the NPC indicates that it aims to eliminate poverty and reduce inequality by 2030, by increasing both the state's capability to provide on its given mandate and the capabilities of the millions of economically disadvantaged people of South Africa through the provision of services.⁹⁷ One of the key targets of the NDP is to manage water resources, including the development and maintenance of bulk water supply and water management. Part of the vision is that, by 2030, all South Africans will have affordable access to sufficient safe water so as to live healthy and dignified lives.⁹⁸

However, the NDP does not expressly focus on water at the rural level. Hence, there is a large discrepancy between the services in urban areas and those in rural areas, as the NDP speaks to a differentiation in service between rural and urban areas, but does not specify the level of services that these areas would receive.⁹⁹ The *Water Research Act* envisages promoting research in water-related issues, in respect of which the Water Research Commission and a Water Research Fund are established.¹⁰⁰

With regard to the issue of water, South Africa's National Gender Policy Framework, within the Ministry of Women at the Presidency, prioritises the aspect of meeting "basic needs".¹⁰¹ It highlights the fact that women's rights be viewed as human rights, in order to ensure their development. This issue of water can be interpreted within this policy framework, since the importance of access to water and its link to women is crucial to development.

The South African government has worked on reform of its water-policy framework, continues to fund research and water techniques, and is making a concerted effort to implement a governance structure that will provide secure and sustainable water-supply services to its citizens.¹⁰²

As African countries, Nigeria and South Africa are arguably different. Both have water problems, are subject to the same international and regional legal frameworks on human rights and the SDGs, the environment for implementation, and have similar legal frameworks, conditions of living and responses by both governments. Despite South Africa's natural water-scarce situation, it is managing to ensure that its citizens have access to water. What then is the difference in the legal environment with Nigeria?

4.2 Nigerian legal and policy framework on water

There is no expressed provision on water, particularly as a right, in the Nigerian *Constitution*.¹⁰³ Although Nigeria is a state party to the United Nations

97 National Development Plan 2011.

98 National Development Plan 2011.

99 National Development Plan 2011.

100 *Water Research Act* 34/1971: the Commission in sec. 2(1) and the Research Fund in sec. 12.

101 Republic of South Africa 'National Gender Policy Framework Department of Environmental Affairs' 2019, https://www.environment.gov.za/projectsprogrammes/environment_sector_genderstrategy/policy_framework (accessed on 4 July 2019).

102 Okeola & Balogun 2017:11.

103 Niyi-Gafar 2016:100.

Declaration on the Right to Water, which entitles everyone to sufficient, affordable, safe and acceptable water for personal and domestic uses,¹⁰⁴ it is debatable to say that access to water is a human right in Nigeria.¹⁰⁵

Niyi-Gafar is of the opinion that water does not constitute a right in Nigeria, but that water is viewed from an economic perspective.¹⁰⁶ If water is understood to fall under socio-economic rights,¹⁰⁷ the argument of its justiciability comes into play.¹⁰⁸ The *Constitution* provides that the “state shall protect and improve the environment and safeguard the water, air and land, forest and wildlife of Nigeria”.¹⁰⁹ This provision is non-justiciable and there is no fundamental right to water or explicit economic rights in the *Constitution*.¹¹⁰

Shehu is of the opinion that, although sec. 6 of the 1999 *Constitution* makes such rights non-justiciable, when read together with the provisions of sec. 13 of the same *Constitution*, it becomes apparent that the intention of the makers of the *Constitution* is to make justiciability of such rights a matter of contingency and choice of the executive and the legislative arm of the government and recognise judicial intervention in matters of interpretation.¹¹¹

However, from the *SERAC* case,¹¹² peoples and private individuals can legitimately approach the courts to enforce their rights to a balanced environment and development. This stems from the fact that the right of peoples and the individual to social, economic and cultural rights that will facilitate their development should be promoted. This also links the issue of water to development and to environment issues.¹¹³

Although not dealing with the individual right to water, the case of *Attorney General of the Federation v Attorney General of Abia State & others*¹¹⁴ is relevant on the ground that it deals with the management of natural resources, which happens to be connected to water within the country. The Court held that natural resources located within the continental shelf are the property of the Nigerian State and revenues therefrom accrue to the Federation Account and do not derive from the territory of the littoral states.¹¹⁵ The question regarding water as a natural resource, as it concerns individual citizen's rights or the rights of groups of citizens such as women, is still left unanswered.

104 World Health Organization 'Nigeria- Sanitation, drinking-water and hygiene status overview' 2015 https://www.who.int/water_sanitation_health/monitoring/investments/nigeria-10-nov.pdf?ua=1 (accessed on 11 June 2019).

105 CFRN 1999:sec. 20.

106 Niyi-Gafar 2016:100.

107 CFRN 1999:sec. 20.

108 CFRN 1999:sec. 6.

109 CFRN 1999:sec. 20.

110 Ajai 2012:89-115.

111 Shehu 2013:101-120.

112 *Social and Economic Rights Action Centre & the Centre for Economic and Social Rights v Nigeria* (Communication No. 155/96).

113 Ajai 2012:89-115.

114 *Attorney General of the Federation v Attorney General of Abia State & others* (2002) 6 NWLR (Pt. 764):542.

115 *Attorney General of the Federation v Attorney General of Abia State & others*:542.

In the line of rights, some NGOs are trying to prevail on the president of the country to constitutionalise the right to water in Nigeria.¹¹⁶ Nigeria is, however, not devoid of a legal framework on water, as some important legal documents relate to water in the country.

While it may be argued that the Nigerian *Constitution* does not make provision for water as a right, it does have provisions on water management. The *Constitution* empowers the Federal Government to regulate and make laws for water from sources affecting more than one State as may be declared by the National Assembly.¹¹⁷ However, the federal, state and local governments have legal authority for water management in Nigeria. Issues of water sources within each state jurisdiction and not under the exclusive list are to be managed by each state and local government.¹¹⁸ It is the Local government that is responsible for rural water supply.¹¹⁹

From the federal standing point, three pieces of legislation form the core of water laws and the basis of water administration throughout Nigeria. These laws are the *River Basin Development Authorities Act* 1976, the *Water Resources (Decree 1993)* now *Act*¹²⁰ and the *Environmental Impact Assessment Act* 1992. The *Water Resources Act* is still to be considered, even though it does not address the present challenges of access to water or other salient related issues.¹²¹

The *River Basin Development Authorities Act*¹²² is the instrument for wide-reaching development and management of water resources in the country.¹²³ The *River Basin Development Authorities Act* spells out diverse functions and objectives for the Basin Authorities which includes being the appropriate unit for water supply and for management and development of connected infrastructures in Nigeria.¹²⁴

The *Water Resources Act* empowers the Minister of Water Resources to regulate the manner and ambit of rights of use of water.¹²⁵ The *Act* further states that any person may (i) take water without charge for his domestic purpose or for watering his livestock from any water course to which the public has free access; or (ii) may use water for the purpose of fishing or for navigation to the extent that such use is not inconsistent with any other law for the time being in force; or (iii) who, has a statutory or customary right of

116 EnviroNews Nigeria 'Why right to water should be enshrined in Constitution', <https://www.environewsigeria.com/right-water-enshrined-constitution-era/> (accessed on 11 June 2019).

117 *Constitution of the Federal Republic of Nigeria*, Second Schedule, Part 1, Exclusive Legislative List, Item 64.

118 *Constitution of the Federal Republic of Nigeria*: arts. 18 and 20 of the Concurrent Legislative, item 64 of the Exclusive List.

119 Idu 2015:205.

120 *Water Resources Act* (2004).

121 Niyi-Gafar 2016:125.

122 Cap.R9 Laws of the Federation of Nigeria, 2004.

123 Ajai 2012:89-115.

124 *River Basin Development Authorities Act*: sec. 4(1) (a)-(d).

125 *Water Resources Act* 1993 LFN 2004:secs. 4, 5, 6.

occupancy to any land, may take and use water from the underground water source or if abutting on the bank of any water course, from that water course, without charge for domestic purposes, for watering livestock and for personal irrigation schemes.¹²⁶

The *National Inland Waterways Authority Act*¹²⁷ is also a relevant piece of legislation, as it provides for water use and management in Nigeria.¹²⁸ The *Act* is meant to develop human and material resources and infrastructure and provide for rights of navigation on inland waterways in Nigeria as a means of intermodal transportation.

The National Water Supply and Sanitation Policy (NWSSP) 2000 complements the National Water Policy.¹²⁹ The central objective of that policy is that “[there] shall be the provision of sufficient potable water and adequate sanitation to all Nigerians in an affordable and sustainable way through participatory investment by the three tiers of government, the private sector and the beneficiary”.¹³⁰ There shall be adequate supply of good-quality, affordable water and sanitation services as a basic human need.¹³¹

However, the NWSSP 2000 recommends free water for the poor, but it fails to elaborate on how these commitments are to be mainstreamed into its implementation.¹³² The National Water Policy (NWP) 2004 calls for balance between affordable tariffs for the poor and high recovery cost. However, alongside the NWSSP, the NWP did not provide clarification on tariffs and subsidies, giving rise to a contradiction that led to the implementation of the NWSSP 2000 policy.¹³³ The NWP 2004 is also vague regarding the enforcement of the right to water, with the notable absence of institutions to actualise it.

Other legislation includes the *Environmental Impact Assessment Act* for assessing the impacts of proposed developments on the environment, fragile ecosystems and natural resources, including water resources.¹³⁴ The *Water Resources Institute Act* provides for the establishment of a research and training institute on water resources.¹³⁵ At the state level, complementary laws, policies and action plans are either non-existent or are being developed, while funds are also a major problem to both states and local government fulfilling their roles with regard to water and their citizens.¹³⁶

126 *Water Resources Act* 1993 LFN 2004:sec. 2.

127 Ajai 2012:89-115.

128 Ajai 2012:89-115.

129 National Water Policy 2004.

130 National Water Policy 2004:par. 19.

131 National Water Policy 2004:par. 19.

132 Okeola & Balogun 2017:1-19.

133 Okeola & Balogun 2017:1-19.

134 *Environmental Impact Assessment Act* Cap. E12, L.F.N. 2004.

135 *Water Resources Institute Act* Cap. N83, L.F.N. 2004; Cap. 284, L.F.N. 1990.

136 Ajai 2012:89-115.

In March 2018, the government established a Nigerian Standard for Drinking Water.¹³⁷ Some of the standards in this plan include limits on hazardous water contaminants and national guidelines for mandatory limits that designate what may be considered safe water.¹³⁸

Analysing the Nigerian situation, it can be mentioned that the approach to citizens' access to water leans more towards dependence on foreign aid, NGO support and community initiatives, as the citizens have learnt to live independently of the government. Organisations such as the UN Children's Fund (UNICEF) are bringing in foreign aid to support water goals and implementing educational programmes to help the Nigerian population identify and cultivate safe drinking water strategies.¹³⁹

Despite all the laws and policies on water in Nigeria, it is argued that no effective water resources management is being practised in Nigeria; confusion between development and management is visible, with a supply driven, top-down approach that has failed.¹⁴⁰ In addition, most of the regulations appear to be too vague on the issues they cover. There are no unifying provisions for coordinating quality, quantity, distribution and rehabilitation of water supply.¹⁴¹ Generally, Nigeria currently lacks a comprehensive national water policy in the form of strategies, functional national water master plans, systems for intersectional coordination, tariff setting and conflict resolution. The nation has allowed different agencies at all tiers of government (federal, state and local) to pursue different water agendas.¹⁴²

Without any provision on resolution of disputes with regard to water, it is no wonder that there has been limited recourse to the courts in recent times over water resources conflicts, and this explains the prevailing scarce availability of cases on water-related issues in Nigeria.¹⁴³ Where any exist, they are connected to land issues, or mineral or customary law, not statutory laws.¹⁴⁴

5. SOUTH AFRICA'S WATER-RENEWABLE TECHNOLOGY

The South African government supports research in water management through many public establishments and institutions. These establishments and institutions include the Water Research Commission (WRC), the

137 Kirker 'Vast improvements in Nigeria's water quality', <https://borgenproject.org/improvements-in-nigerias-water-quality/> (accessed on 13 May 2019).

138 Kirker 'Vast improvements in Nigeria's water quality', <https://borgenproject.org/improvements-in-nigerias-water-quality/> (accessed on 13 May 2019).

139 Kirker 'Vast improvements in Nigeria's water quality', <https://borgenproject.org/improvements-in-nigerias-water-quality/> (accessed on 13 May 2019).

140 Okeola & Balogun 2017:1-19.

141 Okeola & Balogun 2017:1-19.

142 Goldface-Irokali 'Water management in federal and federal-type countries: Nigerian perspectives', <https://www.africportal.org/publications/water-management-in-federal-and-federal-type-countries-nigerian-perspectives/> (accessed on 1 January 2020).

143 Ajai 2012:89-115.

144 Ajai 2012:89-115.

Department of Water Affairs (DWA), the National Research Foundation (NRF), the Department of Science and Technology (DST), the Department of Trade and Industry (DTI), and universities. South Africa's priorities are strongly informed by the need to reduce poverty and to provide a new paradigm for development. Water and sanitation are on the South African National Research and Development Strategy's list of priorities in sec. 5.6.¹⁴⁵ Accordingly, the government invests heavily in research and development to make water available to all.

As mentioned earlier, South Africa is a water-stressed country. Water must be recovered and reused to meet the needs for water.¹⁴⁶ Waste waters in South Africa form very complex matrices, from seawater in Cape Town,¹⁴⁷ to acid mine drainage in mining environments.¹⁴⁸ Each of the water matrices needs specific water-recovery technology for possible water recovery and reuse. Researchers in the water research group at the Tshwane University of Technology are currently developing water treatment solutions using cellulose Nano crystals obtained from biomass waste. The DST is funding the project. At the end of the project, the researchers will be developing green coagulants and membranes that will facilitate water recovery and reuse in South Africa.

The project has benefited from various funding, thereby enabling researchers to develop a filter for separating ice from ice slurry formed from using freezing technology to clean mine waste water. The principle and the operation of the filter was published in Water Resources Management VII,¹⁴⁹ while the design of the filter was presented and published at the International Mine Water Association Conference in Colorado, United States of America (USA) in 2013.¹⁵⁰ Further work on the filter and technology was published in *Water SA*¹⁵¹ and *Environmental Chemistry Letters*.¹⁵²

In line with this, South Africa is investing in home-grown technologies to make clean water available to all. For example, at the 2nd African Membrane Society International Congress last year, Prof. Pillay from Stellenbosch University presented his work on low-energy, low-maintenance membrane systems for developing economies.¹⁵³ He mentioned that South Africa has

145 Kirker 'Vast improvements in Nigeria's water quality', <https://borgenproject.org/improvements-in-nigerias-water-quality/> (accessed on 13 May 2019).

146 Miller 2006:1-3.

147 Whistles 'Researchers warn 'purified' Cape Town sea water will be contaminated', <https://mg.co.za/article/2018-01-18-00-sea-water-is-a-health-risk-say-profs> (accessed on 17 June 2019).

148 Dama-Fakir *et al* 'Mine water treatment technology selection tool: User's guide', http://www.wrc.org.za/wp-content/uploads/mdocs/TT%20711_final%20web1.pdf (accessed on 17 June 2019).

149 Adeniyi *et al* 2013a 'HybridICE HIF Filter: Principle and Operation',:259-269.

150 Adeniyi *et al* 2013b. 'HybridICE™ filter design in freeze desalination of mine water', : 507-513

151 Adeniyi *et al* 2015:273-278.

152 Adeniyi *et al* 2016:449-454.

153 Pillay L 'Low energy, low maintenance membrane systems for developing economies-recent developments', http://www.sam-ptf.com/safrica/program_j3E.html (accessed on 20 June 2019).

been a leader in the development of woven fabric microfilter (WFMF). Already, a point-of-use gravity system called the Vul Amanz Rural Water Filter (VA-RWF) has been demonstrated at 1,000 households in South Africa and the technical performance, use uptake and sustainability has been remarkable. Many such developments are taking place in South Africa.

It can be generally inferred that one of South Africa's procedures to solve its peculiar water situation or crisis is water-renewable technique or technology. The South African government engages this on many fronts, ranging from research to application and to enlightenment or shared knowledge.

6. CHALLENGES IN RURAL WOMEN'S ACCESS TO WATER IN NIGERIA

Generally, on the issue of access to water in Nigeria, in practice, poor regulatory, legal and institutional frameworks constitute the major challenge.¹⁵⁴ Despite the existing legal framework, a well-functioning, coordinated national water-management system is lacking.¹⁵⁵ As a framework law, the *Water Research Act* (WRA) is devoid of detailed regulations, outdated and not complemented by sufficient administrative structures, processes and institutions for its administration, due mainly to lack of resources, weak database¹⁵⁶ and poor law enforcement.¹⁵⁷

Another challenge is the country's adopted "control-and-command" approach to issues that has been extended to water-resource management, as the water authority or Board does not sufficiently engage with the users. This results in the collapse of infrastructure in communities, when users are not involved in planning or running it. The country's tripartite administrative pattern has not helped matters in the area of management, because there has hardly been any coordination between federal, state and local government agencies.¹⁵⁸

The small and scattered nature of rural settlements in Nigeria, the relative neglect of the rural water sector, the lack of adequate investment by government in rural water supply, and the problem of sustainability also constitute challenges,¹⁵⁹ in addition to poverty, limited expertise and skills to use existing or develop new water schemes.¹⁶⁰ Added to the list is politicisation and corruption which affect planning and management.¹⁶¹ Poverty and politicisation contribute to inadequate funding or budget which also has an impact on lack of research and workable methodologies that could be learnt from other countries. These also affect the problem of lack of adequate manpower, the ineffective top-to-

154 Niyi-Gafar 2016:100.

155 Ajai 2012:89-115.

156 Oteze 1981:177

157 Ajai 2012:89-115.

158 Odume & Slaughter 'How Nigeria is wasting its rich water resources', <https://theconversation.com/how-nigeria-is-wasting-its-rich-water-resources-83110> (accessed on 13 May 2019).

159 Ishaku *et al* 2011:599.

160 Odafivwoto 2016:1-12; Odunuga *et al* 2011:347.

161 Odunuga *et al* 2011:347.

bottom approach of government policies, poor planning/design coupled with inefficient supervision, lack of political and economic will and, most importantly, lack of adequate or reliable database.¹⁶² In Nigeria, data on groundwater levels are not widely published or made available outside government organisations.¹⁶³ A general culture of poor maintenance and management, coupled with inadequate technical and institutional capacity are also killer factors in solving the water problem in Nigeria.

Apart from the considered general absence of a legal framework on water rights, another related challenging factor to be considered regarding the water solution in Nigeria is the ineffective legal/institutional and regulatory framework. Nigeria is a country of many laws. On many occasions, even where laws exist, their application or enforcement has always been a problem. All of these factors can be summed up in the general observation that it is clear government has not prioritised access to water in Nigeria when compared to the efforts of the South African government.

7. THE WAY FORWARD FOR NIGERIA

The country must start by acknowledging water as a human rights issue, which it must provide, protect and defend for its citizens. Doing so facilitates water security for both present and future generations. To do so, the government of Nigeria must take positive steps in promulgating sufficient legislation and facilitating good governance in the management of water.¹⁶⁴ This will include a water-purification process to make it not only available but also in standard quality. These obligations require a strong legal framework, an integrated approach/strategy for sustainable management, and a relevant policy framework for groundwater management in Nigeria.¹⁶⁵ It should be mentioned that this is an ongoing approach adopted by many countries. Canada and Malaysia, among others, have adopted legislative approaches to water with recorded successes.¹⁶⁶

Nigeria needs a change in perspective and approach, which includes the way in which it perceives and manages water.¹⁶⁷ Recent research findings show that water management needs different approaches, entailing broader stakeholder involvement and collaboration between various sectors, because providing potable water involves science, policy and practice.¹⁶⁸ More attention should be paid to the human dimensions of management, and to the recognition of the economic, social, ecological and cultural values of water.¹⁶⁹ Developing proper management systems for water in the country will

162 Tijani 2006:31-40.

163 Tijani 2006:31-40.

164 Soyapi 2016:9.

165 Nwankwoala 2011:123-130.

166 Niyi-Gafar 2016:150.

167 Adewumi 2010:23-42.

168 Nwankwoala 2014:12.

169 Nwankwoala 2011: 123

require prioritised efforts. Such a system needs more flexible, adaptive and responsible institutions.

The federal, state and local governments need to work together to update and tighten regulations controlling water quality. Nigeria also needs a water-quality monitoring network and a water-quality database to store physical, chemical, biological and ecological information. It is also important to raise public awareness about the value of water and to increase public participation in water-supply schemes. Getting people involved helps to sustain water infrastructure.¹⁷⁰

South Africa provides a legal example from which Nigeria can learn. The South African *National Water Act* makes provisions for the basic rights of human beings and the environment. The first prescribes the minimum amount and quality of water required for domestic activities and hygiene, to which everyone is entitled. The latter prescribes the minimum amount and quality of water necessary for protecting the ecosystem. The *Act* also expects ordinary citizens to have a say in the water sector. A human rights-based approach to water, which incorporates water as a right,¹⁷¹ and a legislative approach such as that of South Africa are recommended for Nigeria. This, in combination with a gender-mainstreaming approach involving rural women, will ensure sustainable development in the country.¹⁷²

Apart from enacting better policies and regulation, the Nigerian government should make an effort to work on implementing its legislation. Other measures should be included in the bid to make water available for the realisation of sustainable development in the country. The South African water-renewable technique is another model which Nigeria can apply. This requires adequate funding, utilisation of the latest technology, and empowerment of experienced professionals in water resources, which are crucial for national growth.¹⁷³

The following related measures are suggested: education and awareness creation to change consumption and lifestyle patterns; addressing pollution; applying new conservation technology; waste-water recycling, improving, reuse and renewal processes; developing energy-efficient desalination plants; improving irrigation and agriculture water use; rainwater harvesting; population control; and climate change management.¹⁷⁴ Research and training for skilled manpower in the field of water resources are also required.¹⁷⁵

170 Odume & Slaughter 'How Nigeria is wasting its rich water resources', <https://theconversation.com/how-nigeria-is-wasting-its-rich-water-resources-83110> (accessed on 13 May 2019).

171 ENVIRONNEWS NIGERIA 2018. Why right to water should be enshrined in Constitution. <https://www.environnewsnigeria.com/right-water-enshrined-constitution-era/> (accessed on 11 June 2019).

172 Niyi-Gafar 2016:75.

173 Chukwu 2015:303-323.

174 Carl Canter 'Ecosystem management – Experts name the top ten 19 solutions to the global freshwater crisis', <https://www.circleofblue.org/2010/world/experts-name-the-top-19-solutions-to-the-global-freshwater-crisis/> (accessed on 7 October 2019).

175 Ayoade 1975:581-591.

8. CONCLUSION

The problem of inadequate access to water in Nigeria is one of the many reasons for the country's underdevelopment, especially as it relates to women and girls. To move from this level, it is necessary to consider the women sector, particularly rural women, on discourses about development. This mainstreaming is important for effective water governance in Nigeria.

Having examined the involvement of the South African government in the management of water and the citizens' access to it, a combination of various approaches of investment through legislation, policy reform, stakeholders' involvement, research, management and monitoring will take Nigeria to the South African level and perhaps beyond. The government of Nigeria needs to first view access to water as a human right, to which its citizens are legitimately entitled. The South African approach to water-renewal technologies can also be emulated and replicated in the Nigerian context, requiring first a change of perception. In this respect, viewing water as a human right, and appreciating its importance, and the effect of its scarcity on society – particularly as it affects women – will go a long way in shaping and improving government decision-making.

BIBLIOGRAPHY

ADENIYI A, MAREE JP, MBAYA RKK, OOSTHUIZEN FS, MTOMBENI T & ZVINOWANDA CM,

2013a. HybridICE® HIF filter: Principle and operation. *Water Resources Management* VII 171:259.

ADENIYI A, MAREE JP, MBAYA RKK & POPOOLA API,

2013b. HybridICE™ filter design in freeze desalination of mine water. Reliable Mine Technology, Publication Printers Denver.

ADENIYI A, MBAYA RKK, MAREE JP & ZVINOWANDA CM

2015. Performance comparison of hydraulic and gravitation HybridICE filters in freeze desalination of mine waters. *Water SA* 41(2):273-278.

ADENIYI A, MBAYA RKK, ONYANGO MS & MAREE JP

2016. Efficient suspension freeze desalination of mine waste waters to separate clean water and salts. *Environmental Chemistry Letters* 14(4):449-454.

ADEWUMI AA

2010. The regulation of water resources in Nigeria: Law and policy. *Petroleum. Natural Resources and Environmental Law Journal* 2(1):23-42.

AHLENIUS H

2019. *Natural resource – water (freshwater run-off) UNEP/GRID-Arenda*. <http://www.grida.no/resources/7298> (accessed on 17 December 2019).

AJAI O

2012. Law, water and sustainable development: Framework of Nigerian law. *Environment and Development Journal* 8(1):89-113.

AKPER OB & MUNCHIE M

2011. Challenges in meeting the MDGs: The Nigerian drinking water supply and distribution sector. *Journal of Environmental Science and Technology* 4(5):480-489.

ANNE GEERE J & CORTOBIUS M

2017. Who carries the weight of water? Fetching water in rural and urban areas and the implications for water security. *Water Alternatives* 10(2):513-540.

AULENBACH DB

1968. Water – Our second most important natural resource. *Boston College Law Review* 9(3):535-552.

AYOADE JO

1975. Water resources and their development in Nigeria/Les ressources en eau et leur exploitation au Nigéria. *Hydrological Sciences Journal* 20(4):581-591.

BABATUNDE SA

2018. Government spending on infrastructure and economic growth in Nigeria. *Economic Research – Ekonomskalstrazisanya* 31(1):997-1014.

BACHELET M

2012. *Rural women and sustainable development*. <http://www.unwomen.org/en/news/stories/2012/2/rural-women-and-sustainable-development> (accessed on 10 May 2019).

BULTO TS

2011. The human right to water in the corpus and jurisprudence of the African human rights system. *African Human Rights Law Journal* 11:341-367.

CARL CANTER J

2019. *Ecosystem management – Experts name the top ten 19 solutions to the global freshwater crisis*. <https://www.circleofblue.org/2010/world/experts-name-the-top-19-solutions-to-the-global-freshwater-crisis/> (accessed on 7 October 2019).

CHUKWU KE

2015. Water supply management policy in Nigeria: Challenges in the wetland area of Niger Delta. *European Scientific Journal* 11(26):303-323.

CLARK C

2017. Of what use is a deradicalized human right to water? *Human Rights Law Review* 17(2):231-260.

CNBC AFRICA

2018. *Africa has a water crisis, but these innovations could fix it*. <https://www.cnbcfranca.com/zdnl-mc/2018/02/16/africa-water-crisis-innovations-fix/> (accessed on 10 May 2019).

CORNELL A

2017. *Water access is a gender equality issue*. <https://www.cfr.org/blog/water-access-gender-equality-issue> (accessed on 10 May 2019).

DAMA-FAKIR P, SITHOLE Z, VAN NIEKERK AM, DATELING J, MAREE JP, RUKUNI J, MTOMBENI T, RUTO S, ZIKALALA N, HUGHES C, WURSTER A & SAUNDERS B

2017. *Mine water treatment technology selection tool: Users' guide*. http://www.wrc.org.za/wp-content/uploads/mdocs/TT%20711_final%20web1.pdf. (accessed on 17 June 2019).

DAVIES R

2019. *While electricity hogs headlines, South Africa's water situation is another unfolding crisis*. <https://www.dailymaverick.co.za/article/2019-02-13-while-electricity-hogs-headlines-south-africas-water-situation-is-another-unfolding-crisis/> (accessed on 14 May 2019).

DONNENFELD Z, CROOKES C & HEDDEN S

2018. A delicate balance water scarcity in South Africa. *Southern African Report. Institute for Security Studies* 13.

DUBREUIL C

2006. The right to water: From concept to implementation. *World Water Council*.

ENVIRONEWS NIGERIA

2018. *Why right to water should be enshrined in Constitution*. <https://www.environewsnigeria.com/right-water-enshrined-constitution-era/> (accessed on 11 June 2019).

EVANS M

2018. *To realize the sustainable development goals, focus on rural women*. <https://news.globallandscapesforum.org/30371/to-realize-the-sustainable-development-goals-focus-on-rural-women/> (accessed on 10 May 2019).

GBADEGESIN N & OLORUNFEMI F

2007. Assessment of rural water supply management in selected rural areas of Oyo State. Nigeria African Technology Policy Studies Network (ATPS).

GEERE J-A & CORTOBIUS M

2017. Who carries the weight of water? Fetching water in rural and urban areas and the implications for water security. *Water Alternatives* 10(2):513-540.

GOLDFACE-IROKALIBE IJ

2008. *Water management in federal and federal-type countries: Nigerian perspectives*. <https://www.africaportal.org/publications/water-management-in-federal-and-federal-type-countries-nigerian-perspectives/> (accessed on 1 January 2020).

GOMEZ M, PERDIGUERO J & SANZ A

2019. Socio-economic factors affecting water access in rural areas of low- and middle-income countries. *Water* 11(2):202- 222.

GOSLING M

2018. *South Africa could run out of water by 2030 – Government draft plan*. <https://www.news24.com/SouthAfrica/News/south-africa-could-run-out-of-water-by-2030-govt-draft-plan-20180329> (accessed on 14 May 2019).

GRAHAM JP, HIRAI M & KIM S-S

2016. An analysis of water collection labor among women and children in 24 sub-Saharan African countries. *PLoS ONE*:e0155981 11(6):1-14.

HALL RP, VAN KOPPEN B & VAN HOUWELING E

2014. The human right to water: The importance of domestic and productive water rights. *Science and Engineering Ethics* 20(4):849-868.

IDU AJ

2015. Threats to water resources development in Nigeria. *Journal of Geology and Geophysics* 4(3):205-214.

IMONIKHE OM & MOODLEY K

2018. The challenge of effective policy implementation in Nigerian urban water utilities. *Water Supply* 18(5):1696-1705.

ISHAKU HT, MAJID MR, AJAYI AP & HARUNA A

2011. Water supply dilemma in Nigerian rural communities: Looking towards the sky for an answer. *Journal of Water Resource and Protection* 3:598-606.

KARUAIHE S, MOSIMANE A, NHEMACHENA C & KAKUJAHA-MATUNDU O

2014. Rural water access and management approaches in Southern Africa: Lessons from Namibia and South Africa. *Journal of Environmental Science and Engineering* 3:332-344.

KIRKER K

2018. *Vast improvements in Nigeria's water quality*. <https://borgenproject.org/improvements-in-nigerias-water-quality/> (accessed on 13 May 2019).

MARAN DE OLIVEIRA C

2017. Sustainable access to safe drinking water: Fundamental human right in the international and national scene. *Rev. Ambient. Água Taubaté – An Interdisciplinary Journal of Applied Science* 12(6):985-1000.

MATCHAYA C, KAABA O & NHEMACHENA C

2018. Justiciability of the right to water in the SADC region: A critical appraisal. *MPDI Laws* 7(18):1-21. doi:10.3390/laws7020018.

MILLER GW

2006. Integrated concepts in water reuse: Managing global water needs. *Desalination* 187(1-3):65-75.

MULLER M, SCHREINER B, SMITH L, VAN KOPPEN B, SALLY H, ALIBER M, COUSINS B, TAPELA B, MERWE-BOTHA MV, KARAR E & PIETERSEN K

2009. Water scarcity in South Africa. Development Planning Division Working Paper Series No. 12:5.

MUYLWIJK J

2006. Mainstreaming Gender in Water Management. Gender and Water Alliance. Dieren, The Netherlands.

NIYI-GAFAR OL

2016. Adopting a human rights-based approach to access to water in Nigeria: Lessons from selected jurisdictions. LLD thesis, University of Pretoria.

NWANKWOALA HO

2011. An integrated approach to sustainable groundwater development and management in Nigeria. *Journal of Geology and Mining Research* 3(5):123-130.

2014. Problems and options of integrated water resources management in Nigeria: Administrative constraints and policy strategies. *International Letters of Natural Sciences* 9:12-25.

ODAFIVWOTO O

2016. Challenges of public water provision in Nigerian cities: A review. *Journal of Water, Sanitation and Hygiene for Development* 6(1):1-12.

ODUME N & SLAUGHTER A

2017. *How Nigeria is wasting its rich water resources*. <https://theconversation.com/how-nigeria-is-wasting-its-rich-water-resources-83110> (accessed on 13 May 2019).

ODUNUGA S, OKEKE I, OKORIE F & OLANIYI O

2011. Water supply and the impact on human development in Nigeria. Risk in Water Resources Management (IAHS Publ. 347).

OKEOLA OG & BALOGUN OS

2017. Challenges and contradictions in Nigeria's water resources policy development: A critical review. *International Journal of Science and Technology (AFFREV STECH)* 6(1):1-19.

OMONONA BT & AJIBOYE AJ

2011. Linking poverty incidence to water resources use: Policy implications and remedies using Nigeria as case study. *Journal of Economics and Sustainable Development* 2(4):154-162.

OTEZE GT

1981. Water Resources in Nigeria. *Environmental Geology* 3:177-184.

PARKER H, OATES N, MASON N, CALOW R, CHADZA W & LUDI E

2016. *Gender, agriculture and water insecurities*. <https://www.odi.org/publications/10355-gender-agriculture-and-water-insecurity> (accessed on 20 December 2019).

PILLAY L

2018. *Low energy, low maintenance membrane systems for developing economies -recent developments*. http://www.sam-ptf.com/safrica/program_j3E.html (accessed 20 June 2019)

RATHGEBER E

1996. Women, men, and water-resource management in Africa. *IDRC-Lib* 49-66.

REPUBLIC OF SOUTH AFRICA (RSA)

2016. *Strategy toward gender mainstreaming in the environment sector 2016-2021*. https://www.environment.gov.za/sites/default/files/docs/publications/strategytowardgendermainstreamingintheenvironmentsector2016_2021.pdf (accessed on 4 July 2019).

2019a. *National gender policy framework*. Department of Environmental Affairs. https://www.environment.gov.za/projectsprogrammes/environment_sector_genderstrategy/policy_framework (accessed on 4 July 2019).

2019b. *Environment sector gender strategy*. https://www.environment.gov.za/projectsprogrammes/environment_sector_genderstrategy (accessed on 4 July 2019).

SANGODOYIN AY

1993. Women's role in rural water supply and development: Trends and expectations in Nigeria. *The Environmentalist* 13(4):255-261.

SCANLON J, CASSAR A & NEMES N

2004. *Water as a human right?* <https://portals.iucn.org/library/sites/library/files/documents/EPLP-051.pdf> (accessed on 21 December 2019).

SHEHU AT

2013. The enforcement of social and economic rights in Africa: The Nigerian experience. *Afe Babalola University: Journal of Sustainable Development Law and Policy* 2(1):101-120.

SOYAPI CB

2016. Water security and the right to water in Southern Africa: An overview. *PER/Potchefstroom Electronic Law Journal* 19:4:29

TIJANI MN

2006. The need for action-driven vision and sustainable management of water resources in Nigeria. *Journal of Mining and Geology* 42(1):31-40.

UNITED NATIONS (UN)

1979. United Nations Convention on the Elimination of all forms of Discrimination Against Women (CEDAW) art. 14(2)(h).

1986. United Nations Declaration on the Right to Development. Resolution 41/128, adopted by the General Assembly on 4 December 1986.

2000. The human right to water. Resolution 54/175, adopted by the General Assembly on 15 February 2000.

2010. Human right to water and sanitation. Resolution 64/292, adopted by the General Assembly on 28 July 2010.

2015a. *United Nations Goal 6: Ensure access to water and sanitation for all. Sustainable Development Goals*. <https://www.un.org/sustainabledevelopment/water-and-sanitation/> (accessed on 19 December 2019).

2015b. *About the sustainable development goals*. <https://www.un.org/sustainabledevelopment/sustainable-development-goals/> (accessed on 19 December 2019).

2016. *Water for life 2005-2015*. https://www.un.org/waterforlifedecade/water_and_sustainable_development.shtml (accessed on 17 December 2019).

UNITED NATIONS ECONOMIC AND SOCIAL COUNCIL

2003. Committee on Economic, Social and Cultural Rights (CESCR). General Comment No. 15: The Right to Water (Arts. 11 and 12 of the Covenant).

WHISTLES G

2018. *Researchers warn 'purified' Cape Town sea water will be contaminated*. <https://mg.co.za/article/2018-01-18-00-sea-water-is-a-health-risk-say-profs> (accessed on 17 June 2019).

WORLD BANK

2005. *Nigeria: Expanding access to rural infrastructure issues and options for rural electrification, water supply and telecommunications*. <https://openknowledge.worldbank.org/handle/10986/17991> (accessed on 13 May 2019).

WORLD HEALTH ORGANIZATION (WHO)

2015. *Nigeria – Sanitation, drinking-water and hygiene status overview*. https://www.who.int/water_sanitation_health/monitoring/investments/nigeria-10-nov.pdf?ua=1 (accessed on 11 June 2019).