Barriers to mainstreaming gender in water resources management in Nigeria
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ABSTRACT
Despite being signatories to the 2030 United Nations Agenda for Sustainable Development and Declarations of other conferences that promote women's involvement in water resources management, there is thin evidence to suggest Nigeria has mainstreamed gender in water resources management at the river basin level. Applying a legal and regulatory lens, findings revealed that gender mainstreaming and women participation had not been decreed into the laws informing water resources management functions and programmes in Nigeria. This therefore constitutes an entry barrier. To mainstream and enhance women's participation in the Nigeria water sector will require fundamental changes to the main water resources policy and legal instruments as well as to the River Basin Development Authorities (RBDA) organizational arrangements. This will be in addition to the introduction of legally backed monetary incentives to encourage women's active participation in practice.

Introduction
For long, the protection, development, management, and use of water resources are an important constituent of Nigeria's overall development strategy. It impacts all aspects of society from households to agriculture, industry, and the environment. Being one of the determinants of development (Kholif & Elfarouk, 2014), multiple factors explain the increased pressure for sustainable water resources development, management, and use in Nigeria. These include population growth, inefficient use, changing climates, degrading watersheds and watercourses, changes in official government assistance from both bilateral and multilateral sources, unsustainable supply-driven approaches to addressing water supply shortages, increasing urbanization, desertification, institutional and organizational inadequacies, and growing incidence of poverty.

Globally, gender is increasingly being recognized as crucial to sustainable water management. At the local or informal level in Nigeria, the contribution of women to water resources development, management, and use as well as the need for their involvement has also for long been recognized. Nigeria signed the United Nations 2030 Agenda for Sustainable Development (A/RES/70/1) and its sustainable development goals (SDGs) in 2017. Target 5.5 of Goal 5 specifically requested member countries to realize women's active participation in decision-making at all levels of economic, political and public areas, strengthen sound policies and legislation to encourage gender parity, and the empowerment of girls and women (Target 5.c). Target 6.4 of Goal 6 directed member countries to improve water-use efficiency and significantly decrease the number of people (including women) affected by water scarcity. Target 6.b on the other hand mandated member states to progress water and sanitation management by strengthening the participation of local communities (including women) (United Nations, 2016). Involving women to realize sustainable water resources development, management, and use was also recognized in January 1992 at the International Conference on Water and the Environment (ICWE) held in Dublin. The third Dublin principle specifically encouraged countries to put in place special efforts to enhance women’s involvement in water resources development and management programmes (ICWE, 1992). The Africa Water Vision for 2025, drawing on the conclusions of the Africa Water Resources Policy Conference held in May 1999 in Nairobi, also amplified the need to mainstream gender in the water sector as a part of the framework for action. The Nairobi (held in 1985) and the Beijing (held in 1995) were all part of the United Nations conferences that urged member nations to mainstream and encourage women’s participation in sanitation and water resources management.

Besides the above, Nigeria is also committed to some other global and regional frameworks supporting mainstreaming gender and women empowerment. Although not water resources specific, these include: the 2005 Economic Community of West African States (ECOWAS) Gender Policy, the 2009 African Union (AU) Gender Policy, the 2003 Protocol to the African Charter on the Rights of Women in Africa, the
AU Solemn Declaration on Gender Equality in Africa adopted by the AU Assembly in 2004, and the 1979 Convention on the Elimination of all Forms of Discrimination against Women. Countries parties to these frameworks were expected to put in place appropriate measures, including legislation and institutional processes, to mainstream gender issues.

Despite the importance of the SDGs and the various conferences and Visions fostering women’s participation in water resources management to which Nigeria is a signatory, there is thin evidence to suggest Nigeria has mainstreamed women in water resources management programmes. Given the dearth of literature on women’s involvement in the Nigeria water sector, this study applies the legal and regulatory analytical lens to explore the barriers to gender mainstreaming in water resources management in Nigeria. While many studies have explored post-entry barriers elsewhere (Das, 2014, Gebreegziabher, 2018; Singh, 2006), in the case of Nigeria this study explores the entry barriers to women’s involvement and participation in water resources management. Therefore, applying a legal and regulatory lens can serve as a useful entry point, provide insights into the reasons for a lack of implementation. Findings derived from the application of a legal and regulatory lens can serve as an instigator to establishing appropriate legal and regulatory provisions capable of moving Nigeria from rhetoric to action. It will also benefit countries promoting or yet to formally incorporate women into their water resources management programmes and practices or mitigate entry barriers to mainstreaming gender in the water sector.

For the purpose of this study, the River Basin Development Authorities (RBDAs) are the statutory structure empowered to develop and manage water resources at the river basin level in Nigeria (River Basin Development Authority Act CAP 396 LFN of 1990 (section 4)). By law, they are responsible for the actual implementation of river basin water resources management functions and programmes. In practice, the RBDAs are expected to coordinate people, tasks, competencies, technologies, development, and management practices at the river basin level in Nigeria. This therefore, implies that the river basin/RBDAs are the pathway to realizing women’s involvement and participation in water resources development and management in Nigeria. This explanation is vital for data gathering, analysis, and interpretation.

**Theoretical framework**

Organizations are complex, dynamic, and diverse. They can be broadly grouped into two: informal, and formal. Informal organizations are those that have their existence defined by mores, while formal organizations are those constituted by official rules and regulations. Being coercive in nature, these formal frameworks are designed to specify organizational actions and performance as well as guide the allocation of resources. Since the RBDAs are constituted by statutes, the theoretical framework underpinning this study is the regulative pillar of institutional theory (Ahlstrom & Bruton, 2002; Scott, 2014). This pillar maintains that organization action and performance are primarily sanctioned by legal and regulatory frameworks. This indicates that the performance of organizations cannot be detached from the legislation constituting and empowering organizational practices (Edelman & Suchman, 1997). Legally enforced, with a binding obligation, these instruments suggest organizational practices and in the end how they must behave. According to Scott (2014), these instruments enable, sustain, and empower social actors and action, and provide prescriptions for conduct. Besides the fact that organizations conform because the law commands them to do so, organizations comply for reasons of escaping penalties for defiance (Edelman & Suchman, 1997; Hoffman, 1999), to gain support and legitimacy, and to be able to draw resources from their external environment (Mignerat & Rivard, 2009). Although legal and regulatory frameworks not only constitute actors and their roles, they also provide prescriptions that constrain actions or the implementation of a task (Scott, 1995). The use of a legal and regulatory analytical lens to expose the barriers to mainstreaming gender in water resources management in Nigeria, therefore, agrees with the underlying assumptions of the regulative pillar of institutional theory. Institutional theory has been widely employed to investigate organizational performance and why organizations, as well as social actors, behave in a certain way (Adeoti, 2019; Bruton & Ahlstrom, 2002). This study, therefore, aims to understand whether the resultant policies and legal instruments informing the operational mandates of the RBDAs and/or to which the RBDAs comply with in practice support women’s involvement or mainstream gender in water resources management functions and programmes at the river basin level in Nigeria.

**Data and method**

This study is based on a document review. The unit of analysis is the river basin. By law, the river basin is the unit of water resources development and management in Nigeria. Data sources include the extant legal and regulatory frameworks that the RBDAs complied with in practice in the implementation of their functional mandates (O-ORBDA, 2011, 2013). Being parastatals of the Federal Ministry of Water Resources (FMWR) (B-ORBDA, 2002), the RBDAs are also subject to government policy directives. Therefore, data were gathered from
• Water Resources Act 1993 CAP W2 Law of the Federal Republic of Nigeria (LFN) of 2004 (formerly Water Resources Decree No. 101 of 1993)
• River Basin Development Authority Act CAP 396 LFN of 1990 (formerly River Basins Development Authorities Decree No. 35 of 1987)
• National Irrigation and Drainage Policy and Strategy (NIDPS) of 2016
• National Water Resources Policy (NWRP) of 2016
• Public Enterprises (Privatization and Commercialization) Act No. 28 of 1999

History matters. This is because the present performance of organizations can also be influenced by previous actions directed by legal and regulatory frameworks. Therefore, data were also gathered from the under listed legal documents that constituted and re-constituted the RBDAs:

• Sokoto-Rima Basin Development Authority Decree No. 33 of 1973
• Chad Basin Development Authority Decree No. 32 of 1973
• Sokoto-Rima Basin Development Authority (Amendment) Decree No. 26 of 1975
• Chad Basin Development Authority (Amendment) Decree No. 25 of 1975
• River Basins Development Authorities Decree No. 25 of 1976
• Niger Delta Basin Development Authority Decree No. 37 of 1976
• River Basins Development Authorities (Amendment) Decree No. 31 of 1977
• Niger Delta Development Authority (Amendment) Decree No. 32 of 1977
• River Basins Development Authorities (Amendment) Decree No. 33 of 1978
• River Basins Development Authorities Decree No. 87 of 1979
• River Basins Development Authorities (Amendment) Act No. 7 of 1981

Since national legislation draws its authority from the Constitution, the Constitution of the Federal Republic of Nigeria (CFRN) of 1999 (as amended) was also reviewed. Other related sectoral documents reviewed include the revised draft National Policy on Gender in Agriculture of 2016, the National Policy on Integrated Rural Development (NPIRD) of 2001, the National Gender Policy of 2006, the revised National Policy on the Environment of 2016, and the Nigeria Vision 20: 2020. These documents were obtained from relevant sources. These sources include the State High Courts, the websites of the FMWR, the Office of the Secretary to the Government of the Federation, and the FAOLEX database of Food and Agriculture Organization of the United Nations (FAO). A legal and regulatory analysis was conducted on the obtained documents to understand what they say on gender or in specific terms women’s participation in the Nigeria water sector. The evidence obtained was organized around two pre-selected categories: (a) the main thrust of these instruments, and (b) what they say on women’s participation and/or gender mainstreaming in Nigeria’s water sector. This was done by identifying the relevant clauses. There are few researches that have used the legal and regulatory analytical lens to explore the entry barriers to gender mainstreaming in water resources management.

**Results and discussion**

The legal instruments constituting and re-constituting the RBDAs charged the RBDAs with the responsibilities of water resources development, protection, management, allocation, and water service provisions at the river basin level. Despite this, evidence from the review revealed that these instruments had no deliberate provisions enabling and empowering gender mainstreaming and/or women’s involvement in river basin water management functions and programmes (Table 1). For example, no clause and gender not mentioned at all in all the legal instruments constituting and re-constituting the Governing Boards of the RBDAs, the National River Basins Development Co-ordinating Committee1, and the Advisory Committee2. These instruments were only successful in amending the RBDAs’ functional mandates, the number of RBDAs, and the composition of the membership of the Governing Boards of the RBDAs (Table 1). As the data revealed, the bulk of these instruments3 was formulated during the military era. Generally, legal instruments formulated during the military era in Nigeria lacked public participation (no public hearings, no request for memoranda, etc). This may be partly responsible for the oversight and the resulting gender blindness.

As illustrated in Table 2, there were no constitutional provisions for gender parity in the CFRN of 1999. Provisions in Chapters 2 and 4 (section 42) of the 1999 Constitution were not women-specific and neither did the document mainstream gender in water resources management. Aside from the NWRP of 2016 and the NIDPS of 2016, other legal frameworks were also silent on gender (Table 2). In Nigeria, since legislative instruments have to be consistent with the Constitution, this may be accountable for their being

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1Empowered to advise the Commissioner (now Minister) (see sections 10 (1) of Decree No. 25 of 1976 and Decree No. 87 of 1979).
2Empowered to advise the Governing Boards of the RBDAs (only Decree No. 25 of 1976 did not recognize advisory committee).
3Aside from the River Basins Development Authorities (Amendment) Act No. 7 of 1981, all others (see Table 1) were decreed into law during the military regime in Nigeria.
gender blind. The NWRP, first formulated in 2004 (first draft), revised in 2009, eventually approved as a legal document by the Federal Executive Council in 2016, came after the international conferences. In explicit terms, the policy document did not mention women (unlike stakeholder participation) nor suggest that women be integrated into the functions and water management practices of the RBDAs. Although the document recognized stakeholder participation, it did not provide details of actors to populate the stakeholder platforms. The NIDPS of 2016 mainstreamed gender in all aspects of irrigation, called for special protection and equal voices in natural resource management. It encouraged women’s full participation, including the aged, youth, and physically challenged in water management as well as in the development and management of drainage and irrigation programmes in Nigeria. However, the document (that is, the 2016 National Water Resources Bill) expected to give legal backing to the statements of the NIDPS of 2016 was still at the draft level. A review of the bill revealed that the statements of the NIDPS of 2016 and those of NWRP of 2016 were uncoupled to the functional mandates of the RBDAs. The 81-page document neither enabled nor empowered the RBDAs to establish and operate stakeholder platforms or integrate the Water Users’ Associations (WUAs)/Fadama Users Associations (FUAs) into the RBDAs’ water resources planning and decision-making activities.

| Framework | Main thrust | Clauses on women’s participation or gender mainstreaming |
|-----------|-------------|----------------------------------------------------------|
| Sokoto-Rima Basin Development Authority Decree No. 33 of 1973* | Established the pioneer RBDAs (the Sokoto-Rima Development Authority and the Chad Basin Development Authority) for the purposes of the development and management of land and water-related projects | No clause |
| Chad Basin Development Authority Decree No. 32 of 1973* | Redefined the functions and enlarged the powers of the Sokoto-Rima Basin Development Authority and the Chad Basin Development Authority | No clause |
| Chad Basin Development Authority (Amendment) Decree No. 25 of 1975* | | |
| Sokoto-Rima Basin Development Authority (Amendment) Decree No. 26 of 1975* | | |
| Niger Delta Basin Development Authority Decree No. 37 of 1976 | Established the Niger Delta Basin Development Authority. Charged it with the responsibility for the physical development of the basin | No clause |
| River Basins Development Authorities Decree No. 25 of 1976 ¹ | Created ten statutory Authorities. Charged each Authority with powers to develop and manage land and water-related projects within its area of operation | No clause |
| River Basins Development Authorities (Amendment) Decree No. 31 of 1977 ¹ | Amended the River Basins Development Authorities Decree No. 25 of 1976. Empowered each Authority to process livestock and crops produced under its area of operation, develop fisheries and improve navigation on rivers, lakes and lagoons in its area of operation | No clause |
| Niger Delta Development Authority (Amendment) Decree No. 32 of 1977 ¹ | Amended the schedule to the Niger Delta Basin Development Authority Decree No. 37 of 1976 on the composition of members of the Board | No clause |
| River Basins Development Authorities (Amendment) Decree No. 33 of 1978 ² | Expanded the membership of the Board of the Niger River Basin Development Authority | No clause |
| River Basins Development Authorities Decree No. 87 of 1979 ³ | Reestablished the eleven Authorities with powers to develop and manage land and water-related projects within their area of operation, process livestock and crops produced under its area of operation, develop fisheries and improve navigation on rivers, lakes, and lagoons in its area including the generation of power for rural electrification | No clause |
| River Basins Development Authorities (Amendment) Act No. 7 of 1981 ⁴ | Reestablished the membership of the Boards of the eleven RBDAs in Nigeria by amending Decree No. 87 of 1979 | No clause |
| River Basins Development Authorities Decree No. 35 of 1987 (now River Basin Development Authority Act CAP 396 LFN 1990) | Continued in being the eleven RBDAs created in 1979, but divested the RBDAs of their agricultural production functions to concentrate on the development and management of the water resources of their areas of coverage | No clause |
| River Basins Development Authorities Decree of 1990 | Split the Niger River Basin Development Authority (NRBDA) into Lower Niger and Upper Niger RBDAs without repealing the River Basins Development Authorities Decree No. 35 of 1987, thereby making the number of RBDAs twelve in Nigeria | No clause |

*These decrees were repealed by the River Basins Development Authorities Decree No. 25 of 1976

*These amendment decrees were repealed by River Basins Development Authorities Decree No. 25 of 1976

*The River Basins Development Authorities Decree No. 87 of 1979 repealed the River Basins Development Authorities Decree No. 25 of 1976, the Niger Delta Basin Development Authority Decree No. 37 of 1976, the River Basins Development Authorities (Amendment) Decree of 1977, and the Niger Delta Basin Development Authority (Amendment) Decree No. 32 of 1977.

*The River Basins Development Authorities Decree No. 87 of 1979 reconstituted the membership of the Board of the NRBDA by reducing their number without repealing the Amendment Decree No. 33 of 1978

*The River Basins Development Authorities Decree No. 35 of 1987* repealed the River Basins Development Authorities Decree No. 87 of 1979

*The River Basins Development Authorities Decree No. 35 of 1987 reconstituted the membership of the Board of each Authority by decreasing their number without repealing the Amendment Act No. 7 of 1981

⁴The bill, when signed into law, will repeal the River Basin Development Authority Act CAP 396 LFN of 1990, the Water Resources Act 1993 CAP W2 LFN of 2004, and reestablish the RBDAs.
Table 2. The legal and regulatory instruments informing the operational mandates of the RBDAs.

| Instrument                                      | Main thrust                                                                 | Clauses on women’s participation or gender mainstreaming                  |
|-------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------|
| The CFRN of 1999 (as amended)                    | Stipulated the political arrangements for water governance in Nigeria.     | No constitutional provisions for gender parity                              |
|                                                 | Empowered each tier of government to regulate the use, development, and management of water resources within its jurisdiction. |                                                                             |
| Water Resources Act 1993 CAP W2 LFN of 2004      | Vested the right to the use and control of all water resources affecting more than one State in Nigeria (as declared by the National Assembly) in the federal government. | No clause                                                                   |
| River Basin Development Authority Act CAP 396 LFN 1990 | Set the RBDAs for partial commercialization, which entitled the RBDAs to partially operate as economic entities. | No clause                                                                   |
| Public Enterprises (Privatization and Commercialization) Act No. 28 of 1999* | Aimed at protecting and improving the quality of the nation’s water resources. It encouraged the sustainable and efficient use and management of water resources. | No mention of gender                                                       |
| NWPR of 2016                                     | Targeted achieving sustainable growth and enhanced performance of irrigation and drainage development and management in Nigeria. | Mainstreamed gender and encouraged women participating fully in water management. |
| NIDPS of 2016                                    |                                                                                       |                                                                            |

Although not yet a legal document, the revised draft National Policy on Gender in Agriculture of 2016 mainstreamed gender in agriculture. The National Gender Policy of 2006 promoted women empowerment and aimed at eliminating cultural and religious gender-based biases and harmful traditional culture and religious practices against women. The policy document sought to ensure gender issues were effectively incorporated into all aspects of government policies, activities, and programmes. The NPIRD of 2001 recognized the importance of women and sought to promote the full and active participation of women in rural areas in national development activities. The revised National Policy on the Environment of 2016 recognized that many women depend on environmental resources to meet their economic and social needs. The revised policy document, therefore, sought to facilitate the full participation of women and other vulnerable groups in environmental governance and management decision-making processes. The Nigeria Vision 20: 2020 noticed that women constituted almost 50 percent of Nigeria’s total population. The document echoed gender disparity exacerbated by socio-cultural inflexibilities, traditional practices, and religious beliefs. To mitigate this, the document suggested the need to reserve 30 percent space for women in all the decision-making arenas in political and public sectors in Nigeria. Although without any specific reference to water resources management, a weakness of these documents is that they had no link with the operations and programmes of the RBDAs.

In practice, the WUAs/FUAs and participatory approach can serve as platforms for promoting women’s participation in water resources management functions and programmes (Khandker, Gandhi, & Johnson, 2020; Meinen-Dick & Zwarteveen, 1998; Mohammed, 2019; Mommen, Humphries-Waa, & Gwavuya, 2017). Impression from the data revealed that this was constrained by the dearth of provisions in the legal instruments informing the functional mandates of the RBDAs. These instruments did not empower the creation and operation of WUAs/FUAs and the participatory approach. Although recognized by the NWPR of 2016 and the NIDPS of 2016 (for example, as in participatory irrigation management), there were no clauses in the legal instruments making the constitution of WUAs/FUAs and participatory approach legally binding on the RBDAs. Also, these instruments did not empower the RBDAs to at the operational level develop guidelines that could help incorporate WUAs/FUAs and foster stakeholder participation. Despite the rhetoric of the SDGs and the various conferences and Declarations to which Nigeria is a signatory, gender perspectives were not statutorily recognized for action in the integrated development and management of Nigeria’s water resources at the river basin level.

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*This legislation was first introduced in 1988 as the Privatization and Commercialization Decree No. 25 of 1988 under a military regime. The Privatization and Commercialization Decree No. 25 of 1988 was repealed by the Bureau of Public Enterprise No. 78 of 1993, while the Bureau of Public Enterprise No. 78 of 1993 was repealed by the Public Enterprises (Privatization and Commercialization) Act No. 28 of 1999. The partial commercialization exercise suffered drawbacks and could not be completed.

5Expected to incorporate, for example, women farmers, Women Farmers Association, etc.
6Expected to incorporate professional women, women associations, etc.
7The second Dublin principle has argued for a participatory approach to include both government and non-government stakeholders, the indirect water users, the direct water users, and the potential water users in the development, management, allocation, protection, and use of water (ICWE, 1992).
For organizations established by statute, the institutional theory argues that the legal and regulatory instruments constituting organizations and informing their operational mandates serve to influence the performance of organizations by specifying the required conducts or by making organizations act in a certain way (Edelman & Suchman, 1997; Mignerat & Rivard, 2009; Scott, 2014). As revealed in this study, the legal instruments the RBDAs complied with in practice were gender blind. This has directly constrained the ability of the RBDAs to achieve gender integration into their water resources management functions and programmes. This situation may not be limited to Nigeria alone. Looking at the case of Cameroon, the study of Ako, Eyong, and Nkeng (2009) revealed that the extant legal frameworks related to water management did not expressly provide for women’s participation in water resources management, thus not implemented in practice. Despite the Zimbabwe water sector reform programmes initiated to enhance women’s participation in water resources management, Manase, Ndamba, and Makoni (2003) found that the country’s legal instruments did not explicitly address gender and neither was women’s involvement in the management of water resources implemented in practice. Reviewing evidence from South Asia, Meinzen-Dick and Zwartveet (1998) found that women’s participation in WUAs was minimal, promoted by formal and informal membership rules that excluded women. Despite the quota system guaranteeing women’s inclusion in the Ghanaian water sector, Svahn (2011) found that women’s participation in water management was low, exacerbated by a lack of legislation.

The above underscores the importance of legal instruments in promoting gender balance in water resources management or mitigating entry barriers. However, in the case of Nigeria, the legal instruments did not enable women’s participation in water management functions and programmes, and neither was it implemented in practice by the RBDAs. At the informal level, drawing on examples from Nigeria and Africa in general, women and water are closely linked. Women are primarily responsible for fetching water, its household allocation, and use (Shrestha, Chapagain, & Ghimire, 2019). Being a body of knowledge shaped by socio-cultural norms, women’s involvement and participation can enhance the sustainable development, management, and use of water resources (Boateng & Kendie, 2015; Khandker et al., 2020). Therefore, to make its implementation feasible in Nigeria, gender has to be mainstreamed in main water resources policies and legal instruments, create a legal space for women on the Governing Boards of the RBDAs, the advisory committees, and in the by-laws of the WUAs/FUAs when instituted. Drawing on examples from the Ghanaian water sector, the Densu basin water supply policy provided that women be at least 40 percent of the membership of the Water and Sanitation Committees and of the Water and Sanitation Development Boards (Anokye & Gupta, 2011). Looking at the cases of Bihar and Assam in eastern India, Khandker et al. (2020) found that the statutory inclusion of women as members of the General Body and Executive Committees of the WUAs in Bihar made a substantial difference between the two cases.

In summary, this study has used the legal and regulatory lens to reveal why gender mainstreaming in water resources management was difficult to implement in Nigeria. What clearly emerged pointed to the dearth of provisions or clauses in the legal instruments enabling women’s involvement in the operational mandates of the RBDAs, making these instruments lacking in gender sensitiveness. The finding of this study contributes to both water resources literature and the regulative pillar of institutional theory. It does this by revealing legal instruments as vital, capable of constraining the implementation of action (Ahlstrom & Bruton, 2002; Scott, 2014). These legal instruments (or entry barriers), as revealed in this study, have constrained the ability of the RBDAs to mainstream gender and realize women’s participation in river basin water resources development and management in Nigeria in accordance with the 2030 United Nations Agenda and other Declarations. Although simply prescribing gender in legal and regulatory instruments and creating legal space may not guarantee active participation⁸ (Adisa, 2020; Gebreezabhler, 2018), more socio-culturally supported measures may still be needed to be put in place. However, some of the most commonly cited factors constraining active participation (or post-entry barriers) include socio-cultural, economic, social norms, women’s low education, gendered perceptions, household responsibilities, and a low number of women as role models in the water sector (Das, 2014; Gebreezabhler, 2018).

Conclusions and implications for policy and practice

At the local level, Nigeria has a very long tradition in women’s involvement and participation in water resources development, management, and use. Despite being signatories to the United Nations 2030 Agenda for Sustainable Development and Declarations of several conferences on women, gender perspectives were not statutorily incorporated for action in the integrated planning, development, and management of river basin water resources in Nigeria.

⁸According to Gebreezabhler (2018), this refers to a deliberate shift from consultation to shared decision making and empowerment.
Although the NIDPS of 2016 has mainstreamed gender in water resources management, the statements of this policy are yet to be legally sanctioned by law; which is designed to strengthen policy statements. Organizations constituted by statute must have a legal basis informing their actions. The dearth of clauses in the legal instruments constituting the RBDA s and informing their operational mandates was a major force constraining women’s involvement in the water sector in Nigeria. With the absence of provisions in the legal instruments, the sustainable management of water resources in accordance with the SDG targets and Declarations of other conferences through gender mainstreaming may be difficult to realize in Nigeria. This has implications for policy and practice in Nigeria and elsewhere with similar conditions as Nigeria.

Since the RBDA s are constituted by statute, to address this problem the policy aspect should focus on:

amending the River Basin Development Authority Act CAP 396 LFN of 1990, the Water Resources Act 1993 CAP W2 LFN of 2004, and the NWRP of 2016 to include provisions empowering the RBDA s to (a) establish and operate stakeholder platforms that incorporate both state and non-state actors, (b) institute the WUAs/ FUAs, and (c) create a legal space for women (at least 30 percent as suggested by the Nigeria Vision 20: 2020 and the National Gender Policy of 2006) on the Governing Boards of the RBDA s, the advisory committees, the stakeholder platforms, and in the by-laws of the WUAs/ FUAs when constituted. This will help minimise any power disparities between women and men which can provoke unequal gender voices. Before being passed into law, the 2016 National Water Resources Bill should be amended to (a) incorporate the suggestions made above (since the bill is expected to repeal the River Basin Development Authority Act CAP 396 LFN of 1990, the Water Resources Act 1993 CAP W2 LFN of 2004, and re-establish the RBDA s), and (b) reinforce the statements of the NIDPS of 2016 on gender and couple these to the operational mandates of the RBDA s. To ensure the active implementation of legislative provisions, the provisions of enforcement mechanisms are also crucial.

In Nigeria where women are disproportionately poorer than men, the practice aspect should focus on encouraging women’s active participation. This can be realized by providing legally-backed monetary incentives especially to the non-state women participants on the stakeholder platforms. To implement the above in practice, the RBDA s organizational arrangements will have to be restructured to accommodate the WUAs/ FUAs and the stakeholder platforms in planning, water allocation, and decision making. Lastly, providing legal recognition for women’s participation in water resources management does not represent an end in itself. In practice, especially after gaining entry, issues around social and power differences, learning opportunities, attitudinal, fear of violating customary roles, politics, socio-cultural and religious norms, practices, and traditions likely to affect women’s active participation may still have to be addressed. In addition to this, practical measures that are socio-culturally appropriate may have to be put in place to enhance women’s decision-making capacities and active participation. Therefore, moving from informal to formal, creating legal recognition for women will help break the initial entry barrier for mainstreaming gender in water resources management and secure access to speak up and network.

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References

Adeoti, O. (2019). Understanding the factors constraining the implementation of watershed management in Nigeria. Sustain. Water Resour. Manag, 5(4), 2001–2021. doi:10.1007/s40899-019-00353-y
Adisa, O. (2020). Rural women’s participation in solar-powered irrigation in Niger: Lessons from Dimitra Clubs. Gend. Dev, 28(3), 535–549. doi:10.1080/13552074.2020.1833483
Ahlstrom, D., & Bruton, G. D. (2002). An institutional perspective on the role of culture in shaping strategic actions by technology-focused entrepreneurial firms in China. Entrep. Theory Pract, 26(4), 53–68. doi:10.1177/104225870202600404
Ako, A. A., Eyong, G. E. T., & Nkeng, G. E. (2009). Water resources management and integrated water resources management (IWRM) in Cameroon. Water Resour. Manag, 24(5), 871–888. doi:10.1007/s11269-009-9476-4
Anokye, N. A., & Gupta, J. (2011). Reconciling IWRM and water deliver in Ghana – The potential and the challenges. Phys Chem Earth, 47–48, 33–45. doi:10.1016/j.pce.2011.06.010
Boateng, J. D., & Kendie, S. B. (2015). Factors influencing the participation of women in rural water supply projects in the Ashanti Akim South District. *Journal of Arts and Social Science*, 3(1), 220–242.

B-ORBDA., 2002. *Handbook*. Benin-Cit, Nigéria: B-ORBDA.

Bruton, G. D., & Ahlstrom, D. (2002). An institutional view of China’s venture capital industry: Explaining the differences between China and the West. *J. Bus. Ventur*, 18(2), 233–259. doi:10.1016/S0883-9026(02)00079-4

Das, P. (2014). Women’s participation in community-level water governance in urban India: The gap between motivation and ability. *World Development*, 64, 206–218. doi:10.1016/j.worlddev.2014.05.025

Edelman, L. B., & Suchman, M. C. (1997). The legal environments of organisations. *Anna. Rev. Sociol*, 23(1), 479–515. doi:10.1146/annurev.soc.23.1.479

Gebregezabher, A. (2018). Women’s participation in water resource management, in case of Enderta district, Tigray region, Ethiopia. *J. Water Resour. Prot*, 10(11), 1047–1060. doi:10.4236/jwarp.2018.1011061

Hoffman, A. J. (1999). Institutional evolution and change: Environmentalism and the US chemical industry. *Acad. Manag. J.*, 42(4), 351–371.

ICWE, 1992. The Dublin statement and report of the conference, in: International Conference on Water and the Environment: Development Issues for the 21st Century, 26–31 January, 1992; Dublin, Ireland.

Khandker, V., Gandhi, V. P., & Johnson, N. (2020). Gender perspective in water management: The involvement of women in participatory water institutions of Eastern India. *Water*, 12(1), 196. doi:10.3390/w12010196

Kholif, M. T., & Elfarouk, A. M. (2014). Activating the role of women in water projects. *Water Sci*, 28(1), 75–82. doi:10.1016/j.wsj.2014.10.002

Manase, G., Ndamba, J., & Makoni, F. (2003). Mainstreaming gender in integrated water resources management: The case of Zimbabwe. *Phys Chem Earth*, 28(20–27), 967–971. doi:10.1016/j.pce.2003.08.023

Meinzen-Dick, R., & Zwarteveen, M. (1998). Gendered participation in water management: Issues and illustrations from water users’ associations in South Asia. *Agric. Human Values*, 15(4), 337–345. doi:10.1023/A:1007533018254

Migneron, M., & Rivard, S. (2009). Positioning the institutional perspective in information systems research. *Journal of Information Technology*, 24(4), 369–391. doi:10.1057/jit.2009.13

Mohammed, S. A. R. (2019). Participation of female farmers in water management in Rahad Irrigation Project. *Eur. J. Soc. Sci.*, 58(4), 317–321.

Mommen, B., Humphries-Waa, K., & Gwavuya, S. (2017). Does women’s participation in water committees affect management and water system performance in rural Vanuatu?. *Waterlines* 36(3), 216–232.

O-ORBDA, 2011. What it is, what it does and how it works. Author.

O-ORBDA, 2013. Hydromet/statistics. www.orbda.com.ng/prelease.php

Scott, W. R. (1995). *Institutions and Organisations: Foundations for Organisational Science*. California, CA: Sage.

Scott, W. R. (2014). *Institutions and Organisations: Ideas, Interests, and Identities* (fourth ed.). California, CA: Sage.

Shrestha, S., Chapagain, P. S., & Ghimire, M. (2019). Gender perspective on water use and management in the context of climate change: A case study of Melamchi Watershed Area, Nepal. *Climate Change*, 9(1). doi:10.1177/2158244018823078

Singh, N. (2006). Women’s participation in local water governance: Understanding institutional contradictions. *Gend. Technol. Dev.*, 10, 1. doi:10.1077/0971855240501000104

Swahn, K., 2011. Women’s role and participation in water supply management - The case study of the Republic of Ghana. Unpublished master’s thesis, Uppsala Universitet.

United Nations, 2016. Report of the inter-agency and expert group on sustainable development Goal indicators (E/CN.3/2016/2/Rev.1). https://sustainabledevelopment.un.org/content/documents/11803Official-List-of-Proposed-SDG-Indicators.pdf