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Original Research Article

Institutional Assessment of a River Basin Development Authority for Effective Service Delivery: A Case Study of Sokoto Rima River Basin Development Authority, Sokoto in Nigeria

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ABSTRACT

The low level of performance observed in the service delivery of large-scale irrigation projects in Nigeria has informed the need for an Institutional Assessment (IA) of Sokoto-Rima River Basin Development Authority (SRRBDA). The overall approach for the study was based on a framework that looks at skills, knowledge and experience, attitude and motivation, and enabling environment to identify and depict critical accelerators (key factors that enhance performance) and critical potholes (key constraints) within the SRRBDA. Position profiling and analysis of the Authority's staff and its project activities were conducted. The approach provided the primary data for the assessment and subsequent development of capacity actions to address the identified capacity gaps in the Authority. The actions which correspond to Skills, Knowledge and Experience, Attitude and Motivation and Enabling Environment were developed together with staff of the SRRBDA for improving service delivery. The results of the assessment showed that issues relating to enabling environment were the highest (50%) and those linked to attitude and motivation were few (29%) while issues to do with skills, knowledge and experience recorded the least (21%). A number of Capacity Development (CD) actions were proposed and transformed into a capacity development plan, in order to address the identify capacity gaps, with clear tasks for implementation by the SRRBDA and stakeholders in the irrigation sub-sector. The CD actions developed and recommendations made are expected to improve service delivery of the SRRBDA, and hence improve performance towards achieving food security in Nigeria, and meeting the UN Sustainable Development Goals (SDGs) by 2030.

1. INTRODUCTION

Food security and agricultural development are closely linked to water, and increasing pressure of population on food supplies means that many countries including Nigeria are interested in intensifying agricultural production by recourse to irrigation. There is no doubt that future global food supplies cannot be secure without improvements to irrigation efficiency and adequate investment (Gadzama, 2017; Iwu, 2020; Ani *et*

al., 2021). In this regard, the basic food policy objective of successive governments in Nigeria has always been the attainment of self-sufficiency in food production for domestic consumption as well as for import substitution (Chete *et al.,* 2014).

Nigeria has made a considerable progress in development of surface water resources and establishment of River Basin Development Authorities (RBDAs). This has led to tremendous investments in large-scale irrigation projects in the 1970s and 1980s (Urama and Mwendera, 2005; Okeola and Balogun, 2017). The establishment of Large-scale Irrigation Projects (LIPs) involves the construction of dams, irrigation canals, drainages and irrigation facilities. These facilities are managed by the RBDAs with broad development objectives. The RBDAs were saddled with the responsibilities of ensuring efficient utilization of the nation water resources within their catchment, increasing food production by promoting irrigated agriculture, providing raw materials for agro-based industries, enhancing economic development of their respective basins by creating employment opportunities for the rural communities and improving their standard of living among other functions (Mabiza, 2013). Thus, the RBDAs maintain a resident management institution at each major irrigation project in Nigeria to ensure satisfactory operation and maintenance. The Federal Government of Nigeria (FGN) and various other international donors and bilateral organizations have invested extensively in the RBDAs for management of LIPs in the country (Makusidi, 2015). However, the performance of these LIPs has not had the anticipated impact on national food security, employment opportunities and economic growth (Sengupta and Mukhopadhyay, 2016). The reasons are partly attributed to changes in government policy over the years such as the partial commercialization of the Authorities. For example, based on the 1986 reforms, the RBDAs were forced to rationalize their non-water resources functions and staff. They were longer involved in the supply of agricultural inputs, produce marketing, agricultural extension services or direct agricultural production, and what remains in terms of staff are in many cases inadequately trained and/or experienced to perform the required functions. Furthermore, a good number of the irrigation projects in the country have been operating below their potential due to various reasons including lack of maintenance of the irrigation infrastructure (Chauvin *et al.,* 2012). The situation has resulted in costly and ineffective management.

The challenge today is how to sustain irrigated agriculture for the permanent benefit of the Nigerian population. As highlighted earlier, a large portion of the short comings is related to systemic problems that have constrained the capacity of the RBDAs (Sultan and Gaetani, 2016). Thus, the above scenarios have prompted the need for institutional assessment of the RBDAs as a mechanism for the identification of capacity gap, and development of capacity actions and plan to address the gap for improving irrigation activities in the sector. Capacity development is a process that allows the acquisition of new ideas and knowledge to strengthen an organization's vision, structure, direction and talent and enables it to contribute to common goals (Lusthaus, 2002; Roper and Pettit, 2010; de Montalvo and Alaerts, 2013). Capacity development is not just about training, but includes issues such as attitudinal changes, motivation and provision of appropriate enabling environment (Wignaraja, 2009; Hénard and Roseveare, 2012).

Capacity development must be based on a need analysis derived from a judgement of "actual performance" and compared with "required performance". Capacity development is one of the major ways organizations invest in the workforce for greater return tomorrow and even in the foreseeable future (Kim and Ployhart, 2014). Organizational effectiveness rests on the efficient and effective performance of the workforce that constitutes the organization. The efficient and effective performance of the workforce in turn, rest on the abundance of knowledge and skills possessed as well as experiences gained by the workforce (Igbaekemen and Odivwri, 2015) Capacity development is not a one-time event but rather a continuous process. In other to maximize the productivity and efficiency of the organization, every executive, manager or supervisor in a public or private organization has the responsibility and indeed the bounding duty to ensure capacity development of their employees who have requisite knowledge and expertise (Malaolu and Ogbuabor, 2013; Cascio, 2018).

Capacity development is like sharpening an existing skill in order to reflect the trends in technology and other social–cultural environmental changes of an organization (UN DESA, 2008; UN DESA, 2013).

Productivity is the goal of today's competitive business world and capacity development can be a spring board to enhance productivity (Slipicevic and Masic, 2012; Brewer, 2013; Chete *et al.,* 2014). The principal intention of capacity development is to equip people with the knowledge required to perform their duty well for a particular position of employment, or to improve their skills and efficiency in the position they already hold (Obi-Anike and Ekwe, 2014) Manpower development on the other hand, implies growth and the acquisition of wide range of experiences for future strategic advantages of the organization. Capacity development therefore, improves the effectiveness and efficiency of the employee (Elnaga and Imran, 2013; Chukwudi, 2015). Therefore, in order to improve service delivery in the irrigation sub-sector in Nigeria, issues relating to institutional and management capacity need to be addressed, otherwise it is less likely that the reform process envisaged in the sub-sector by the Nigerian government will thrive and result in improved service delivery.

The aim of the study was to assess the current capacity of the irrigation management institution in its respective catchment. Analyze the reasons for the current performance of the institution and offer recommendations for improved performance under a more refined and appropriate management strategy.

2. METHODOLOGY

2.1. Background of Study Area

The Sokoto-Rima River Basin located in the North-Western part of Nigeria. It is located between latitude 10° 04'N and Longitude 3° - 8° 14' E (Graham et al., 2006; Adelana *et al.,* 2008; Abdullahi *et al.,* 2014). The Basin covers five states namely Sokoto, Kebbi, Zamfara, Katsina and small part of Niger with a land area of approximately 131,600 km^2 as shown in Figure 1. It shares borders with countries like Niger Republic to the north and Benin Republic to the west as shown in Figure 2. (Abdullahi *et al.,* 2014). The whole Basin falls under the Sudan and Sahel Savanna (Abdullahi *et al.,* 2014; Iliyasu, 2014). The basin topography consists of a vast floodplain (Fadama land) and rich alluvial soils that is suitable for the cultivation of different variety of crops. There are also isolated hills (inselberg) and hill ranges scattered all over the area (Ekpoh and Ekpenyong, 2011; Akudo *et al.,* 2016).

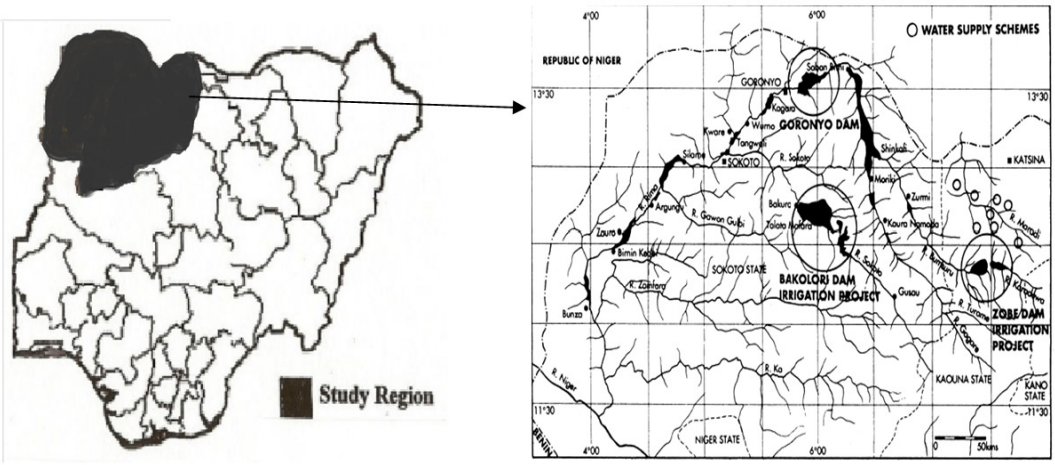

Figure 1: Sokoto-Rima River Basin in northern Nigeria (Source: Abdullahi *et al.,* 2014)

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Figure 2: Map of the Sokoto Rima River Basin drainage area (Accessed on May 15, 2024: https://en.wikipedia.org/wiki/Sokoto_River)

The SRRBDA was established between 1970 and 1976, and has its headquarters located in Sokoto in north-western part of Nigeria. The Authority's area of jurisdiction covers the whole of Sokoto, Kebbi, Zamfara and Katsina and States. It covered most part of the north-western part of the country within the Hydrological Area I (HA I). The SRRBDA coordinates its activities from its head office located at Sokoto, the capital of Sokoto State while its irrigation activities are carried out in its project areas. The projects are shown in Table 1.

Table 1: Sokoto Rima River Basin Development Authority projects and their locations

Irrigation project	Location
Bakolori Irrigation Project (BIP)	Zamfara State
Jibiya Irrigation Project	Katsina State
Middle Rima Valley Project (Goronyo)	Sokoto State
Zauro Polder Irrigation Project	Sokoto State
Zobe (Garhi) Irrigation Project	Katsina State
Sabke Irrigation Project	Katsina State
Shagari irrigation Project	Sokoto State

2.2. General Information on the Irrigation Projects

2.2.1. Bakolori irrigation project

The Bakolori Irrigation Project was commissioned in 1983 and is been managed by the SRRBDA. The Project is located within the Sokoto Rima River Basin near Talata Mafara in Bakura Local Government Area of Zamfara State. It derived its name from the host Community, Bakolori, where the Bakolori Dam was constructed across the River Sokoto. The Bakolori Irrigation Project which includes the dam, reservoir and canal systems was constructed to supply irrigation water to supplement the rains so that at least two crops a year can be grown over an area of 27,000 hectares. The Project was initially constructed to combine sprinkler and surface systems. However, the sprinkler irrigation technology was found to be difficult to manage and maintain by the scheme administrators and farmers involved in the scheme. Thus, the system was converted into gravity system. The Bakolori Dam was constructed to store about 450 MCM of water from the catchment area extending to Funtua and Dandume in Katsina State. The reservoir behind the dam was expected to extend over an area of about 8,000 hectares with a maximum length of almost 19km. In addition, the Dam axis contains seven (7) main spillways of which six were free-flow and one gated with a total discharge capacity of 1,650m^3/sec. Water level gages (two in number) were fixed, one at the upstream side of the gated spillway and the other at the concrete control section.

2.2.2. Jibiya irrigation project

The Jibiya irrigation project started in 1986 and was completed in 1991. It is located in South East of Jibiya Town in Jibia Local Government, Katsina State. The project has six irrigation fields with six (6) intake officers. The main activity includes Irrigation agriculture, water supply to Jibia Water Treatment Plant owned by Katsina State Water Board, fish production, and erosion and flood control. The irrigation scheme has staff strength of 48 staff.

2.2.3. Middle Rima valley (MRV) irrigation project

The MRV is one of the six irrigation projects of the SRRBDA. It is the largest irrigation project with one the largest dam, the Goronyo Dam. It is located in Goronyo Local Government Area about 90km from Sokoto Town. The project started in 1980 and was completed in 1984. The project is presently run and managed by 26 members of staff. Goronyo Dam is one of the major dams under the jurisdiction of SRRBDA. The Dam is located near Keta village in Goronyo Local Government about 90km North East of Sokoto city. It lies between longitudes 5º 39'E and 5º 50'E and latitude 13º 25'N and 13º 33'N. The dam was built on the River Rima and has a storage capacity of 942mcm of water for irrigation development of downstream areas from to Goronyo to Zauro Polder. It covers an area of over 17, 000 hectares (170,000,000 m^2). The dam was also designed to provide an annual regulated flow of 425 mcm to double the present rice cultivated fadamas from 4,0000 to 8,0000 hectares. The dam also supplies 80mcm of water annually to Sokoto, Argungu and Birnin-Kebbi water supply schemes.

2.2.4. Zauro irrigation project

The project was originally conceived in 1969 as a joint venture between the Sokoto State Government and the then Federal Ministry of Agriculture and Water Resources. The project consists of a dyke off a section of River Rima flood plain, with the provision of flood control and irrigation of about 8,570 hectares of land. In 1982 a pilot scheme of 100 hectares was developed with a flood protection dyke, irrigation and drainage pumping station, and irrigation canals. The pilot scheme was to serve as demonstration plots for training of SRBDA staff and farmers. The project office has forty staff handling various aspects of the project.

2.2.5. Zobe irrigation project

Zobe Irrigation project is situated in Dustsin-ma Local Government Area of Kastina State. It comprises Zobe dam across Karaduwa River, distribution canals and some other Irrigation structures for the Irrigation of 8,137 hectares. The project also provides 6.57MCM of water for domestic usage as well as fisheries development. A total number of 54 tube wells were drilled under the Authority's underground water development programme. In addition, 54 number pumps were supplied to the constituted Irrigation Farmer Associations for dry season Irrigation farming. The project has staff strength of thirty-eight members of staff. Zobe Dam was constructed on a section of Karaduwa River near Dutsin–ma in Dustin-ma Local Government Area of Katsina State. The initial design for irrigation area was 8,137 hectares but due to shortage in water supply it was reduced to 5,2000 hectares. However, in 2008/2009 contract was awarded to construct additional 1,200 hectares of irrigation plots for the Zobe irrigation Project covering 23 km.

2.2.6. Sabke irrigation project

Sabke Irrigation Project is located in Maiaduwa Local Government Area of Katsina State. The project was initiated by the defunct Petroleum Trust Fund (PTF). It is still an on-going project and entails construction of Sabke Dam, Irrigation infrastructure and Water Treatment and Supply facilities. The construction of the Sabke dam was completed in 1995, but irrigation has not yet commenced due to uncompleted works on the component of the irrigation schemes and pumping station.

2.2.7. Shehu Shagari irrigation project

The Shagari Irrigation Scheme is a small irrigation project designed to abstract water from an earth dam. The Federal Government of Nigeria through the Federal Ministry of Water Resources constructed the earth dam

in Shagari town across River Gawan Gulbi. The dam was designed to provide water for irrigation and water supply to Shagari town. The dam was constructed and completed in 2007. The Shagari Irrigation Project has three (3) staff, the project manager and two security guards.

2.3. Framework for the Institutional Assessment

The method described below provides the framework for the institutional assessment of the SRRBDA. The method was based on the skill, knowledge and experience, attitude and motivation, and enabling environment (SKEAMEE) concept (Figure 3). The concept looks at skill, knowledge and experience (SKE), attitude and motivation (AM), and enabling environment (EE), and allows for elucidating of information and analyzing the institution's capacity. These concepts were used in the evaluation of the SRRBDA capacity and service delivery ability (Ahmed, 2009).

Figure 3: The SKEAMEE concept (Adapted from Emery, 2013)

2.4. Collation of Baseline Information and Data Sources

This aspect of the study focused on collating and reviewing background documents about SRRBDA and its projects. The background documents assisted in providing baseline information for the assessment. In collating the baseline data, attempt was made to meet a representative spectrum of key stakeholders including the administrators, support staff, clients/farmers/institutional representatives and government officials to obtain available information and key documents such as handbook describing the mission statement, visions, goals and objectives. Others include organogram and staff nominal role and management structure, schedule of duties, annual report, financial reports/budgets, program descriptions/action plan/annual work plan, observe relevant facilities, buildings/grounds and offices. Observation was also made on the dynamics among people, their nature of meetings i.e. who attends; who presides and nature of dealings with institution's clients (Coates *et al.,* 2004).

2.5. Assessment Procedure

2.5.1. Position profiling and analysis

This aspect of the study was aimed at identifying roles, main responsibilities and main activities of a cross-section of the institutions' staff. The profiling focused on function rather than the individual, although some account was taken of the position holder's capacity needs. This was supplemented with group discussion and review of documents such as job descriptions, work plans, etc. where available.

2.5.2. Identification of critical accelerators and potholes

The accelerators and potholes concept were derived from an institutional analysis tool called the "force field". Accelerators are things that pull towards an overall goal while potholes hamper progress (Figure 4). Based on the position profiling and analysis, the key factors that make various position holders perform their tasks

efficiently and the ones that hamper performance were identified and referred to as critical accelerators and critical potholes respectively.

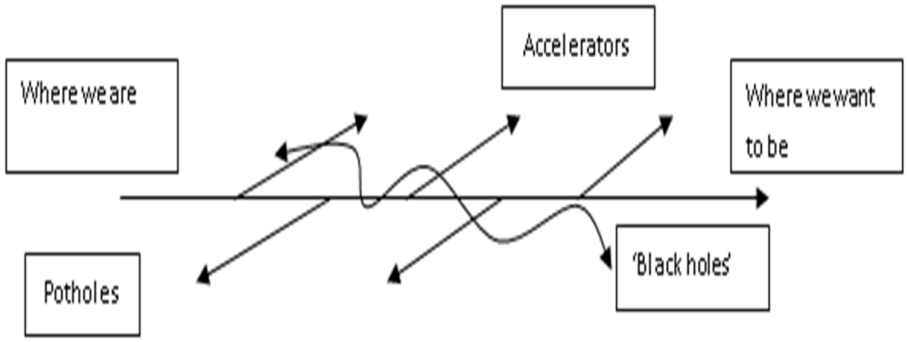

Figure 4: Illustration of accelerators and potholes concept (Source: Coates *et al.,* 2004)

2.5.3. Capacity development (CD) actions

This phase of the study focused on developing actions that can minimize the potholes and maximize accelerators. CD actions were developed in conjunction with respective institutions' staff that participated in the previous stages to address the identified critical potholes and find ways of maximizing accelerators. The CD actions covered the three major areas, SKE (skills, knowledge and experience); AM (attitude and motivation), and EE (enabling environment). In addition, priority levels were allocated to each CD action together with the staff of SRRBDA. An ordinal scale of 1 – 5 (1 = minimum score) and (5 = maximum score) was used for the ranking based on the relative influence and importance of the action towards addressing or minimizing a pothole to prioritize the CD actions as shown in Table 2.

Table 2: Ranking criteria used for prioritizing the CD Actions (Adapted from Ahmed, 2010)

S/N	Level of importance	Scale/ranking
1	Very high influence or importance	5
2	High influence or importance	4
3	Important	3
4	Low influence or importance	2
5	Very low influence or importance	1

2.5.4. Capacity development plans

The CD actions developed were then reported back to key decision makers in the organization, and CD plans were agreed in a participatory manner for implementation to address the capacity gaps (Vallejo and Wehn, 2016.; Danquah *et al.,* 2023). In the CD plans, for each agreed CD action the following were defined:

a) priority level;

b) stakeholders involved;

c) those responsible for implementing the CD action;

d) those that need to support implementation of the action;

e) indication whether budget is required to facilitate the action or not;

f) time frame for execution of the action.

3. RESULTS AND DISCUSSION

The main findings from the assessment are presented as critical accelerators and potholes. This section presents consolidated summary of the general critical accelerators (Table 3), and respective critical potholes (Table 10: See Appendix) of the SRRBDA and its project units.

3.1. Critical Accelerators (Motivators)

From the assessment, key factors that make the various position holders perform their tasks efficiently were identified and referred to as "critical accelerators". In this regards, eleven (11) consolidated critical accelerators were identified as presented in Table 3.

Table 3: Summary of critical accelerators

S/No	Critical accelerators
1	Prompt payment of salaries
2	Regular promotion of staff
3	Availability of project vehicles
4	Provision of health care system
5	Availability of dedicated staff
6	Attending seminars and workshops
7	Provision of opportunity for further trainings (both short and long term)
8	Upgrading of staff after training
9	Provision of office and residential accommodation
10	Provision of furniture and office facilities
11	Provision of staff welfare package

3.2. Critical Potholes (Constraints)

Factors militating against efficiency and effective service delivery in the operation of the SRRBDA were also identified, and referred to as "critical potholes". A total of fourteen (14) potholes were identified as presented in Table 4, with reasons for the identified pothole elucidated in (Table 10; See Appendix). The dilapidated irrigation structures and houses were also identified as critical potholes in this study as shown in Figure 5.

Damaged drainage structure

Damaged ceiling due to leaking roof

Damaged ceiling due to leaking roof

Collapse roof of one of the houses

Figure 5: Damaged irrigation and housing structures in Zauro polder project

3.3. Categorizing Identified Critical Potholes Based on the SKEAMEE Framework

Each of the identified critical potholes was analyzed and classified based on the SKEAMEE framework (Figure 3) as shown in Table 4.

Table 4: Classification of identified critical potholes into their respective capacity area

S/No	Identified critical potholes	Capacity area
1	Inadequate manpower	SKE
2	Inadequate training of staff	SKE
3	Communication gap due to absence of regular staff meeting	SKE
	Number of Indicators	3
4	Favouritism and improper assigning of responsibility	AM
5	No rewards for hard work and long service	AM
6	Delay and non-payment of allowances	AM
7	Dilapidated irrigation structures and houses	AM
	Number of Indicators	4
8	Inadequate funding for day-to-day operation and maintenance	EE
9	Inadequate office accommodation and facilities	EE
10	Lack of archiving system	EE
11	Inadequate provision of working materials, tools, equipment and machineries	EE
12	Insufficient power supply	EE
13	Inadequate maintenance of equipment, machineries and facilities	EE
14	Flooding problems causing inundation of irrigation lands (Goronyo Project)	EE
	Number of Indicators	7

Generally, analysis of the issues in Table 5 and Figure 6 show that majority of the dominant factors needed to be addressed for effective service delivery in the SRRBDA relate to the enabling environment. This was closely followed by attitude and motivational issues while few of the constraints fall under the skills, knowledge and experience. The analysis suggests that adequate attention should be given the identified factors in order to enhance performance of SRRBDA to contribute towards achieving the national targets for food security and economic development in the catchment area of the Authority.

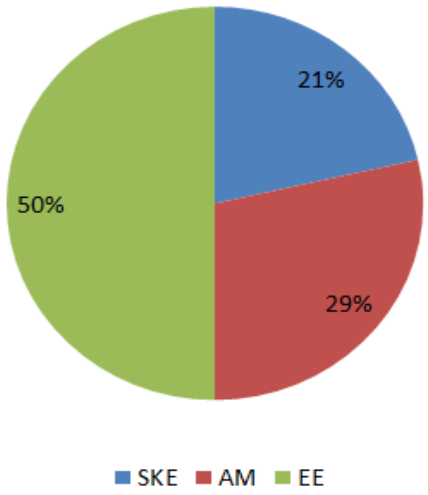

Figure 6: Classification of assessed capacity area of SRRBDA

3.4. Addressing Identified Constraints (Potholes) – Capacity Development Actions (CDs)

As a step towards addressing the identified capacity constraints in SRRBDA, CD actions corresponding to Skills, Knowledge, Experience (SKE); Attitude, Motivation (AM); Enabling Environment (EE) were

developed in a participatory manner in conjunction with the respective SRRBDA staff that were profiled. It consists of actions that can minimize or eliminate the potholes and maximize accelerators. The principle underlying the adoption of participatory approach is to give people a voice and choice. This provided mechanism for expression of staff views, whereby they also accept some degree of responsibility for those actions. Thus, this section presents a summary of CD actions classified under SKE, AM, and EE which were collated to form a capacity development plan for SRRBDA. In developing the CD actions, some of the issues were merged together and one or more actions were recommended towards addressing the issues in organization.

3.5. CD Actions - Skills, Knowledge, and Experiences (SKE)

Institutional capacity underlies an institution's performance. The study characterized the institutional capacity using the conceptual guidelines adapted from Muthiah and Huang (2006). In assessing SKE, the following were considered: assessing the strengths and weaknesses of strategic leadership in the institution; assessing the strengths and weaknesses of human resources; training and professional development and career management.

3.5.1. Strengthen manpower in SRRBDA

In order to meet up with improve service delivery, there is need to employ more staff in SRRBDA. Addressing this issue may go beyond this assessment to include detail staff audit. However, preliminary investigation and analysis carried out under this study indicate positions listed in Table 6 as critical areas where staff recruitment is required. Thus, in order to improve service delivery, SRRBDA need to set in motion machinery to employ qualified staff to fill in critical areas of needs.

Table 5: Identified areas where staff recruitment is required

S/No	Specialization	Quantity
	Technical staff	
1	Agric. Engineer	3
2	Civil Engineer	2
3	Electrical Engineer	2
4	Tractor Operators	9
5	Heavy Duty Machine Operators	3
6	Technician (Mechanical)	5
7	Technician (Electrical)	3
	Field Staff	
8	Extension Officers	11
9	Agronomists	2
10	Intake Officers	10
	Other services	
11	Office Assistants (Messengers)	3
12	Security Personnel	13

3.5.2. Train staff to enhance capacity

Training and retraining of staff must be seen as a way of keeping pace with new development especially in the irrigation sub-sector which is considered to be dynamic. Thus, in the course of this assessment some key areas of training have been identified where knowledge and skills improvements are required. These include computer operation and internet utilization, budgeting and auditing, office administration and management, contract management and administration and security surveillance. Therefore, SRRBDA needs to facilitate and ensure effective training of its staff in the areas listed above for effective service delivery. The Authority may need to develop training plans for the staff. This will assist in organizing and providing trainings in the identified areas as well as releasing staff to attend training courses to improve their knowledge and skills.

3.5.3. Improve information flow in SRRBDA

Staff morale seems to be low, particularly with respect to communication and information flow due to absence of regular meetings. Addressing this situation is critical to maintaining the goodwill of staff. Thus, SRRBDA needs to ensure that departmental meetings and briefings are institutionalized in order to improve flow of information in the Authority. Regular meetings provide platform to share information, assess activities that have been carried out, and provide forum to discuss difficulties on planned and upcoming activities. This is essential to the implementation of Nigerian Government policy on good governance and inclusiveness.

3.6. CD Actions – Attitude and Motivation (AM)

No two institutions/organizations are alike. Each has a distinct history, mission, culture and incentive/reward system, which are all powerful motivators of behaviour. The assessment characterized the level of institutional motivation as determined by the following components, following the method used by Lusthaus *et al.* (1995).

3.6.1. Adhere strictly to schedule of duty in assigning of responsibilities

Interactions with staff of SRRBDA indicated that some of them are operating without schedule of duty for their respective positions. However, effective service delivery especially in irrigation schemes is partly dependent on staff knowing what to do, and less to do with interest or favour. It is therefore important for SRRBDA to develop clear job descriptions for all staff in various positions and equally ensure adherence to schedule of duty in assigning of responsibilities for each cadre of staff. Also important, particularly with respect to enhancing staff morale and confidence, there is need to distribute the schedule of duty to all officers as this will guide them in the discharge of their duties.

3.6.2. Encourage hardworking and deserving officers

Both technical and administrative staff identified lack of encouragement as a challenge in carrying out their assigned duties. As a way of maintaining the goodwill of staff, there is need for SRRBDA to encourage hardworking and deserving officers. One way of doing this is to introduce awards of commendation to deserving and outstanding staff who have distinguished themselves. Additionally, SRRBDA should consider peculiarity and mode of operation of the Authority, and provide some incentives as motivation for staff working beyond stipulated working hours especially field officers. This will assist to boost staff morale, increase their enthusiasm to work and enhance productivity. The Authority can set up mechanism to address these issues. This may foster staff motivation and dedication to duty.

3.6.3. Ensure prompt payment of DTA

Allowances are great motivational factors for enhancing productivity. However, the delay or non-payment of allowances is of considerable concern to the staff. It is negatively affecting staff morale and enthusiasm to work. In order to maintain and improve working relationship between the staff and management, it is important for SRRBDA to put in place a workable system that will ensure payment of all prescribed allowances without delay. The prompt payment of these allowances can serve as a reason for enhancing staff performance and loyalty.

3.6.4. Renovate dilapidated housing and irrigation structures in disrepair

Staff quarters are meant to provide habitable and more conducive environment for staff to live with their families. However, some of the houses in the staff quarters are in a state disrepair and need renovation urgently. SRRBDA need to evaluate and determine actual houses in the staff quarters that are in poor condition and renovate accordingly. This will assist to create comfortable environment for the staff to live with their families. Linked to this issue, is the irrigation structures in some of the projects which are in state of disrepair. Efforts should be intensified to renovate the dilapidated irrigation structures at Jibiya and ensure

completion of Zobe irrigation structures. These activities may be capital intensive, and therefore more funds are required to achieve them.

3.7. CD Actions – Enabling Environment (EE)

Every institution is affected by its external environment: its region, country, part of the world. Six of the major influences used in the assessment are described below. The institution's environments (SRRBDA project stations) were characterized using the following guidelines adapted from Lusthaus *et al.* (1995).

3.7.1. Improve flow of funds to SRRBDA

A major constraint cited by virtually all the staff is inadequate funding for operations of the SRRBDA. This was attributed to poor budgetary provision and release of funds for activities of the SRRBDA. The budget releases often result in lower than the proposed budget. Therefore, ways must be found to increase funding and improve flow of funds to SRRBDA to ensure that the Authority's organizational targets are met. One way is to negotiate with authorities at the parent Ministry of SRRBDA (i.e. Federal Ministry of Water Resources (FMWR)) to advocate for increase funding. Another is to ensure that appropriated funds are released on time and as budgeted in order to achieve its organizational goal. Alternatively, SRRBDA and other RBDAs can be made financially viable and self-sustaining by allowing them to sell their services and generate revenue from their projects. This action will however require reviewing the mandate of all the RBDAs to include some level of commercial orientation. Additionally, SRRBDA may seek for funding collaboration with External Support Agencies (ESAs) like the World Bank, Food and Agricultural Organizations (FAO) etc. for implementation of its projects. In this regard, it is particularly important for SRRBDA to develop close links with its parent Ministry in order to attract donors for its project. Furthermore, although the delay in budget release may not originate from SRRBDA, however it is necessary to put in place a mechanism that will ensure speedy implementation of budgets. Budget preparation and release should be hastened by removing unnecessary bottlenecks without compromising due process.

3.7.2. Provide adequate working materials, tools, equipment and machineries

Most of the staff profiled complained of insufficient working materials, tools, equipment and machineries to carry out their functions. The situation has incapacitated some of the staff, and job performance is also affected. The Authority needs to put in place effective frame work that will ensure the procurement of adequate working materials, tools, equipment and machineries. The identified working materials, tools, equipment and machineries required are listed in Table 6.

Table 6: List of identified working materials, tools, equipment and machineries required

S/No	Item description	Quantity
1	Computers	12
2	Scanners	3
3	Photocopying Machine	3
4	Stationeries	To be quantified
5	Electrical tool box	2
6	Mechanical tool box	3
7	Torch light for security	16
8	Uniforms	16
9	Protective clothing for operators and field staff	To be quantified
10	Knapsack sprayers	To be quantified
11	Tractors with complete implements	12

Even though the study was able identify quite a range of items required by the organization, however in some cases there is need to carry out an inventory of the actual quantity of the items required. In addition, bearing in mind not all the items could be procured at once, there is need to prioritize them such that procurement is carried out in order of priority. For the procurement of machineries, each of the Projects should have sets of machineries for their operations based on their size and especially when operating at full capacity.

3.7.3. Provide adequate office accommodation and furniture

Inadequate office accommodation and furniture was identified as a factor creating unfavorable environment for some staff to carry out their duty. Some of the SRRBDA staff especially those at the headquarters are crowded in only few rooms as offices. There is urgent need to provide additional office accommodations and equip them with appropriate furniture. The organization is advised to evaluate and determine the quantity of additional offices and furniture required. This will assist to create comfortable environment for the staff to work.

3.7.4. Provide archiving system in SRRBDA

There is an urgent need for appropriate archiving of documents (records, official papers, pamphlets, etc.) in SRRBDA as indicated by most of the staff. Also, as observed during the assessment exercise, the room designated in the head office as library for archiving of vital documents of the Authority was in a poor state. Thus, there is need to provide appropriate archiving system for the various departments and units of the Authority. This will facilitate appropriate storing of official papers, records and other important documents in the organization.

3.7.5. Improve power supply in Jibiya irrigation project

Short supply of electricity is identified as a concern especially at the Jibiya Irrigation Project. SRRBDA needs to ensure availability of regular power supply to the project units. The Authority may consider connecting its projects particularly the Jibiya Project to the National Grid based on the initial design of the project. Otherwise, the Authority may have to continue to operate fully on the generating sets as source of power supply. However, using generators may require procuring new ones or a cost benefit analysis in relation to running and maintenance the existing generating sets need to be made in comparison with purchasing new sets.

3.7.6. Advocate for increase funding and direct execution of maintenance works

Policy constraint is identified as a critical factor hindering effective maintenance of facilities especially at the project units. However, it is important to note that for any field office to be active and functional, funds for basic maintenance works are required. For this reason, there is need to find ways of improving the procedure of maintaining available vehicles, machineries and equipment especially broken-down ones. One way is to assess the viability of providing field operation funds to include maintenance works (repair of broken-down vehicles, machineries, equipment and other facilities) where feasible. Another way is for SRBDA management to advocate for increase funding from FMWR to include budget allocation for direct execution of maintenance works based on peculiarity of activities of the organization. In addition, the SRRBDA Management in collaboration with the Workshop Manager need to establish frameworks for maintenance in the Authority and look inward if the required manpower is available otherwise repairs will definitely have to be outsourced to specialist.

3.7.7. Develop measure for mitigating flood at Goronyo irrigation project

Based on field observations and interactions with the profiled staff, the Goronyo irrigation field is being threatened by flood. According to the staff, flooding of the irrigation field has become a yearly occurrence causing lot of damages to farm land, crops and irrigation structures. Based on field assessment and suggestion from the staff, it is recommending that the Authority should construct a protection dyke covering 16km in two sectors (Falalia and Takakume) and also install non-return valve at Takakume. This will assist in preventing flood water from getting into the irrigation fields and damaging the structures therein.

3.8. Capacity Development (CD) Plan

Implementing capacity development actions requires a good plan to be in place that can facilitate the implementation of the agreed actions. This will assist in guiding the implementing institution to ensure that staff remains on top skills they need, motivated and happy with the work they do. At the same time the

institution will know what do to maintain optimal working conditions. This section presents CD plans for the SRRBDA, and it is aimed at facilitating the implementation of the CD actions with clear responsibilities. The plans are shown in Tables 7, 8 and 9. The plans are divided into the three groups: Skills, Knowledge and Experience - Attitude and Motivation - Enabling Environment.

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Table 7: Capacity development plan – skill, knowledge and experience

S/No	CD action	Level of Priority	Stakeholders Involved	Who is Responsible	Who needs to Support	Budget Required (Yes/No)	Time Frame
1	Employ more qualified staff in relevant fields (technical, admin, account, etc.) Technical Staff - Agric. Engineer (3) - Civil Engineer (2) - Electrical Engineer (2) - Tractor Operators (9) - Heavy Duty Machine Operators (3) (Jibiya) - Technician (Mechanical) (5) - Technician (Electrical) (3) (Jibiya) Field Staff - Extension Officers (11) - Agronomists (2) - Intake Officers (10) (Jibiya) Security and Office Assistants (Messengers) - Out-source security services (13 additional) - Office Assistants (3)	5	Headquarters and Project Units (Goronyo, Shagari and Zauro Polder)	Project Managers, Head of Units	MD SRRBDA, All Executive Directors (EDs)	Yes	To be decided by SRRBDA
2	Institutionalize regular staff meeting	3	All Departments and Units	Project Managers, Head of Units	MD SRRBDA, All EDs		“
3	Provide adequate trainings to staff • Key officers of SRRBDA – Leadership and Coordination training; • Procurement officers – Contract management and administration; • Security - Surveillance and computer security training; • Pump operator - Professional training.	4	• All staff • Key Officers of SRRBDA • Procurement Officers • Security Officers • Pump Operators	Project Managers, Head of Units	MD SRRBDA, All EDs		“

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Table 8: Capacity development plan – attitude and motivation

S/No	CD action	Level of priority	Stakeholders involved	Who is responsible	Who needs to support	Budget required (Yes/No)	Time frame
1	• Develop clear schedule of duties and distribute to staff; • Stop favouritism and adhere strictly to the schedule of duties in work activities in SRRBDA; • Follow hierarchy of command in the discharge of duties.	5	All staff	Project Managers, Head of Units	MD SRRBDA, All EDs	No	To be decided by SRRBDA
2	• Consider rewards for hard work and long service; • Provide incentives for field staff working beyond official hours.	3	All staff	Project Managers, Head of Units	MD SRRBDA, ED Admin & Finance	Yes	“
3	Ensure prompt payment of allowances (DTA, hazard, non-accident allowances)	4	All staff		MD SRRBDA, ED Admin & Finance	Yes	“
4	• Renovate all staff quarters including those at the Project Units; • Repair all damage irrigation structures.	5	All staff occupying SRRBDA quarters	Head, Maintenance Unit	ED Engineering	Yes	“

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Table 9: Capacity development plan – enabling environment

S/No	CD action	Level of Priority	Stakeholders Involved	Who is Responsible	Who needs to Support	Budget Required (Yes/No)	Time Frame
1	Advocate for increase funding and improve flow of funds to SRRBDA	5	• SRRBDA Headquarter • Project Units	All EDs, Project Managers	FMWR, MD SRRBDA,	Yes	To be decided by SRRBDA
2	• Provide adequate funds for outsourcing more security personnel and • Introduce internal mechanism for control of outsourced security personnel	5	Security Officers	Project Managers, Admin. Officer	MD SRRBDA, ED Admin & Finance	Yes	“
3	Provide adequate working materials, tools, equipment and machineries • Provide adequate ICT facilities (computers, scanners and photocopying machines) • Purchase and installed modern instruments (deep-meters, piezometers) • Provide adequate working materials (touch lights, uniforms and protective clothes, stationeries, fuel, lubricants and spares) • Tool boxes, machinery and farming implements (Electrical and mechanical tools, generators, tractors and implements)	5	All staff • Headquarters, • All Departments and Units • Project Units	All EDs, Project Managers, Head of Units	MD SRRBDA, ED Admin & Finance	Yes	“
4	Provide adequate office accommodation and furniture	5	• All staff • All Departments • All Units	All EDs, Project Managers, Head of Units	MD SRRBDA, ED Admin & Finance	Yes	“
5	Provide archiving system to various departments and units for storing of vital documents	4	• All Departments • All Units	Project Managers, Head of Units	MD SRRBDA, All EDs	Yes	“
6	• Ensure adequate maintenance of equipment, machineries and irrigation structures • Provide sufficient funds for maintenance	5	• All Departments • All Project Units	Project Managers, Head of Units	MD SRRBDA, All EDs	Yes	“
7	Improve power supply in Project Units (Jibiya)	5	Jibiya Irrigation Project	Project Manager	MD SRRBDA, ED Engineering	Yes	“
8	• Construct protection dyke covering 16km in two sectors (Falalia and Takakume) • Install non-return valve at Takakume sector	5	Middle Niger Valley Irrigation Scheme, Goronyo	Project Manager	ED Engineering	Yes	“

4. CONCLUSION

During the assessment, capacity development was taken to be more than disconnected or one-off training events or successive workshops. Rather it is about a process that links directly with overall sector objectives, and the expected roles and responsibilities of the assessed institution. Thus, the performance of SRRBDA was conceived as falling within the three broad areas: Skill, Knowledge and Experience; Attitude and Motivation and Enabling Environment. These are regarded as indices of institutional capacity which demonstrate performance in terms of providing viable environment where people work efficiently and effectively. In this regard, people at work require three factors to be in place if they are to work to their full potential:

- Staff need the correct skills, knowledge and experience for the job (which requires the job to be adequately understood and described).
- Staff need to be motivated to work (adequate rewards (e.g. financial, career paths, recognition) and working conditions, leadership, social environment and enthusiasm etc.); and
- The work conditions must be right (enabling environment) (such as management structures, institutional arrangements, allocation of responsibilities, budget allocation and flow etc.).

The assessment had enabled the staff of SRRBDA to analyze the inherent challenges facing the Authority, jointly work out solutions that would lead to addressing the institutional and human capacity challenges of the organization. It has shown that issues relating to enabling environment are among the dominant factors that are needed to be addressed in the service delivery of SRRBDA in the Irrigation sub-sector. Other factors include issues to do with attitude and motivation and skills, knowledge and experience. Staff of SRRBDA want to make things better, and can put things right largely if factors causing low productivity have been tackled. Analysis of the assessment conducted has shown that SRRBDA has the potential to become a more viable, effective and efficient institution that can contribute towards achieving the national food security objectives of the government. SRRBDA should be equipped and staffed with adequate qualified professionals who are committed to providing the required service delivery. Thus, all the capacity gaps identified in SRRBDA should be considered as a whole when trying to improve service delivery of the Authority. Finally, the findings and recommendations from this participatory institutional assessment are important information for SRRBDA and stakeholders in the irrigation sub-sector that could be utilized to take corrective actions and make decisions on the improvement plan.

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6. CONFLICT OF INTEREST

There is no conflict of interest associated with this work.

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APPENDIX

Table A1: Summary of critical potholes

S/No	Critical Potholes	Reasons for the Pothole
1	Inadequate funding for day-to-day operation and maintenance	• Poor and late release of budgetary provisions for project operations; • No financial backing for project activities; • Poor overhead leading to power shortage due to inadequate payment of electricity bills; • Situation affecting moral and enthusiasm of staff especially those at the project stations.
2	Inadequate manpower	• Too much of work load; • Most technical staff have retired or left the system and vacancies created have not been filled; • No enough qualified staff (technical, driver/mechanic, survey, admin and account staff); • Inadequate funding for outsourcing security personnel.
3	Inadequate office accommodation and facilities	• No office accommodation for some staff (Procurement Staff and Admin Officers) • Lack of comfortable office accommodation and furniture is affecting staff performance.
4	Favouritism and improper assigning of responsibility	• Staff working as full employees of the organization without having schedule of duty to operate; • No respect for schedule of duty in assigning of responsibility; • Your superior doing your work; • The situation makes the system not conducive for selfless service and better performance.
5	No rewards for hard work and long service	• Field activities often extend beyond stipulated working hours and no incentives for working beyond official hours; • Officers who have served the Authority for long years are not recognized and appreciated.
6	Inadequate provision of working materials, tools, equipment and machineries	• Working tools and equipment in short supplies such as tool boxes (Mechanical and Electrical works), deep-meters, piezometers, tractors and implements, computers, scanners and photocopying machines in Zauro, Shagari, and Middle Rima Valley); • Inadequate supply of working materials like stationeries, touch

		lights, uniforms and protective clothing for security, drivers, technical and field personnel and fuel and lubricant for running of generators.
7	Lack of archiving system	• No archiving system especially for administration, finance, legal, and procurement units; • Most documents are left littering in offices without proper storage system; • Lack of archiving system is a big challenge for efficient and effective information management.
8	Insufficient power supply	• Generators main source of power for Jibiya Irrigation Project's water pumps; • Generators are obsolete, aged and spares difficult to get; • Only two out of the four generators in operation and characterized with high fuel consumption and frequent breakdown; • Functional generators operating below full capacity and cannot cater for water needs of all the irrigation schemes under the Project.
9	Communication gap due to absence of regular staff meeting	• Staff not aware of happenings within the organization and project units; • Lack of regular meetings and briefings between Head of Departments and subordinates; • Communication gap, a big challenge in management of staff in SRRBDA.
10	Delay and non-payment of allowances	• For some staff allowances are no longer paid promptly; • For field and other staff DTA, hazard allowances and non-accident bonus are not being paid; • Delays and non-payment of allowances often affect staff morale and dampen their enthusiasm to work.
11	Inadequate maintenance of equipment, machineries and facilities	• Policy of contracting maintenance works in the RBDAs' operation – major constraint to maintenance of SRRBDA facilities; • Staff also attributed blamed to inadequate funding and lean overhead.
12	Inadequate training of staff	• Many staff have not been trained since employment; • Some staff feel rather behind in terms of new knowledge and advancement in their fields;

		• Computer operation, office management, budget planning and auditing are among areas where training is required.
13	Dilapidated irrigation structures and houses	• Canals in Jibiya Irrigation in dilapidated condition; • Irrigation structures out of shape and in need of repairs (Figure 5); • Lack of land leveling for Shagari Irrigation Scheme; • Some staff houses roofs are either removed or leaking (Figure 5); • Some buildings threatening with cracks and crumbling walls.
14	Flooding problems causing inundation of irrigation lands (Goronyo Project)	• Goronyo irrigation field is being threatened by flood and it has become a yearly occurrence; • Flood causes damages to farm lands and crops, irrigation structures and buildings.