



FEDERAL MINISTRY OF WATER RESOURCES

IMMEDIATE AND LONG TERM STRATEGIES FOR THE WATER SECTOR

(2016 – 2030)

By Engr. Suleiman H. Adamu, FNSE
Honourable Minister



FOREWORD



I am delighted to present the **Water Resources Roadmap (2016-2030)** as approved by the President, **Muhammadu Buhari, GCFR**, in June 2016. The Roadmap encompasses the following:

- i. Establishment of a policy and regulatory framework for the sector;
- ii. Prioritization and implementation of the Ministry's Projects;
- iii. Development and implementation of a National Irrigation Development Programme (2016-2030) to boost food production;
- iv. Identification of Dams with Hydro Electric Power Potentials for Development;
- v. Development and implementation of a National Water Supply and Sanitation Programme to attain the Sustainable Development Goals (SDG 6);
- vi. Development of a Blueprint to Strengthen the River Basin Development Authorities as enablers for food security and socio-economic development;
- vii. Identifying alternative sources for funding the delivery of Water Supply and Sanitation through enhanced collaboration with Development Partners, States and Local Government Authorities, Communities and the Private Sector.

To actualize the Roadmap, we have identified a detailed implementation plan, the execution of which is now fully on course. In this regard, we are in strong collaboration with Federal Ministries of Agriculture and Rural Development, Power, Finance, Budget & National Planning, Environment, Health, as well as Infrastructure Concession and Regulatory Commission (ICRC), Nigeria Sovereign Investment Authority, Bureau for Public Enterprises, State Governments and other Stakeholders. I am confident that implementation of the Roadmap will be accelerated as we move into the third quarter of the year and beyond. This Roadmap will support sustainable development in the Water Sector, the nation's food security goals and guarantee lasting prosperity of our dear Country.

Engr. Suleiman H Adamu, FNSE

Honourable Minister, Federal Ministry of Water Resources

August 2016



Presentation Outline

- The Ministry
- Current Status of Water Resources Sector
- The Road Map for Improvement of the Water Resources Sector
- Integrated Water Resources Management
- Prayer



The Ministry

The Ministry (I)

The Mandate of the Ministry is to develop & implement policies, projects & programmes that will enable sustainable access to safe and sufficient water to meet the social, cultural, environmental and economic development needs of all Nigerians.

Vision Statement:

To provide sustainable access to safe and sufficient water resources to meet the cultural, social and economic development needs of all Nigerians, for all uses, in ways that contribute to enhancing public health, food security, poverty alleviation while maintaining the integrity of freshwater ecosystems of the nation.

Mission Statement:

To be the vehicle of the nation's integrated water resources management contributing optimally to the socio-economic activities of the nation through comprehensive planning; facilitating and creating enabling environment for integrated conservation, development, management of various water uses for preservation of freshwater ecosystem, adequate access to safe water and sanitation, production of sufficient food and provision of employment opportunities.



The Ministry (II)

ORGANIZATIONAL STRUCTURE

SERVICE DEPARTMENTS

- Finance and Accounts
- Human Resources Management
- Planning, Research and Statistics
- Procurement
- General Services
- Internal Audit
- Reforms Coordination & Service Improvement
- Special Duties

OPERATIONAL DEPARTMENTS

- Dams and Reservoir Operations
- Irrigation and Drainage
- River Basin Operations and Inspectorate
- Water Quality Control and Sanitation
- Water Supply

SERVICE UNITS

- Legal
- Press and Public Relations
- Anti Corruption and Transparency
- SERVICOM
- Gender and Human Rights
- Climate Change
- Protocol
- Stock Verification
- Public Private Partnership

AGENCIES AND PARASTATALS

AGENCIES

- National Water Resources Institute
- Nigeria Hydrological Services Agency
- Gurara Water Management Authority
- Nigeria Integrated Water Resources Management Commission

RIVER BASIN DEVELOPMENT AUTHORITIES

- Anambra Imo- River Basin Development Authority, Owerri, Imo State;
- Benin- Owena River Basin Development Authority, Benin City, Edo State;
- Chad Basin Development Authority, Maiduguri, Borno State;
- Cross River Basin Development Authority, Calabar, Cross River State;
- Hadejia - Jama'are River Basin Development Authority, Kano, Kano State;
- Lower Benue River -Basin Development Authority, Makurdi, Benue;
- Lower Niger River Basin Development Authority, Ilorin, Kwara State;
- Niger Delta Basin Development Authority, Port –Harcourt, River State;
- Ogun-Osun River Basin Development Authority, Abeokuta, Ogun State;
- Sokoto Rima River Basin Development Authority, Sokoto, Sokoto State;
- Upper-Benue River Basin Development Authority, Yola, Adamawa State; and
- Upper Niger River Basin Development Authority, Minna, Niger State.

MAIN MINISTRY

1

- 5 Nos. Operational Departments
- 8 Nos. Service Departments

- 9 Nos. Service Units
- 19 Nos. Agencies & Parastatals (including 12Nos. RBDAs)



Current Status of the Water Resources Sector



Nigeria's Water Resources Potential

Nigeria's surface and ground water resources is estimated at above 250 Billion cubic meters

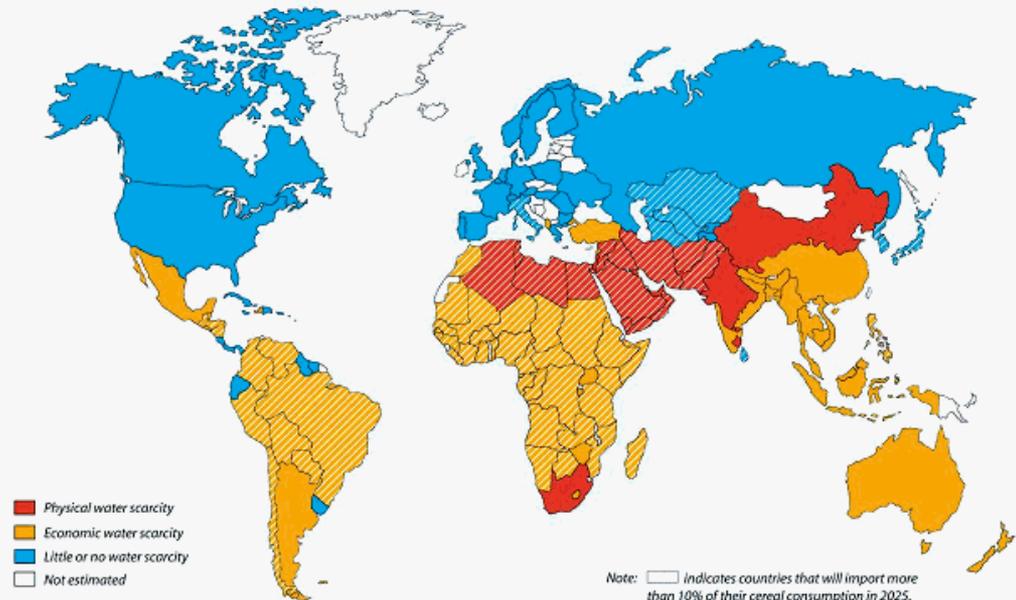
1,800 m³/capita/year of renewable water resources available

More than the **1,000 m³/capita/year** benchmark for water poor country

*Nigeria is **NOT** a water poor Country. There is enough water resource for domestic, Industrial, Agricultural, Hydropower, Transportation, and Recreational use.*

*However, Nigeria is ranked as an **Economic Water Scarce** Country, meaning there is Lack of investment and proper management to meet demand*

Projected Water Scarcity in 2025

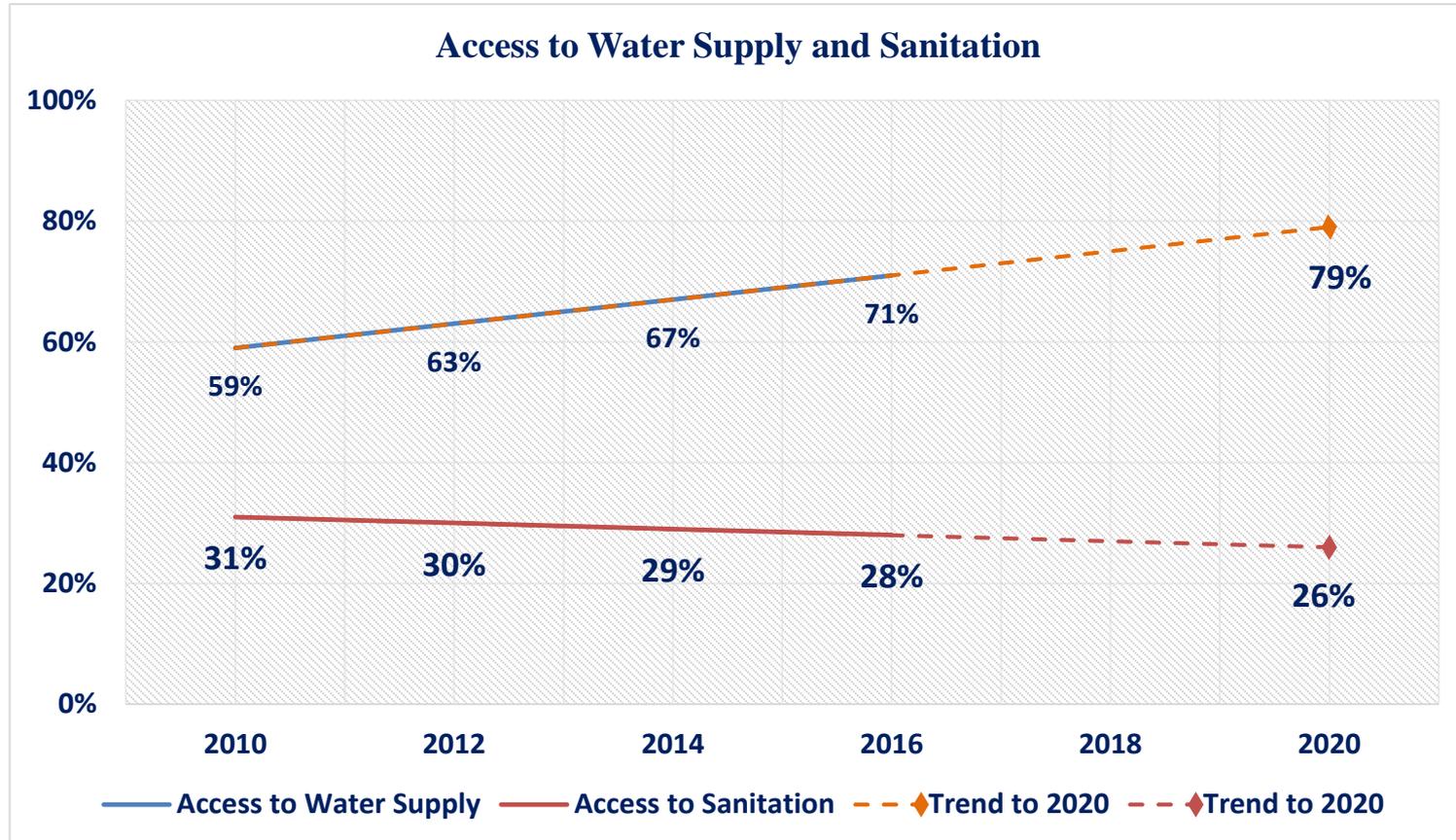


The Water Supply Sector

- **Current National access to water supply in 2015 is 69%.**
- **This implies that 31% or 52.7 million Nigerians do not have access to water supply**
- **It is imperative to change the trend to achieve 100% access to water supply to our citizens by the year 2030 (the SDGs target year) when the population is estimated to grow to about 257million**



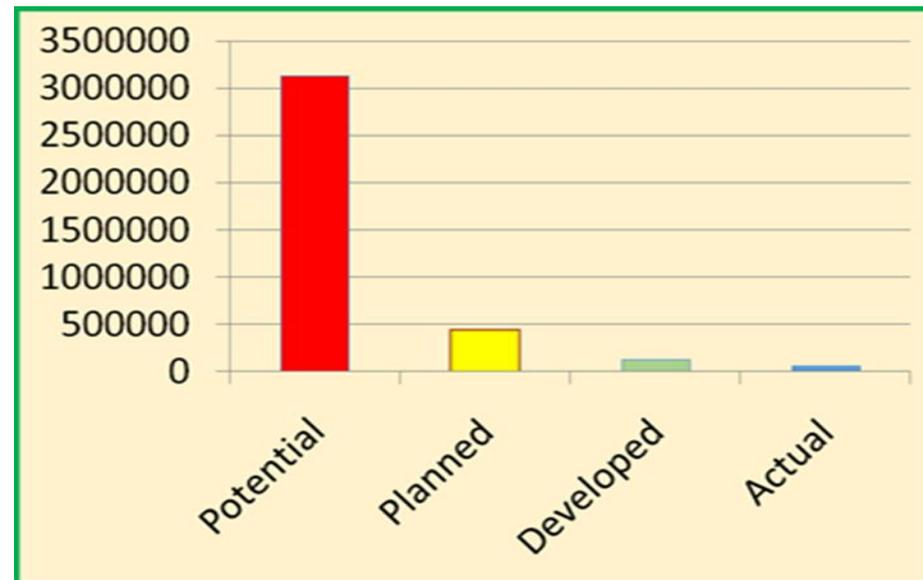
The Water Supply Sector



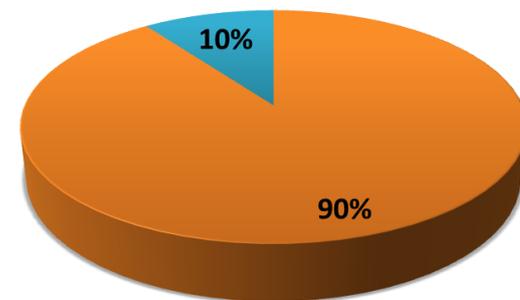
Presently, 31% (52.7million) of Nigerians, mostly in the Rural Areas, are still without access to improved drinking water sources. Access to Sanitation is on the decline (with an increase in open defecation)

Irrigation Facilities

- **Nigeria has potential of 3.1 million Ha of irrigable land**
- **440,000Ha is planned for irrigation**
- **Developed irrigation area is 130,000Ha**
- **Actual Irrigated area is only 70,000Ha**



There are 3.1 million hectares of Irrigable Land



■ Irrigable Land without Facilities ■ Irrigable Land with Facilities

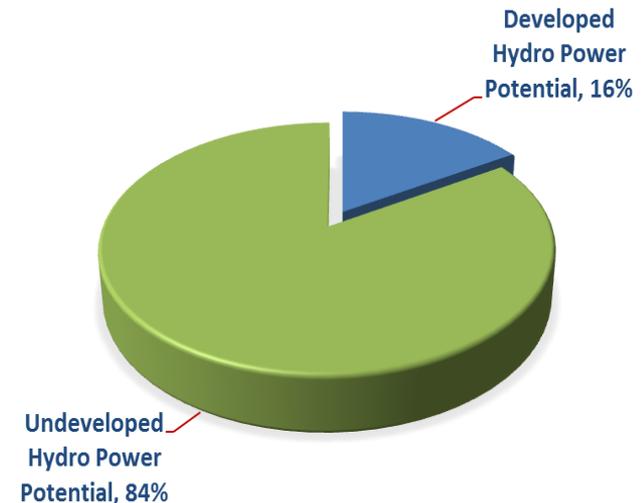
Hydroelectric Power Generation

The National Water Resources Master Plan indicates that

- Nigeria has a Hydro-power Potential of about 12,220MW
- Only about 1,930MW has been developed at Kainji, Jebba and Shiroro dams.
- There are 17 existing dams with combined potential hydropower capacity of over 200 MW that are yet to be exploited.
- 4No. Dams that are under study & design have combined potential capacity of about 4,320 MW, including Mambilla (3,050 MW), Gurara II (360 MW), Dasin Hausa (150 MW) and Zungeru (760 MW)
- Several other sites with total potential of 6,460 MW are yet to be fully studied and developed



STATUS OF HYDRO POWER POTENTIAL OF 12,220MW

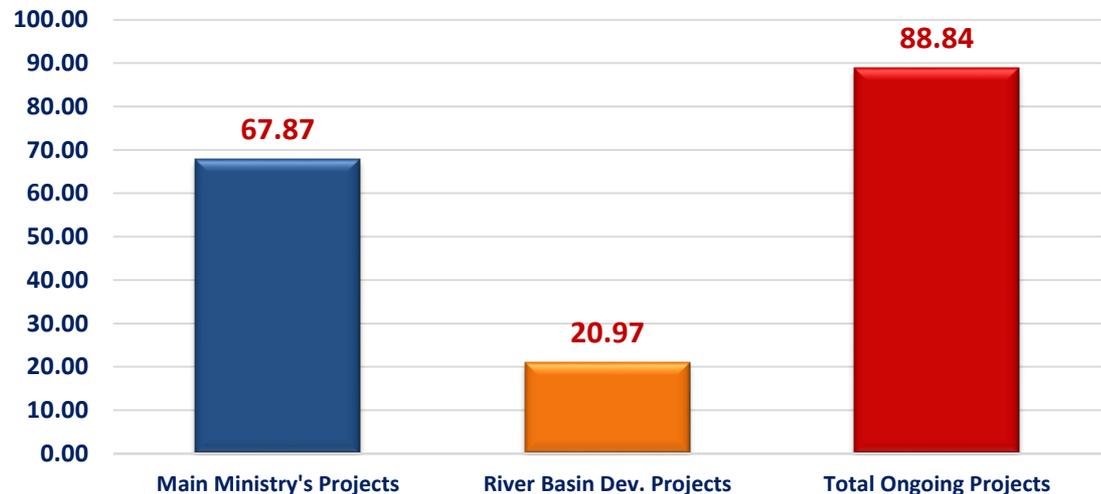


Status of the Ministry's On-going Projects

- A total of 116 projects are ongoing; (Total Contract Cost: ₦505,571,966,351.10)
- Most of the projects are at 40% - 60% level of completion;
- Some projects have been stalled for up to 15 years;
- Total outstanding liabilities for ongoing projects: ₦88,848,112,579.77 as at 2015
(₦67,877,040,787.18 Main Ministry Projects, ₦20,971,071,792.59 RBDA Projects)
- Total Contractual Commitment to Completion: ₦264,990,081,982.53
- Focus is on prioritization and completion of ongoing projects.

The Ministry has commenced Technical audit of the ongoing projects to assess viability, prioritize, and determine most appropriate option for completion.

Outstanding Liabilities of the Ministry (₦ Billions)



Water Resources Master Plan

- 1st Master Plan developed in 1995 with the support of JICA
- Revised in 2013 to have a long term sector development plan up to 2030
- 8 Hydrological Areas Delineated
- Short, Medium, and Long term Projects identified
- All identified projects costed and prioritized



Water Resources Masterplan

Ministry is committed to aligning all future projects in accordance with the Master plan for sustainability



Road Map for Improvement of the Water Resources Sector

Ministerial Retreat (December 2015)

- **A Ministerial Retreat was held on 11th – 13th December, 2015 to fully appreciate the Ministry’s opportunities and challenges.**
- **5 major issues were distilled which formed basis of the Road Map:**
 - (i) Repositioning the Ministry for Efficient Service Delivery.**
 - (ii) Executing the Ministry’s Mandate More Efficiently.**
 - (iii) Identifying Alternative Sources of Funding Projects**
 - (iv) Strengthening River Basin Operations**
 - (v) Enhancing Monitoring and Evaluation.**



Road Map Developed from the Retreat

Immediate and long term plans for the water sector...

1. **Conclusion of the Draft National Water Resources Policy and National Water Resources Bill**
2. **Organization and Manpower Review of the Ministry towards Repositioning it for Enhanced Service Delivery**
3. **Prioritizing and executing the Ministry's Projects based on established criteria.**
4. **Developing and implementing a National Irrigation Development Programme (2016-2030)**
5. **Identification of Dams with Hydro Electric Power Potential for Development.**
6. **Developing and implementing a National Water Supply & Sanitation Programme to attain SDGs.**
7. **Development of Blueprint and Action Plan to Strengthen the River Basin Development Authorities.**
8. **Creating partnerships for alternative sources of funding projects.**



Details of the Road Map



The National Water Resources Policy and Bill

- Both documents have been in draft form for upward of 10 years
- Policy, when approved, will establish effective water sector governance
- Bill, when passed into law, will establish legal and regulatory framework for the water sector
- Both documents will create a stable and attractive environment for investors and development partners in the water sector
- The Water Law will be a Significant Feat



The draft bill has been concluded and forwarded to the Office of the Attorney General of the Federation for vetting, and subsequent presentation to the Federal Executive Council and the National Assembly



Organization and Manpower Review

- Streamlining responsibilities of the Ministry and her Agencies to avoid overlap.
- Professionalization of the Ministry's Departments and Agencies, especially in the areas of Engineering Operations, Planning, Research and Statistics and River Basin Operations.
- Urgently addressing the Ministry's human capacity gap and deficiencies through internal posting, employment and regular staff training.



A HR firm is presently assessing the Ministry's Manpower and Organizational structure, and the results will be implemented in consultation with the Federal Civil Service Commission and the Office of the Head of Service



Prioritization of the Ministry's On - Going Projects (I)

There are 116 Nos. On-Going Projects in the Main Ministry:

- **Irrigation & Drainage (38 No Projects)**
- **Dams (37 No. Projects)**
- **Water Supply (41 No. Projects)**

Projects have been prioritized based on established criteria:

- **Stage of completion / time to completion;**
- **Cost to completion;**
- **Envisaged Impact on citizens and the economy;**
- **Age of Abandonment;**
- **Overall Project Viability;**
- **Availability of Funds to Execute the Project.**



Prioritization of the Ministry's On - Going Projects (II)

Out of the 116 No. ongoing Projects, 38 Nos. are prioritized based on the Criteria:

- **Irrigation & Drainage (10 No Projects)**
- **Dams (13 No. Projects)**
- **Water Supply (15 No. Projects)**

Expected Projects Outputs;

- **71,873 Ha additional area of irrigation**
- **887,971 direct jobs to be created**
- **252,921 tons of cereals/grains to be produced**
- **620,400M3/day additional amount of treated water available**
- **13.5 million additional population will be served with potable water.**

For New Projects, only fully prepared with detailed engineering designs and all other relevant bid documents will be considered



Summary of Funding Requirements for Prioritized Projects

S/N	Projects			
		Total Contract Amount (N)	Amount Paid (N)	Required Cost to Completion (N)
1	Irrigation & Drainage	220,164,104,095.00	26,384,658,596.00	193,779,445,499.00
2	Dams	278,474,105,588.88	169,681,555,404.79	108,792,550,184.09
3	Water Supply (Urban & Small Towns Only)	47,108,839,805.00	11,784,241,857.00	35,324,597,948.00
Total (N)		545,747,049,488.88	207,850,455,857.79	337,896,597,948.09



National Irrigation Development Programme (2016 – 2030)

- FGN long term irrigation development strategy for the period of 2016-2030 to be implemented in three phases:

Phase I: 2016-2020 = 100,000 Ha

Phase II: 2021-2025 = 170,000 Ha

Phase III: 2026-2030 = 225,000 Ha

Total = 500,000 Ha by 2030

- Additional 1,500,000Ha of irrigable land is expected to be developed by the private sector and State Governments within the same period
- 6,185 Ha of irrigable land, 32 dams and 33 ponds are being made available for commercial farming across the 12 RBDAs in 2016
- Most Dams that are 30 years and above have accumulated sediments and silted up. The Ministry will undertake proper assessment including cost benefit analysis to decide on optimal procedure for desilting where feasible.



The FGN requires average yearly investment of N59 Billion to attain 78,000Ha of planned irrigation by 2019 and total of N1.5 Trillion to attain 500,000 Ha by 2030



Dams with Hydro Electric Power Potential (I)

17 existing dams with combined potential hydropower capacity of 200 MW (yet to be exploited)

S/N	NAME OF PROJECT	LOCATION (STATE)	CAPACITY WITH IMPROVED TURBINE TECHNOLOGY
			(MW)
1	GURARA DAM	KADUNA	30
2	OYAN DAM	OGUN	13.5
3	MBOWO DAM	ENUGU	0.19
4	BAKOLORI DAM	SOKOTO	4.5
5	KASHIMBILLA DAM & HYDROPOWER	TARABA	40
6	WAYA DAM	BAUCHI	0.225
7	CHALLAWA GORGE DAM	KANO	8

8	DADIN KOWA DAM	GOMBE	51
9	OGWASHIKU DAM	DELTA	1.5
10	ZOBE DAM	KATSINA	4.5
11	KAMPE DAM	KOGI	3
12	IKERE GEORGE DAM	OYO	9
13	KIRI DAM	ADAMAWA	20
14	JIBIYA DAM	KATSINA	4.5
15	OWENA DAM	ONDO	4.5
16	DOMA DAM	NASARAWA	4.5
17	TIGA DAM	KANO	2
TOTAL			200.915



Dams with Hydro Electric Power Potential (II)

4 Dams under study & design with combined potential hydropower capacity of 4,320 MW

S/N	NAME OF PROJECT	LOCATION (STATE)	CAPACITY WITH IMPROVED TURBINE TECHNOLOGY (MW)	REMARKS
1	MAMBILLA DAM	TARABA	3050	Study & Design Completed by Ministry of Power
2	GURARA II DAM AND HYDROPOWER	KADUNA	360	Study & Design Completed by Ministry of Water Resources
3	DASIN HAUSA DAM	ADAMAWA	150	Ongoing Study and Design by Ministry of Water Resources
4	ZUNGERU DAM	NIGER	760	Ongoing by Ministry of Power
TOTAL			4320	



Dams with Hydro Electric Power Potential (I)

33 Dams under planning with combined potential hydropower capacity of 6,460 MW

S/No	Site	River	Feasible Capacity (MW)	S/No	Site	River	Feasible Capacity (MW)
1	Lokoja	Niger	1950	18	Suntai	Donga	55
2	Onitsha	Niger	750	19	Su	Taraba	45
3	Markudi	Benue	600	20	Sakin Danko	Suntai	45
4	Ikom	Cross	400	21	Gudi	Mada	40
5	Yola	Benue	350	22	Kiri	Gongola	40
6	Katsina-Ala	Katsina-Ala	260	23	Richa I	Mosari	35
7	Beli	Taraba	240	24	Kombo	Gongola	35
8	Donka	Niger	225	25	Gwaram	Jama`are	30
9	Karamti	Taraba	200	26	Ifon	Osse	30
10	Amper	Amper (Plateau)	200	27	Richa II	Daffo	25
11	Afikpo	Cross	180	28	Kura I	Sanga	25
12	Atan	Cross	180	29	Mistakuku	Kura	20
13	Garin Dali	Taraba	135	30	Zurubu	Kaduna	20
14	Gembu	Donga	130	31	Kura II	Sanga	15
15	Manyo yin	Taraba	65	32	Isom	Gurara	10
16	Kam	Taraba	60	33	Kafanchan	Kongum	5
17	Sha	Sha	60	TOTAL			6460



Partnership for Expanded Water, Sanitation & Hygiene (PEWASH), 2016–2030 (I)

- A National Multi-Sector Collaboration aimed at:
 - (i) Improving water supply (particularly in rural and small towns)
 - (ii) Sanitation in public places with focus on eradicating open defecation.
- This is a collaborative/ partnership intervention model between major stakeholders, including the Federal, State, LGAs, Communities, Donor Agencies/ Development Partners and the Private Sector towards achieving the SDGs in Nigeria.

Programme Phases:

- Phase I: 2016 - 2020
 Water Supply Cost: N108 Billion
 Sanitation Cost: N72 Billion
- Phase II: 2021 – 2025
 Water Supply Cost: N130 Billion
 Sanitation Cost: N86 Billion
- Phase III: 2026 - 2030
 Water Supply Cost: N147 Billion
 Sanitation Cost: N97 Billion
- Total Phase I - III: 2016 – 2030
 Water Supply Cost: N386 Billion
 Sanitation Cost: N302 Billion

Partnership Cost Sharing Formula

Water Supply:

FGN	20%
States	20%
LGAs	10%
Private Sector	5%
Dev. Partners	40%
Community	5%

Sanitation:

FGN	20%
States	20%
LGAs	10%
Private Sector	20%
Dev. Partners	25%
Community	5%



Partnership for Expanded Water, Sanitation & Hygiene (PEWASH), 2016–2030 (II)

Outcomes

- **Soft Outcomes**
 - Improved Water Sector Coordination
 - Institutionalised Water Sector Financing Framework
 - Operational Monitoring and Evaluation Framework
- **Hard Outcomes**
 - Functional Water Supply Systems in Nigeria
 - Functional Toilets in public areas of both rural areas and small towns

Programme Implementation:

Water Supply: Annual Installation of an average of 2,623 water supply systems

- **2016 – 2020: Average target of 13,110 water supply systems**
- **2021 – 2025: Average target of 13,110 water supply systems**
- **2026 – 2030: Average target of 13,110 water supply systems**

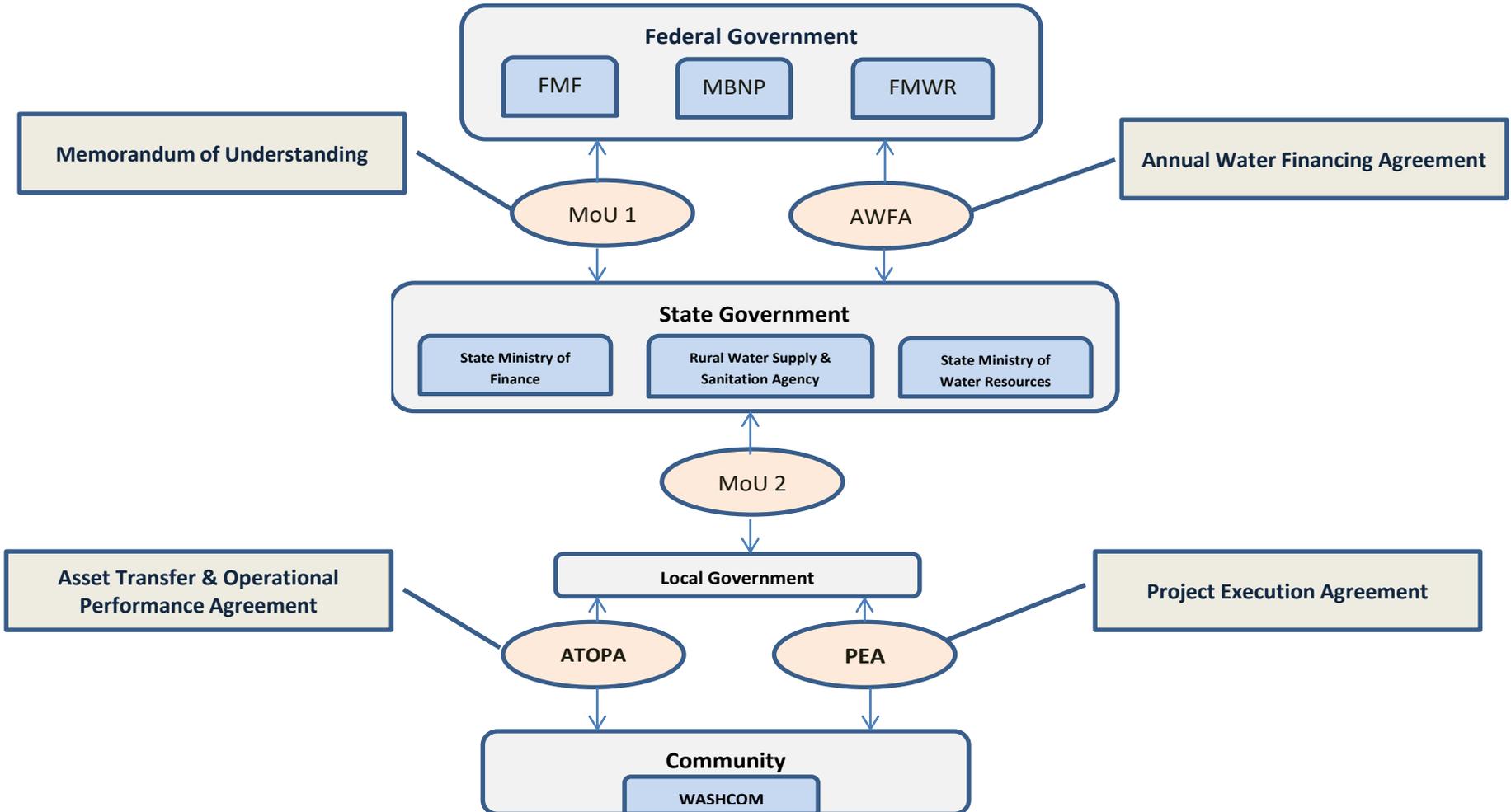
Sanitation: Annual Installation of an average of 2,020 public toilets

- **2016 – 2020: Average target of 10,100 toilets**
- **2021 – 2025: Average target of 10,100 toilets**
- **2026 – 2030: Average target of 10,100 toilets**



Partnership for Expanded Water, Sanitation & Hygiene (PEWASH), 2016–2030 (III)

Partnership Arrangement



Partnership for Expanded Water, Sanitation & Hygiene (PEWASH), 2016–2030 (IV)

Details of Phase I Estimates (2016 – 2020)

• Water Supply

YEARS	FGN	States	LGAs	Private Sector	Dev. Partners	Community	TOTAL
	20%	20%	10%	5%	40%	5%	
2016	3,985,744,491.85	3,985,744,491.85	1,992,872,245.93	996,436,122.96	7,971,488,983.71	996,436,122.96	19,928,722,459.27
2017	4,153,145,760.51	4,153,145,760.51	2,076,572,880.26	1,038,286,440.13	8,306,291,521.03	1,038,286,440.13	20,765,728,802.56
2018	4,327,577,882.45	4,327,577,882.45	2,163,788,941.23	1,081,894,470.61	8,655,155,764.91	1,081,894,470.61	21,637,889,412.27
2019	4,509,336,153.52	4,509,336,153.52	2,254,668,076.76	1,127,334,038.38	9,018,672,307.03	1,127,334,038.38	22,546,680,767.59
2020	4,698,728,271.96	4,698,728,271.96	2,349,364,135.98	1,174,682,067.99	9,397,456,543.93	1,174,682,067.99	23,493,641,359.82
TOTAL	21,674,532,560.30	21,674,532,560.30	10,837,266,280.15	5,418,633,140.08	43,349,065,120.61	5,418,633,140.08	108,372,662,801.52

• Sanitation

YEARS	FGN	States	LGAs	Private Sector	Dev. Partners	Community	TOTAL
	20%	20%	10%	20%	25%	5%	
2016	3,122,038,835.97	3,122,038,835.97	1,561,019,417.98	3,122,038,835.97	3,902,548,544.96	780,509,708.99	15,610,194,179.83
2017	3,253,164,467.08	3,253,164,467.08	1,626,582,233.54	3,253,164,467.08	4,066,455,583.85	813,291,116.77	16,265,822,335.38
2018	3,389,797,374.69	3,389,797,374.69	1,694,898,687.35	3,389,797,374.69	4,237,246,718.37	847,449,343.67	16,948,986,873.47
2019	3,532,168,864.43	3,532,168,864.43	1,766,084,432.22	3,532,168,864.43	4,415,211,080.54	883,042,216.11	17,660,844,322.15
2020	3,680,519,956.74	3,680,519,956.74	1,840,259,978.37	3,680,519,956.74	4,600,649,945.92	920,129,989.18	18,402,599,783.68
TOTAL	16,977,689,498.90	16,977,689,498.90	8,488,844,749.45	16,977,689,498.90	21,222,111,873.63	4,244,422,374.73	84,888,447,494.51

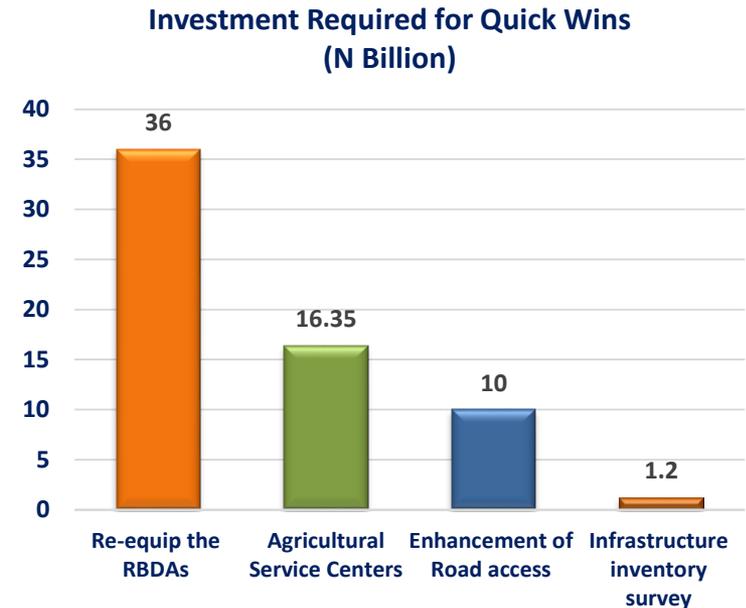
Expected Output (Phase I):

Improve access to safe Drinking Water to additional 20 Million People and adequate Sanitation to 6 Million in public areas by 2020



Development of Blue Print and Action Plan to Strengthen the RBDAs

- The RBDAs remain the most strategically placed FG Agencies to facilitate National Food Security and support employment opportunities
- Quick Wins have been identified for increased agricultural activities and employment generation within 18–24 months:
 - Re-equip the RBDAs with basic plant and machinery
 - Develop Agricultural Service Centers/Farm Settlement Schemes (Songhai Model)
 - Enhance Access Roads to existing RBDA project sites
 - Conduct Infrastructure Inventory Survey to assess the status of all RBDA projects
- Total Investment Requirement for the Quick Wins is **₦63.55 billion**



Partnerships/Alternative Sources of Funding of Projects

- **Ministry's outstanding liability presently stands at ₦ 88.87 billion.**
- **Ministry's total funding requirement for capital projects to 2019 is about ₦261 billion**

...Need for alternative sources of funding the projects

Identified Potential Alternative Sources:

- **Enhanced collaboration with Development Partners on Areas of Assistance**
- **Partnership with States & Local Government Authorities, Communities and Private Sector for Rural Water and Sanitation programmes.**
- **The Natural Resources Fund and Ecological Fund.**
- **Public Private Partnerships (PPPs).**
- **Development Grants, Loans, Bonds, etc.**



Integrated Water Resources Management



Inter Basin Water Transfer Projects (I)

Lake Chad Inter Basin Water Transfer Project

The Challenge

- Climate Change effects on the Lake Chad Basin may endanger the lives of over 40 Million People.
- Lake Chad is now extremely shallow, from as low as 1m to maximum of 12m and suffers severe loss of water through evaporation
- The lake was once considered to be amongst the largest in the World, but since 1963, has shrunk by 90% from a surface area of 25,000km² to less than 2,000km².

Mitigation Measures

- Inter Basin Water Transfer Project to replenish the lake by intercepting about 100 Million Km³ of water from the Congo Basin into Lake Chad

Benefits of the Inter Basin Water Transfer

- Mitigate adverse environmental issues in communities around the lake
- Create an African Agricultural Hub in the Region
- Ameliorate desertification Southwards
- Abate water conflict and instability in the Lake Chad region

Current Action

Discussions are on-going with various experts and potential financiers to proceed with:

- Feasibility Studies
- Detailed Design
- Fund Sourcing
- Construction



Inter Basin Water Transfer Projects (II)

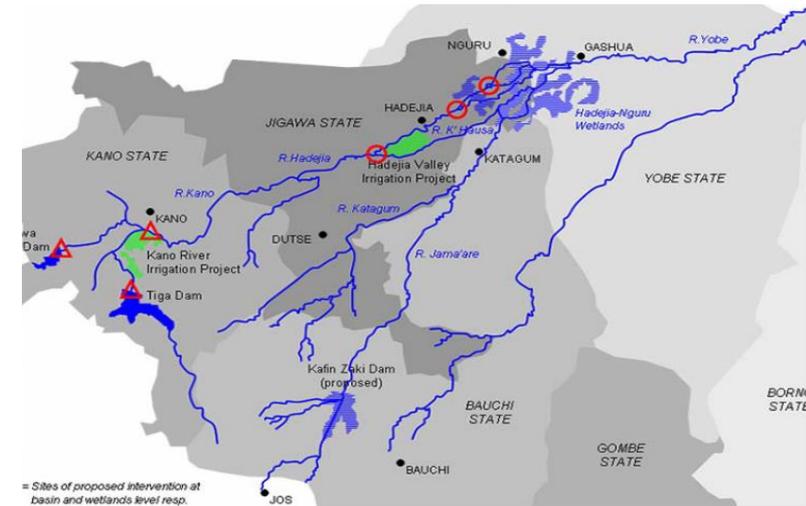
Hadejia Jama'are Komadugu Yobe Basin Transfer Projects

Basin Location

- **Coverage: Kano, Jigawa, Bauchi, Yobe, Borno, Gombe and Plateau States**
- **Covers an Area of about 148,000Km² in the North East Nigeria (57% of the Basin) and South East of Niger Republic (43% of the Basin)**
- **Drained by two (2) main river sub-systems**
 - Hadejia and Jama'are Tributaries, creating the Hadejia Nguru Flood Plain
 - Komadugu Gana (or Misau) River

Challenge

- **Reduced river flow due to climate variability leading to inability to contribute supply to Lake Chad adequately.**



- **Ministry had undertaken feasibility studies for:**
 - ✓ **Hawal Transfer: From River Hawal into Ngadda River in Borno State**
 - ✓ **Dindima Transfer: From River Gongola to Misau and improve flow to River Yobe.**
- **Next Step is to conclude Detailed Planning, Design and Costing of the 2 projects**



**Thank
you**

