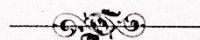


KWARA at



Achievements and Aspirations



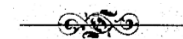
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Exploiting Kwara State Mineral Resources for Economic Sustainability

Silas Dada, PhD and Jimoh Ajadi



1. Introduction

The famous physicist Max Planck said: *Mining is not everything but without mining everything is nothing.* Mining provides a wide variety of natural resources needed to satisfy the diverse modern civilized world needs, which include myriads of industries, energy, construction, chemical, pharmaceutical, automotive, electronics, etc. The global trend of mineral extraction, as shown in Figures 1 and 2 indicate phenomenal increase in demand for metallic and industrial minerals.

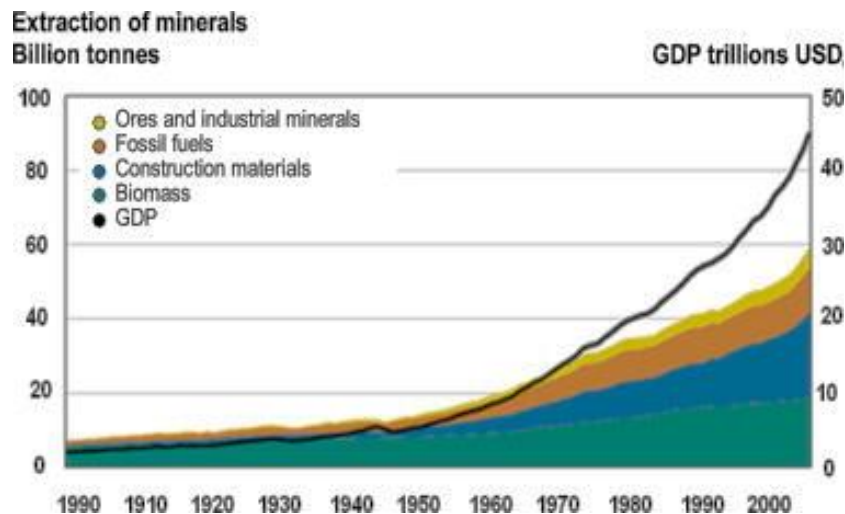


Figure 1: Growth in demand for mineral resources in the world economy (SERI 2011)

The largest growth in the group of industrial and construction materials clearly indicate the relationship between the extraction of the resources and economic growth. The availability of raw mineral commodities to meet the need of strategic products that are crucial to the development of many new technologies in the expanding global market makes it mandatory for any economy to evaluate its resources. This is to ensure that the future generation is not excluded from the economic loop, in a world of rapidly growing population.

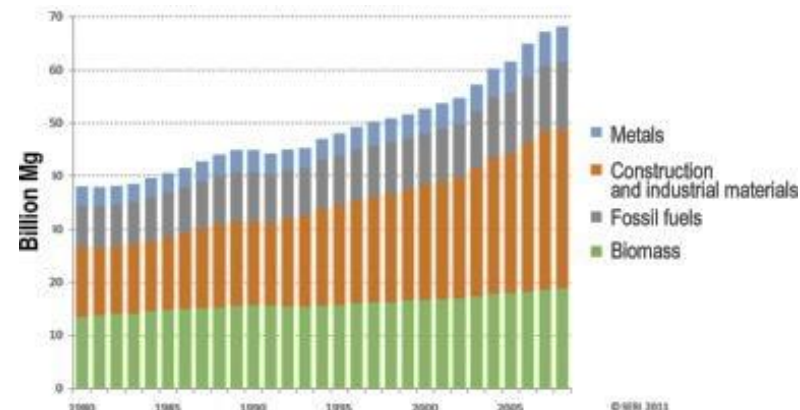


Figure 2: Global extraction of mineral resources in the years 1980–2008 (SERI 2011)

2. Mineral resources of Kwara State

Geologically, Kwara State is situated in the Nigerian Schist Belt between the Pharusan Belt in Northwest Africa and the Borborema Province of Brazil in South America.

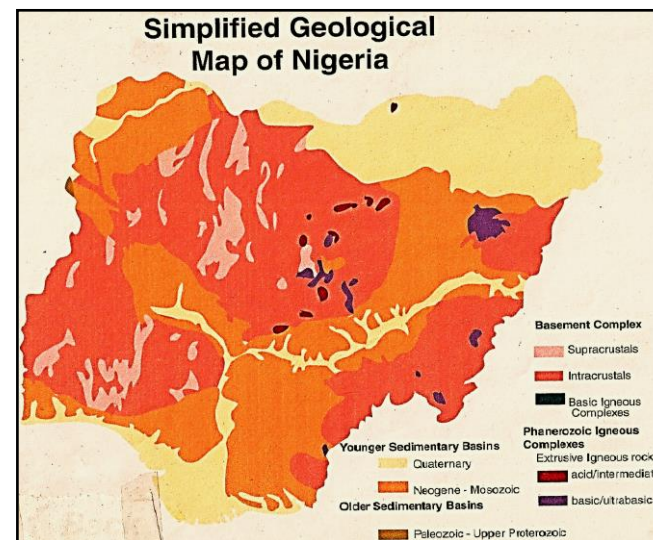


Figure 3: Simplified Geology map of Nigeria

The mineralization controls consist of N-S transcontinental faults related to the Pan-African orogeny (600 Ma) that was accompanied by widespread intrusion of granitoids whose late-phase is enriched in pegmatites (Figure 4) that host the cassiterite, columbite, tantalite, rare-earth metals and the gemstones. See Appendix 1 for a list of minerals and their locations in Kwara State.

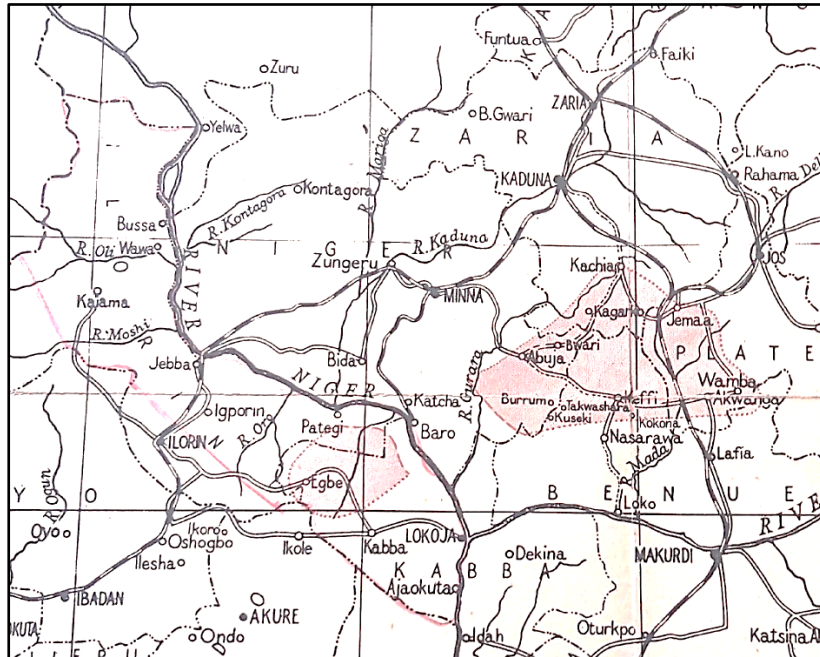


Figure 4: Outline of Sn-Nb-Ta bearing pegmatites of Central Nigeria
(After NGSA)

It is a known fact that solid minerals resources abound in many states of Nigeria including Kwara State. The gold deposits of Nigeria is as shown in Figure 5. Among the mineral occurrences spatially distributed all over Kwara State, three categories hold promise for further probing and commercial development due to their potential large reserves. These are:

1. Industrial minerals: marble/dolomite, kaolin, silica sand, quartz, granites, talc and feldspar;
2. Metallic ores: gold, cassiterite, columbite, tantalite and rare-earth metals; and
3. Gemstones: tourmaline, aquamarine, sapphire, emerald, amethyst and beryl.

While mineral resources control is under the “exclusive” list (jurisdiction) of the Federal jurisdiction throughout the country, nothing stops a state government, which is the custodian of the resource from adding value to the resources in form of exploration and evaluation, if only to attract and partner with investors for development. Revenues accruing to the Federal government through taxation and royalty payments are shared with the host state government. The locals in the state would constitute the bulk of the work force as they become gainfully employed. Several enterprises would spring up to supply the needs of the mines, thereby generating income and wealth for individuals and companies through the many businesses and financial transactions involved in the development process.

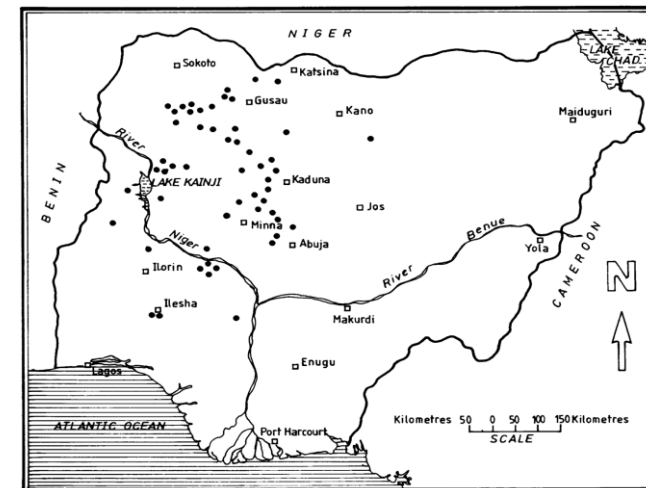


Figure 5: Gold deposits of Nigeria

A major constraint in the development of the solid mineral sector in many parts of Nigeria particularly in Kwara State is the non-existence of policies for natural resource development aimed at adding value to proven natural resource wealth. Value addition in form of detailed exploration to valuation stage is germane in this regard. It is hoped that the recently constituted Board of Solid Minerals Development Fund will resolve the challenge of inadequate geo-science data by empowering the Nigeria Geological Survey Agency (NGSA) - which is expected to be replicated in solid minerals ministry in other states of the country - with its crop of professionals to accurately delineate the already identified mineral deposits. Therefrom, intending investors and miners would safely invest with such assured data as collaterals for bank loans. Another exploration challenge is the non-availability of reliable analytical centres for the evaluation of the prospective mines. It is in the interest of the State to train indigenous personnel in preparation for the upbeat in the mining sector.

3. Areas of immediate industrial monetization and Investments

Solid minerals are often associated with their geochemical affinities and are therefore mined together as economic commodities while their gangues are set aside as tailings in dumps. However, due to global world market vagaries and/or new technological advancements, an otherwise gangue can become a profitable ore and vice versa over time.

Moving across Kwara State from the west to the east, there are great potentials in the following areas:

- a. The schist belt containing garnetiferous metasediments at the north-western quadrant shown in Figure 6 of the Kaiama Sheet 158 east of Yashékira-Kosubosu at the Benin Republic border is situated along the NNE-SSW transcurrent fault known to host gold in north-western Nigeria.

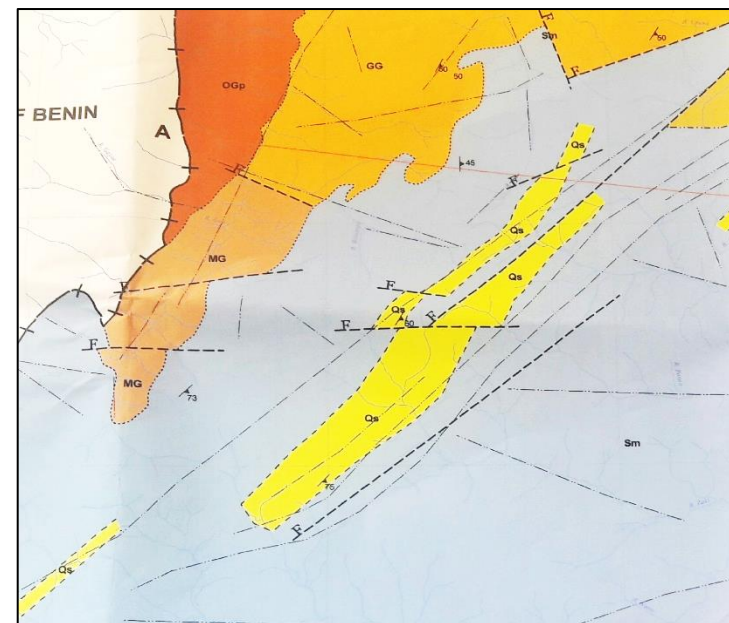


Figure 6: Yashikera-Kosubosu schist belt.

- b. The immediate environ of Kaiama town has similar potential with (a) but especially the area north-east of Kaiama to Shiyakigbe village which has a concentration of pegmatites rich in gemstones and rare-earth metals. Figure 7 shows the Kaiama-Shiyakigbe Pan-African late-phase complex.
- c. The southern prolongation of the Bin Yauri gold belt (Kebbi State) into the Alagbede Forest Reserve in Moro LGA of Kwara State depicted in Figure 8 is drained by Rivers Awun/Weru and their tributaries contain several gold veins which are presently under systematic exploration research by the Kwara State University (KWASU), Malete.

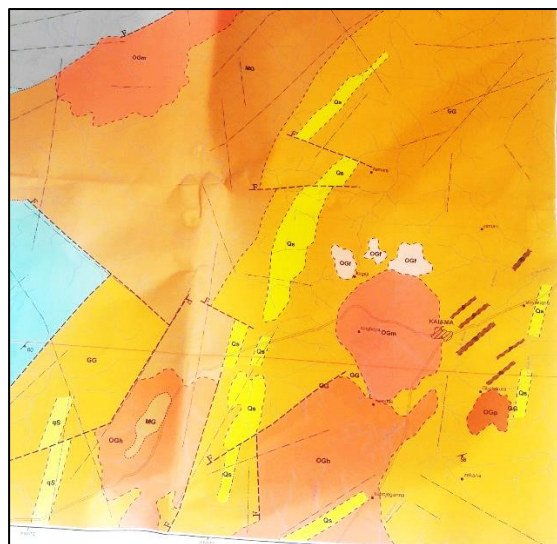


Figure 7: Kaiama-Shiyakigbe Pan-African late-phase complex

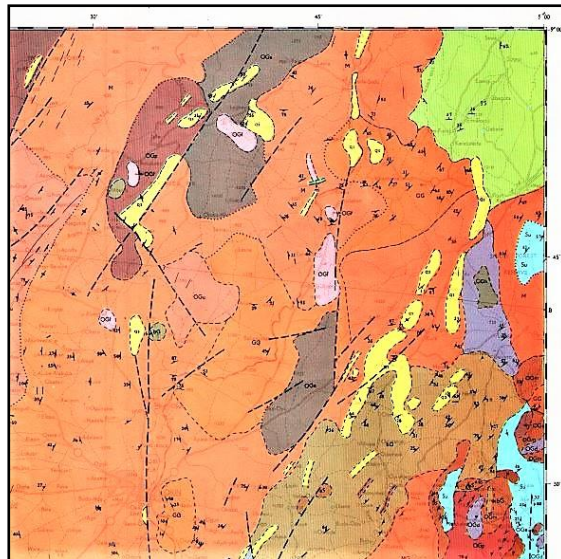


Figure 8; Alagbede gold belt (AG), Elebu marble (EM) and Igporin pegmatites (IP)

- d. By the eastwards of Figure 8, the dismembered Elebu marble and the Igporin pegmatites which contain cassiterite, columbite and tantalite in addition to rare-earth metals and gemstones can be observed. These two locations are separated by the fracture-controlled Oshin River and are readily accessible.
- e. The long stretch of marble deposit (> 40 km) traceable from east of Isanlu Isin northwards through Kajola and beyond Oreke shown in Figure 9 resulted from contact metamorphism of limestone along the NE-SW transcurrent Kalangai-Zungeru-Ifewara fault line which terminated in Brazil. The deposit is several orders greater than the well-known Igbetti occurrence.

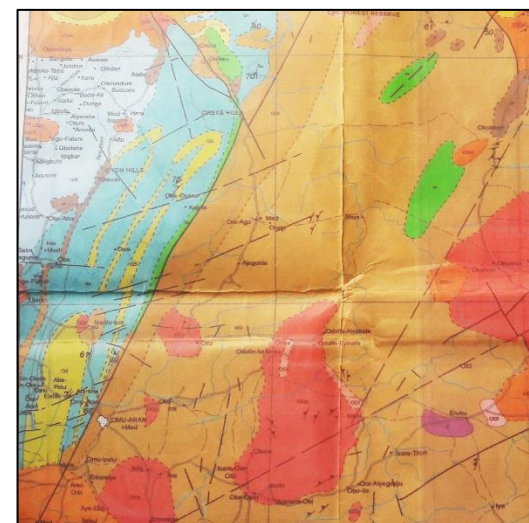


Figure 9: Kajola-Oreke marble in green

- f. The largely unknown N-E trending oval-shaped marble deposit (Figure 9) is remotely located at the southern end of Oro Forest Reserve, east of River Oro (in Ifelodun LGA) within the same latitude with the Kajola-Oreke deposit.

- g. The prominent Egboro-Okolom-Deshi group of rocks (Figure 10) in Pategi LGA bordering Isanlu-Egbe district of Kogi State constitute a metallogenic belt of alluvial, eluvial, primary gold deposits as well as cassiterite-, columbite-, tantalite-, gemstones- and rare-earth metals-bearing pegmatites. However, the remoteness of the location in the River Kampe Forest Reserve, south-east of Egboro, is a big challenge.

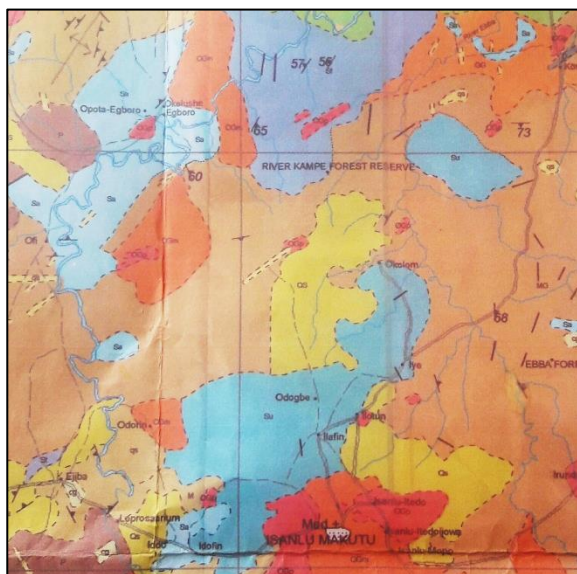


Figure 10: Egboro-Deshi-Okolom gold-talc deposits

- h. The northern end of Hamber's (gold) reef in Figure 10 contains a large reserve of talc.
- i. The widespread granite and gneiss massifs that are used as dimension stones and chips as well as limitless quartz sand that are quarried for construction works occur in virtually every LGA and are a source of wealth if properly monitored and managed.
- j. Water resources are mineral resources because they are inorganic. The widespread medium and large drainages of

several rivers in the State such as Oli, Moshi, Weru, Awun, Oshin, Oyun, Oyi, Oro, Kampe and their tributaries and distributaries flow northwards into the River Niger. They constitute unquantifiable resources that can be considered for medium and long-term dams, hydro-power generating stations and even ports at Jebba, Likpata (in Lafiagi) and Pategi.

4. Exploitation of Kwara State Mineral Resources and Economic Sustainability

Mining and minerals would seem to be quintessentially unsustainable activities, since individual mines have finite reserves and therefore non-renewable, especially for a State in a country where the sector is on the exclusive list of the Federal Government. However, technological innovation, recycling of the materials from industrial minerals exploitation and the economic benefits created therefrom can be sustained through appropriate investment in education, health care, infrastructure, and other activities that can create well-being long after mining ceases. With appropriate investments, mineral production can generate income for the State, especially if the foreign exchange earnings (if exported) are ploughed back in form of derivation.

Such an arrangement can stimulate local economies, and can be the basis for downstream processing and manufacturing industries. Mining companies employ workers, who earn income, some of which they spend on domestically produced goods and services. Governments receive tax revenues from mineral production and exploitation, which are available to fund education, health care, roads, electric-power supplies, and other forms of infrastructure.

The preconditions for mining other than availability of viable deposits in terms of grade and reserves include infrastructure such as:

1. Water supplies;
2. Cost effective electricity;
3. Transportation to markets: roads, railroads, airports, ports and harbours, etc.

Kwara State fulfils the first condition based on its physiography. The other two conditions make it more difficult to attract investors. It is

believed that mining can only be viable for the State if the localities can be grouped into agglomeration economies. Five mining districts are therefore proposed for investors as follows:

1. Kaiama metallic ore mining (gold, cassiterite, columbite, tantalite, rare earth metals and gemstones) - River Moshi supported;
2. Alagbede (Moro LGA) metallic ore mining district (gold and associates) – Rivers Weru and Awun supported;
3. Elebu/Igporin industrial/metallic mining district (marble and pegmatite ores) – River Oshin supported;
4. Kajola-Oreke industrial mining district (marble) – River Oro supported;
5. Egboro-Deshi-Okolom metallic/industrial mining district (gold and associated pegmatites, talc) – River Kampe supported.

The existence of infrastructure and the presence of agglomeration economies in these districts will open up the areas and give them advantages over greenfield investment in new areas.

5. Hydrological Resource

Several streams and rivers in Kwara State flow northwards into River Niger. These constitute a great source of hydro-power akin to the NESCO energy company serving the giant and medium sized mining companies, the Makeri Smelting firm and the entire Bukuru and its environs in Plateau State. The provision of cheap energy infrastructure not only for mining but allied manufacturing companies promotes economic activities. Hydrological drainage systems can be demarcated in the short term for both energy and agriculture, especially all season farming. This is the starting point of synergy between agricultural and industrial mineral industries.

6. Conclusion and Recommendation

The Federal Government is not in competition with the states but would rather seek to collaborate with the states and communities who are land owners hosting the minerals. Since the recently approved funds for the solid minerals sector will be disbursed for exploration, mining cooperatives (including equipment leasing), infrastructure around the

mines as well as mines police security (Fayemi, 2017), it will be imperative for Kwara State to speedily partner with mining consortiums since nothing in the mining policy forbids states from having interest in duly licenced mining companies. The goal is to increase State IGR and create employment opportunity for the citizens, especially the immediate community that will bear the brunt of any environmental impacts.

The vision for the minerals investment should be clear and sound and the capacity to carry this vision should be enhanced and supported such as the framework and vision in Figure 11. Without this, the mineral resources can have the potential of causing poverty through environmental degradations, ecological debt, climate change and human rights violations as is the current scenario in many mining communities and the nation at large, especially in the oil producing areas.

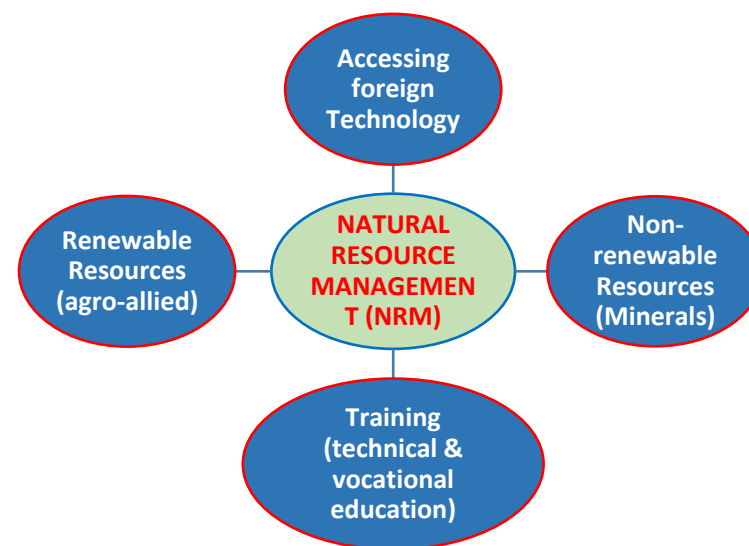


Figure 11: The consolidating result of all efforts by a coordinating Natural Resources Management Team.

To tap into a long lasting positive impact of mining on socio-economic sustainability, Kwara State should:

- Look away from the limiting national “exclusive list” legal and policy frameworks that are hindering the harnessing of the benefits of the mineral resources;
- Assess and consolidate the economic opportunities emanating from the mining sector throughout the value chains to achieve the minerals transformative role by multi-staking and partnering with the private sector;
- Accentuate capability building in human resources for long term development through training and facility development in mineral resources sector;
- Adopt a paradigm shift from the dependence on the Federal Government allocation but do the needful to open the rural areas through focusing on a joint minerals and agro-allied schemes;
- Ensure regular and adequate monitoring of all quarrying activities (granite chips and dimensional stones, sands dredging in valleys and river beds) in all local government areas in the State;
- Put in place a strong and efficient Natural Resources Management (NRM) team to build strategic plans, supervise execution and ensure accountability. The recent success recorded in the IGR drive of Kwara State can be enhanced further.

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Chapter Seven: Exploiting Kwara State Mineral Resources for Economic Sustainability

Appendix 1

Locations of mineral resources of Kwara State

Commodity	Class	Latitude	Longitude	Location	LGA	Geology	Status	Types	Resource	Remarks
Feldspar	Ceramic	08° 35' 20"	04° 52' 47"	Pepele / Agbeyangi	Ilorin East	Gneisses, granite, quartzofeldspathic.	Abandoned site	Vein type	N/A	Immediate community Oke-Odo, Amethyst was mined there.
Clay	Ceramic Mineral	08° 57' 51"	04° 59' 00"	Tsaragi	Edu	Intercalation of sandstone and clay.	Occurrence	Residual	N/A	Occurs in three different locations, viable
Clay	Ceramic Mineral	08° 31' 52"	04° 33' 18"	Oke-Oyi	Ilorin	Basement gneisses and migmatites - weathered residual deposits	Occurrence	Residual	N/A	N/A
Tourmaline	Gemstone	08° 05' 20"	04° 58' 13"	Babana Ifelodun	Irepodun	Muscovite schist/pegmatite vein	Abandoned	Vein type	N/A	Nil
Tourmaline	Gemstone	08° 21' 38"	05° 01' 24"	Odo-Ore	Irepodun	Muscovite schist	Abandoned	Pegmatitic (associated with Tin)	N/A	Nil
Tourmaline	Gemstone	08° 05' 20"	04° 58' 13"	Babana	Ifelodun	Schists, gneisses and pegmatite	Active	Vein type	N/A	Nil
Tourmaline	Gemstone	08° 17' 13"	04° 55' 09"	Dogondaji Oro	Irepodun	Talc schistose rock	Active	Vein type	N/A	Mining method is open

										cast and extensive
Tourmaline	Gemstone	08° 29' 15"	05° 08' 13"	Alabe	Ifelodun	Quartz and pegmatite	Abandoned site	Vein type	N/A	Better access route is Oke-Ode
Marble	Industrial	08° 50' 05"	04° 44' 56"	Elebu	Moro	Lenses of dolomite in gneisses and reported occurrence of limestone which is possibly an inlier	Occurrence Sporadic lenses	Lensoidal	N/A	Mapping and limited exploration to determine the viability of resource
Dimension Stone	Industrial	08° 48' 50"	05° 07' 39"	Gbagutu	Edu	Granitic rocks	Prospect	Intrusive	N/A	Good ornamental Stone for flooring (pink).
Dimension Stone	Industrial	08° 35' 49"	04° 23' 45"	Yowera	Asa	Migmatitic Gneisses	Prospect	Massive	N/A	Pink Granite good for ornamental stones
Marble	Industrial	07° 41' 28"	06° 45' 40"	Osara	Osara	Marble bands in strongly folded metamorphic basement associated with Kyanite bearing gneiss. Tabular body, dip 10° -15° SE	Deposit	Dolomitic	1,7 million tonnes (estimated); 53.68 % MgO+ CaO: Mapping at 1:1000, diamond drilling, sampling	N/A

Dimension Stone	Industrial	08° 18' 32"	04° 40' 24"	Ojoku	Oyun	Granodiorite	Prospect	Massive	N/A	Immediate hamlet is Ila
Kaolin	Industrial	08° 49' 31"	04° 58' 31"	Share	Ifelodun	Sedimentary	Artisanal	Massive	N/A	White to milky white
Kaolin	Industrial	08° 42' 50"	06° 02' 50"	Kajita	Pategi	Sedimentary	Leased Quarrying	Massive	N/A	White Kaolin on very extensive hill, steep sides, acc.
Marble	Industrial	08° 56' 38"	04° 49' 05"	Elebu	Moro	Quartz - schist - marble suite with intrusives	Occurrence	Dolomitic	N/A	N/A
Dimension Stone	Industrial	08° 20' 57"	04° 40' 25"	Ifelodun, Elerinjare	Ilorin West	Gneissic rocks.	Prospect	Massive	N/A	Nil
Marble	Industrial mineral	08° 20' 41"	05° 00' 24"	Owa-Kajola	Ifelodun	Dolomite and Calcite occurs as lenses of metasediments associated with base rocks such as gneisses and migmatite in the terrain.	Abandoned	Lensoidal	N/A	Further investigation on the exact reserves and applicability is required
Marble	Industrial mineral	08° 22' 55"	05° 09' 22"	Oke Oyan	Ifelodun	Dolomite and calcite occurs as lenses of metasediments associated with base rocks such as	Prospect	Lensoidal/calcitic	N/A	Further investigation on the exact reserves and applicability is required

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						gneisses and migmatite in the terrain.				
Talc	Industrial mineral	08° 31' 03"	04° 55' 08"	Bare Oja	Ifelodun	Grey-Brownish Talc and Talc Schistose rock associated with metasediments (marble) and gneisses of the basement rocks	Occurrence.	Lensoidal	Area covered is 800m x 500m	Leases acquired. Resource needs investigation.
Tin	Metallic	09° 35' 05"	03° 58' 21"	Kaiama	Kaiama	Mineralization hosted in 2 major quartz veins within schistose rocks and gneisses.	Prospect, active artisanal	Vein type (Wolframite, gold, and tantalite)	N/A	Exploration of resources required to estimate reserve as the nature of mineralization and mining method does not allow for proper estimation.
Tin	Metallic	08° 21' 38"	05° 01' 24"	Odo-Owa	Irepodun	Muscovite Schist	Abandoned	Pegmatite dyke (Tourmaline)	N/A	Nil
Columbite	Metallic	08° 42' 17"	05° 08' 46"	Sagbe	Ifelodun	Associated with pegmatite	Abandoned pit noted	Pegmatite vein	40m radius	Pegmatite vein mineral

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						and pegmatite schist hosted within biotite gneisses.				zation with tantalite. Beryl also noted. Explorati on of pegmatit e required.
Tantal ite	Metal lic	08° 05' 20"	04° 58' 13"	Arand un	Irepodun	Quartz Schist	Abando ned	Vein type	N/A	Occurren ces of abandon ed prospecti ng sites around Arandun especiall y along the NW/ SE trending vein which runs Arandun -Ila Orangun road and Arandun Omu Aran road.
Tin	Metal lic	08° 05' 20"	04° 58' 13"	Arand un	Irepodun	Quartz schist	Abando ned	Vein type (Tanta lite)	N/A	Occurren ces of abandon ed prospecti ng sites around Arandun especiall y along the NW/ SE trending vein which

										runs Arandun -Ila Orangun road and Arandun Omu Aran road.
Tantal ite	Metal lic	08° 21' 08"	05° 00' 44"	Olokin	Irepodun	Mica Schist	Abando ned at the instance of land owners and commod ity price crash. 200m X 20m	Vein type	N/A	Olokin- Odo Ore Road
Tin	Metal lic	08° 21' 08"	05° 00' 44"	Olokin	Irepodun	Mica schist	Abando ned	Pegma tite vein trendi ng 90° (Tanta lite, tourm aline, beryl.)	N/A	Olokin - Odo Ore Rd
Tantal ite	Metal lic	08° 20' 41"	05° 00' 24"	Olokin	Isin	Pegmatite bodies with large quantity of milky quartz and k- feldspars.	Abando ned	Vein type	N/A	Mapping and limited explorati on to determin e the viability of resource. Resource reported to be a major source of tantalite during the

										boom era.
Tantalite	Metallic	08° 42' 17"	05° 08' 46"	Sagbe	Ifelodun	Associated with pegmatite and pegmatite schist hosted within biotite gneisses	Abandoned pit noted	Vein type	N/A	Nil
Tantalite	Metallic	08° 36' 24"	05° 04' 21"	Eri-Alhaji	Ifelodun	Pegmatite and Granite.	Artisanal mining, surface and underground.	Vein type	N/A	Major and minor roads water/Light
Tantalite	Metallic	08° 11' 16"	05° 45' 46"	Amalase	Irepodun	Quartz-Muscovite-Schist weathered into reddish clayey soil.	Abandoned	Vein type (Tourmaline, Beryl)	100kg/day of tantalite was being produced from the mines about 1.5 yrs ago	Resource still viable as mining stopped at the instance of the land owners because the village was almost consumed and due to the unfavorable price of the commodity
Tantalite	Metallic	08° 11' 16"	05° 45' 46"	Amalase	Irepodun	Quartz-Muscovite-Schist weathered into reddish clayey soil	Abandoned	Vein type	100kg/day of tantalite was produced from the	Resource still viable as mining stopped at the instance of the

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										mines about 1.5 yrs ago	land owners because the village was almost consumed and due to the unfavorable price of the commodity
Tantalite	Metallic	08° 31' 79"	05° 33' 41"	Dogondaji	Pategi	Pegmatite Granite	Abandoned site	Vein type		Areal extent 150m x1km	Southwest of Ndanaku
Tantalite	Metallic	08° 32' 73"	05° 35' 56"	Dina, Ndanaku	Pategi	Pegmatite, vein quartz/granite	Active, Open cast	Vein type		3km X 1km discontinuous length	Active leased mining, several of them, also beryl, tourmaline, garnet
Tantalite	Metallic	08° 44' 33"	04° 20' 83"	Gbugbu	Edu	Amphibolite, gneisses and schistose.	Active artisanal mining	Vein type (Tin and columbite)		N/A	Nil
Gold	Precious Metals	09° 39' 57"	03° 58' 21"	Kermanji	Kaiama	Iron rich schist with some biotite gneisses	Abandoned artisanal mining	Vein type		N/A	Exploration of the area required to establish the viability of the resource as mining ceased as a

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										result of dwindling fortunes.
Gold	Precious Metals	08° 48' 51"	05° 02' 52"	Gidan Sani	Edu	Gneisses and Schists.	Abandoned mine	Primary vein type.	1km x1km	Nil
Gold	Precious Metals	08° 32' 40"	05° 59' 43"	Koro	Ekiti	Pegmatite	Inactive	Elluvial	N/A	Nil
Gold	Precious Metals	08° 52' 43"	04° 29' 06"	Elemer	Moro	Vein Quartz that is crushed, ground, washed to produce gold.	Prospect	Vein type	50kg bag produces 5gm gold	Immediate community to location is Alagbede.
Gold	Precious Metals	08° 41' 25"	05° 02' 52"	Ologomo	Ifelodun	Amphibolites, Schist, Granite Gneiss.	Lease applied. No prospect active mining. Pitting, 150 X300	Veins, elluvial and alluvial	N/A	Rugged topography
Gold	Precious Metals	08° 41' 47"	05° 42' 16"	Agbor Oputa	Pategi	Hornblende granite	No active mining now.	Primary vein	N/A	Ilmenite pathfinder
Beryl	Precious Stone	08° 21' 08"	05° 00' 44"	Olokin	Irepodun	Mica Schist	Abandoned	Pegmatite vein trending 92°	N/A	Occurs along Olokin-Odo Ore road
Beryl	Precious Stone	08° 11' 16"	05° 45' 46"	Amalase	Irepodun	Quartz-Muscovite-Schist weathered into reddish clayey soil	Abandoned	Vein type (Tantalite and tourmaline.)	100kg/day of tantalite was produced from the mines about 1.5 yrs ago	Resource still viable as mining stopped at the instance of the land owners because the

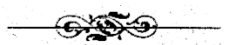
										village was almost consumed and due to the unfavorable price of the commodity
Wolframite	Specialty Metals	09° 35' 05"	03° 58' 21"	Kaiama	Kaiama	Mineralization hosted in 2 major quartz-feldspathic veins within schistose rocks and gneisses	Active artisanal mining	Vein type (Gold and Tantalite)	N/A	Exploration of resources required to estimate reserve as the nature of mineralization and mining method does not allow for proper estimation. Covered an area of more than 100m radius and depth being mined 4-6m

ABOUT THE AUTHORS

Silas Sunday DADA is a Professor of Applied Geology with over 40 years of professional practice in mineral exploration, isotope geochemistry, teaching, research, consultancy services and a strong background in curriculum development and administration. He obtained a B.Sc. Geology from the University of Ibadan (1973), M.Sc. Applied Geology (Mineral Exploration option) in 1979 from the then University of Ife, Ile-Ife (Nigeria) and a PhD in Isotope Geochemistry and Geochronology from University of Science and Technology, Montpellier, France. He had his post-doctoral research at the University of Paris (1990-1991).

Professor Dada had been involved in petroleum and mineral exploration in many states across Nigeria. His research output includes over 60 publications in learned journals and books besides several technical reports, conference papers, and seminar presentations - including award winning research presentations on the Precambrian evolution of the Nigerian continental crust.

He is presently the Pro-Chancellor and Chairman of the Governing Council of Anchor University, Ayobo, Lagos as well as a Fellow and current President of the Nigerian Mining & Geosciences Society (NMGS).



Dr. Jimoh, AJADI is a geoscientist with over 20 years of professional practice involving research, consultancy services and teaching with a strong background in petrology, structural geology, geochemistry and mineral exploration. He started his career at the Federal Ministry of Solid Mineral Development in 1996 and later rose to the position of Assistant Director in the Economic Geology Department of the Nigerian Geological Survey Agency (NGSA) in January 2013 before joining the Department of Geology and Mineral Sciences, Kwara State University Malete in February 2015 as a Lecturer I.

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