GHANA'S INFRASTRUCTURE SECTOR

1.0 INTRODUCTION

Ghana's stable political environment, favourable legal framework, constantly improving infrastructure, improving macroeconomic fundamentals and abundant natural resources, amongst others, are bracing to the country's investor attractiveness. With a robust economy and stable investment flows, the future outlook for Ghana is encouraging.

The country's capacity to fully absorb and benefit from increased investments and new technologies depends a great deal on the availability, quality and efficiency of more basic forms of infrastructure. The Infrastructure Sector comprises the ports, roads, rail, aviation, electricity, water supply, transportation, telecommunications sub-sectors.

Whilst public investment in infrastructure has increased, the country is also actively engaged in involving private sector to meet growing demand, through the Public Private Partnership (PPP) initiative. The policies of the Ghanaian Government seek to encourage investments in domestic infrastructure from both local and foreign private capital.

2.0 SECTOR COMPOSITION

Unlike in many other African countries, Ghana's infrastructure backbone covers the entire national territory and helps to link different parts of the country. The country's Infrastructure Sector comprises the ports, roads, rail, aviation, electricity, water supply, transportation, telecommunications sub-sectors.

The distribution of infrastructure networks in the country generally reflects the spatial distribution of economic activity, with a greater density of transport, power, and information and communications technology (ICT) infrastructure in the south and southwest of the country than in the north (PwC, Africa gearing up).

3.0 FOCUS ON VARIOUS SUB-SEGMENTS AND ALLIED SERVICES

3.1 Hard and Soft Infrastructure

It is quite noteworthy that the soft components of Ghana's infrastructure base (like telecom, air and port services) have witnessed improving performance over the past two decades, thereby helping the country to maintain satisfactory growth. For instance, the country's rising trade has been reflected in growing container port traffic, which increased from a low of 544,294 in 2007 to about 833,771 in 2015.

Correspondingly, certain hard components, like roads, have witnessed tremendous expansion over the last two decades. Performance in the railway sector has however been met with challenges, in terms of access or spread of rail length.

The figures below highlight trends regarding some of the soft indicators. The subsequent sections throw more light on the various sub-sectors.

Fig 3.1 Container port traffic (TEU: 20 foot equivalent units) vis-à-vis trade flows

Fig 3.2 Fixed broadband subscriptions

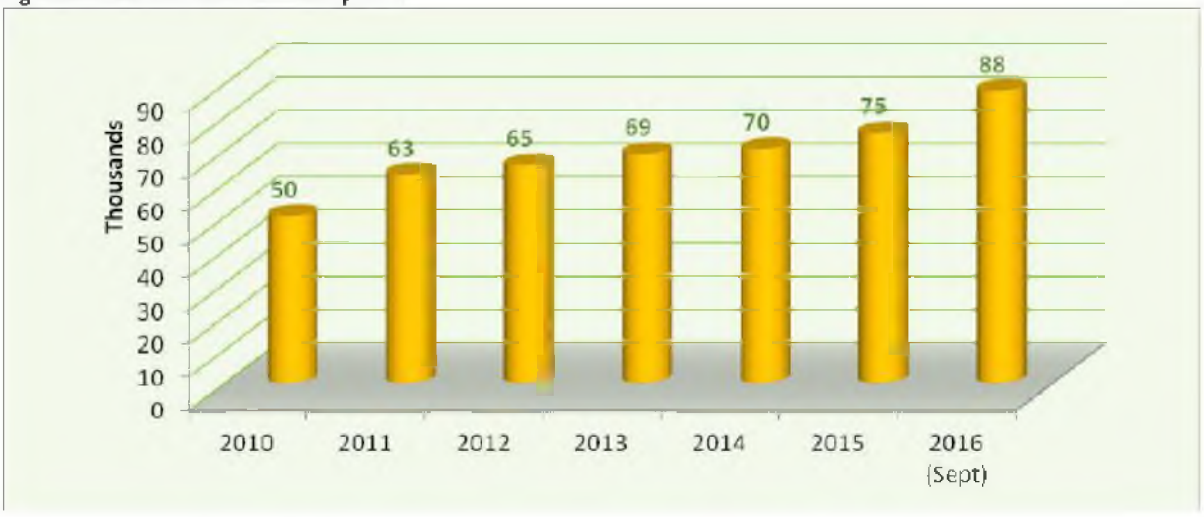
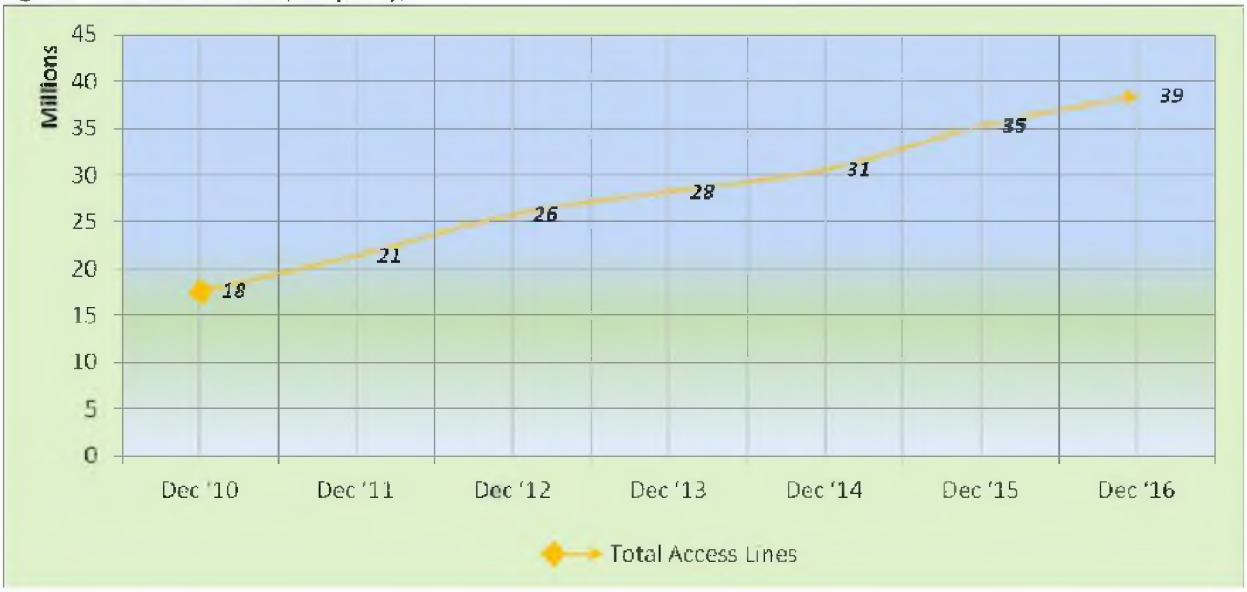


Table 3.1 Telephone Service Subscriptions (Dec 2010 - Dec 2016)

SUBSCRIBERS	Dec '10	Dec '11	Dec '12	Dec '13	Dec '14	Dec '15	Dec '16
Mobile Telephony	17,436,949	21,165,843	25,550,170	28,026,482	30,360,771	35,008,387	38,305,078
Fixed Telephony	277,897	284,721	284,981	270,422	260,407	275,600	251,490
Total Access Lines	17,714,846	21,450,564	25,835,151	28,296,904	30,621,178	35,283,987	38,556,568

Fig 3.3 Total Access Lines (Telephony)



3.2 Transportation

The Transport sub-sector is made up mainly of road transport, maritime and water transport, aviation and rail. The fundamental policy objective of the transport sector is to establish an efficient, a modally complementary and integrated transport system. Therefore, Government encourages private sector engagement in this sector.

3.2.1 Aviation

Ghana presently has one international airport- The Kotoka International Airport, located in the Greater Accra Region, which connects the country and the rest of the world. There are also four other domestic airports (located in Kumasi, Sunyani, Tamale and Takoradi) and two airstrips (located in Wa and Kpong). The construction of a new airfield in Ho in the Volta Region is currently underway.

The country is in the advanced stages of establishing a new national airline. Despite this, Ghana is served by a number of airlines that connect international routes via Johannesburg, Cape Town, Addis Ababa, Nairobi, London, Amsterdam, Dubai and Dar-Es-Salaam etc.

Major airlines operating in the country include Africa World Airlines, Ethiopian Airlines, South African Airways, KLM Royal Dutch Airlines, British Airways, Middle East Airlines (MEA), Kenya Airways, Alitalia, Virgin Airways, Royal Air Maroc, Lufthansa, Egyptair, etc.

Government has embarked on a program to improve the infrastructure at the various airports including the expansion of the Kotoka International Airport and the upgrade of the Kumasi Airport and the Tamale Airports into international status.

The chunk of Ghana's air transport market is international and over the past few years, passenger numbers have grown massively in this regard. With improving income levels complemented with the location of foreign enterprises in the country, the air transport industry has good prospects. Relatively lower volumes in the domestic air transport sector also offers enormous future potential. The figures below highlight trends in the sub-sector.

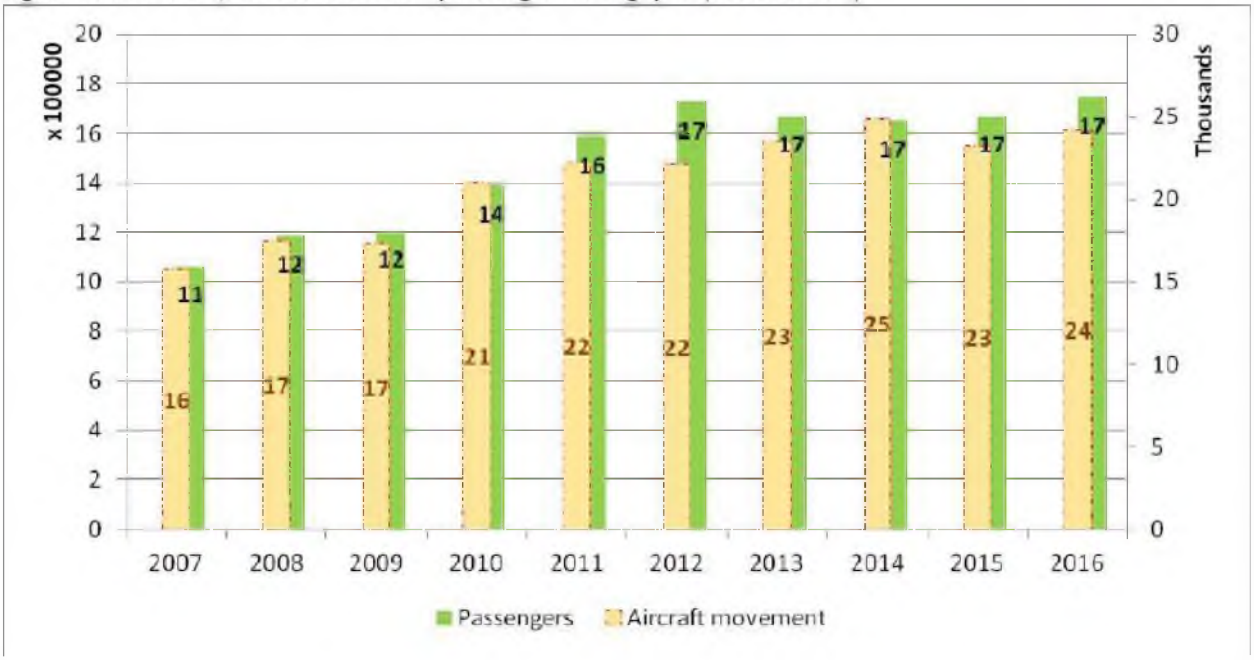
Table 3.2.1 Aircraft and passenger movements (international)

Year	2008	2010	2012	2014	2016
Aircraft movement	17,481	21,068	22,082	24,871	24,252
Passengers	1,186,557	1,387,045	1,726,051	1,650,520	1,746,699

Source of Stats: GACL

In 2008, international aircraft movements at the Kotoka International Airport, Ghana's main point of entry by air, stood at 17,481 with about 1.2 million air passenger traffic. By the end of 2016, the figures rose to 24,252 and approximately 1.7 million respectively.

Figure 3.2.1 Aircraft movements and passenger throughput (international)



Although the domestic front has witnessed relatively lower performance in terms Aircraft movements and passenger throughput as a result of various economic challenges, the segment still has vast potential as Government policies are geared toward improving competiveness of operators in the industry in sync with Government's target of making Ghana a hub for West Africa.

Figure 3.2.2 Aircraft movements and passenger throughput (Domestic)

3.2.2 Roads & Highways

The Road Infrastructure segment is managed by the Ghana Highway Authority (GHA), Department of Feeder Roads (DFR) and the Department of Urban Roads (DUR), which are agencies under the Ministry of Transport.

The tables below present provide indications on the status of the country's nationwide road network.

Table 3.2.2 Inventory of the National Road Network as at Dec 2015

Road Network	Trunk	Urban	Feeder	Total	%
Paved (km)	9,217.90	6,004.14	1,927.78	17,149.82	23.69
Unpaved (km)	5,655.10	9,457.63	40,117.40	55,230.13	76.31
Total (km)	14,873.00	15,461.77	42,045.18	72,379.95	100.00

Source of Stats: MORH

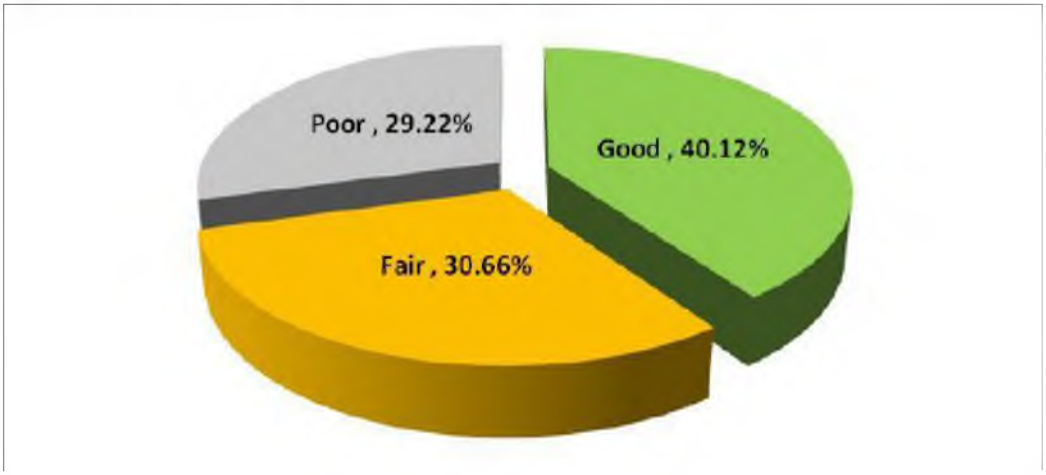
Table 3.2.3 Conditions of National Road Network as at Dec 2015

Road Network	Trunk	Urban	Feeder	Total
Good %	57%	37%	35%	40.12%
Fair %	36%	17%	34%	30.66%
Poor %	7%	46%	31%	29.22%

Source of Stats: MORH

Since the bulk of the inland transport happens on the roads, the quality of the roads is essential to the country's development. By the close of 2015, about 40.12% of the national road network was assessed to be in good condition whilst 30.66% was in fair condition. 29.22% was however assessed to be in poor state.

Figure 3.2.3 Conditions of National Road Network



Ghana's land transport system is presently dominated by road transport. It takes up about 98% of freight and 95% of passenger traffic. From 2008 to 2016, the Drivers and Vehicle Licensing Authority (DVLA) registered approximately 1.2 million vehicles with an average of 127,325 vehicles registered annually.

Table 3.2.4 Vehicles plying the country's roads

Year	2008	2010	2012	2014	2016
Total Vehicles Registered	101,498	102,330	160,431	142,014	114,379
Cumulative	191,826	389,154	691,388	1,010,280	1,236,251

Of the 1.2 million vehicles registered from 2008 to 2016, private vehicles (with cubic capacity up to 2000) constitute 23.07% and commercial vehicles (with cubic capacity up to 2000) constitute 11.19%. Buses and Coaches take 5.31% of the total.

3.2.4 Mass and Rapid Transport

The bulk of passengers on the road network are transported by public transport vehicles such as taxis, mini-buses ('trotros') and large buses.

In the bid to ensuring affordable, safe and accessible transportation system that recognize the needs of people, major steps are being taken to promote mass transportation. Thus, the Metro Mass Transport Company (MMT) was established in October 2003. The introduction of the Bus Rapid Transit (BRT) in 2016 in parts of Accra is also a step in right direction.

There is however the need to increase the number of buses and improve on the quality of service to attract more people to use the MMT and the BRT.

3.2.3. Railways

The rail industry in Ghana has a total track length of 1300km and operates a route length of 947km. This subsector has witnessed little improvement since the 2000s, hence, Government is actively seeking private sector participation in the development and rehabilitation of the railway infrastructure.

The Government is aiming at expanding the existing rail routes to link important exit points which is vital for facilitating trade not only in the country but in the sub-region and boosting Ghana's competitiveness in doing business. As part of the process for revamping the subsector, a Railway Master Plan to guide the sub-sector development was prepared.

Rail which currently handles less than 2% of freight and passenger traffic has its infrastructure concentrated in the south and was designed to transport export commodities. The network forms a triangle that links Accra-Kumasi- Takoradi. It essentially connects the major mining areas to the sea ports.

3.2.6 Maritime/ Sea and inland Ports

There are two main seaports (or harbours) in Ghana namely Tema and Takoradi. Tema is the biggest port and major operations at this port are skewed towards import commodities such as heavy machinery, containerized cargo etc. Operations at the Takoradi port are skewed towards the export trade with emphasis on commodities such as cocoa, timber, manganese and bauxite.

The Tema Port covers 166 hectares of water area enclosed by 2 breakwaters. There are 2 quays housing 12 multi-purpose berths. The berths are operated as common-users, and handle a wide range of cargo including dry bulks, steel products, bagged cargo, newspapers, vehicles and containers. There is also a terminal for handling crude and other liquid petroleum products which can accommodate tankers of up to 244 metres in length with a maximum draught of 9.7 metres.

The Takoradi port, which was commissioned in 1928, has undergone major rehabilitation in the past two decades, and currently handles about 60% of Ghana's total exports. While Takoradi is serves the offshore gas and oil fields, Tema is increasingly serving as an outlet for Ghana's landlocked neighbours including Burkina Faso, Niger and Mali.

The ports are constantly struggling to keep up with the increasing trade flows. In this light, a new centrally located "inland port" is being constructed at Boankra near Kumasi in the heart of

the country. This is expected to be an important staging post for goods in transit to and from the landlocked areas in the north of Ghana. This will be a multi-modal facility handling both road and rail traffic.

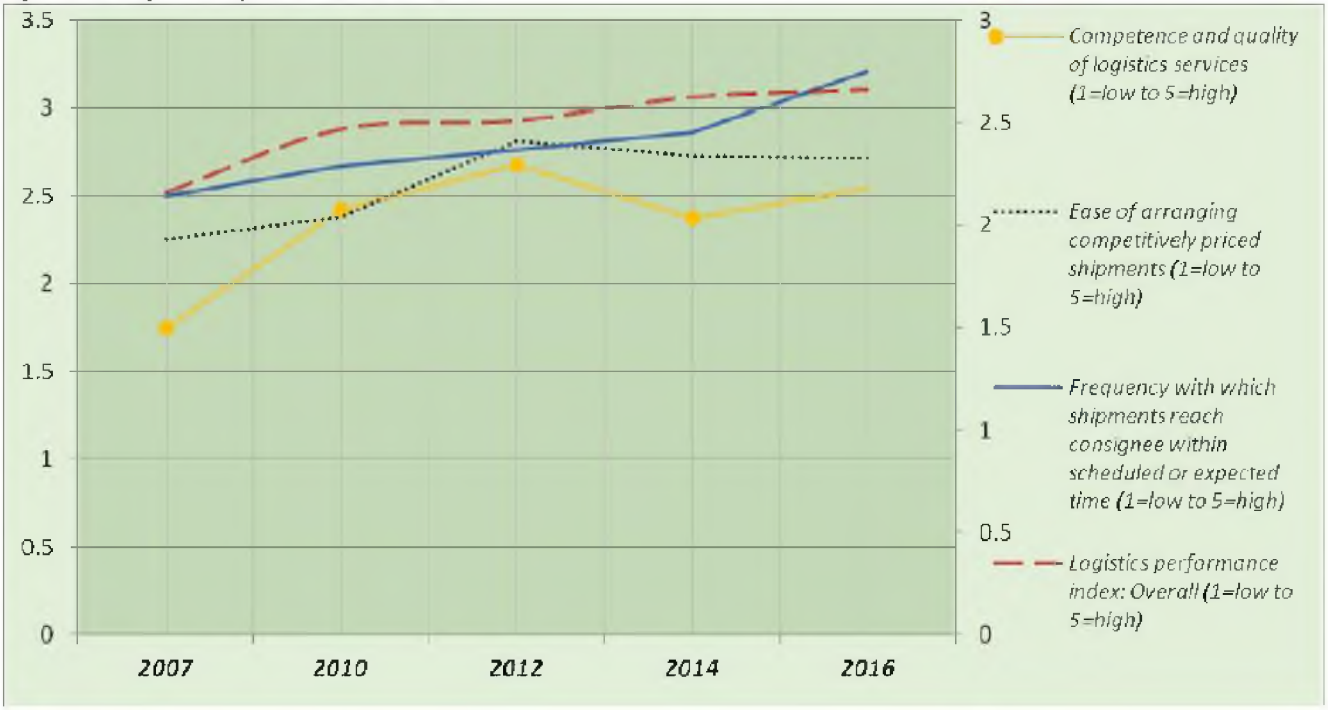
Ghana, seeking to serve as a maritime hub for West Africa, has made significant progress in modernizing the Tema and Takoradi ports over the past two decades and is further committed to ensuring further improvements. The efforts are reflected in the country's performance in the Logistics Performance Index computed by the World Bank over the past decade.

Table 3.2.6 Logistics Performance Index (World Bank)

Logistics performance index:	**2007**	**2010**	**2012**	**2014**	**2016**
Ability to track and trace consignments (1=low to 5=high)	2.250	2.510	2.310	2.904	2.515
Competence and quality of logistics services (1=low to 5=high)	1.750	2.420	2.680	2.372	2.538
Ease of arranging competitively priced shipments (1=low to 5=high)	2.250	2.380	2.810	2.727	2.714
Efficiency of customs clearance process (1=low to 5=high)	2.000	2.350	2.330	2.216	2.457
Frequency with which shipments reach consignee within scheduled or expected time (1=low to 5=high)	2.500	2.670	2.760	2.860	3.210
Logistics Performance index: Overall (1=low to 5=high)	2.160	2.470	2.510	2.627	2.661

The country has witnessed an upward trend in its performance in the Overall Index, moving from a score of 2.160 in 2007 to 2.510 in 2012 and a further better performance of 2.661 in 2016. This comes on the back of improving performance in sub-indices like Efficiency on customs clearance process and Frequency with which shipments reach consignee within scheduled or expected time.

Fig. 3.2.6 Progress- Logistical Performance



From the above figure, it could be observed that generally encouraging rating in sub-indices like the Frequency with which shipments reach consignees within scheduled or expected time contributed to the country's improving performance in the overall logistics performance index.

3.3 Energy Infrastructure

Ghana generates electric power from hydropower, fossil-fuel (thermal energy), and renewable energy sources. The segment involves the generation, transmission and distribution of electrical energy for industrial, commercial and domestic use in Ghana.

The sub-sector is mainly run by the Volta River Authority (VRA), Electricity Company of Ghana (ECG) and Ghana Grid Company (GRIDCO). These organizations play various respective roles in the generation, transmission and distribution process.

VRA is Government agency responsible for the generation of electricity and supplies power in bulk to the Electricity Company of Ghana for distribution to consumers. The Authority however distributes power in Northern belt of the country (covering Brong-Ahafo, Northern, Upper East and Upper West Regions) through its subsidiary – the Northern Electricity Department (NED). Further, there are various private sector owned Independent Power Producers (IPPs) engaged in the generation of power.

As at May 2017, Ghana had total installed generation capacity of 4,275 Mega Watts (MW) with total dependable capacity of 3,842 MW. VRA accounts for approximately 54.74% and 54.84% of both capacities respectively, whilst 1,935 MW and 1,735 MW of the installed and dependable capacities respectively was contributed by the IPPs and other plants. Government's medium term target is to attain generation capacity of 5,000 MW.

Tables 3.3.1 and 3.3.2 below provide facts and figures on power generation in Ghana.

Table 3.3.1 Generation Capacity- VRA (May 2017)

Plant	Installed Capacity (MW)	Dependable Capacity (MW)	Type of Plant
Akosombo Hydro Plant	1,020	900	Hydro
Kpong Hydro Plant	160	140	Hydro
TAPCO - T1	330	300	Thermal
TICO - T2	330	320	Thermal
Mines Reserve Plant (MRP)	80	70	Thermal
Tema Thermal 1 Plant (TT1P)	110	100	Thermal
Tema Thermal 2 Plant (TT2P)	49.5	45	Thermal
Tema Thermal 2 Plant Expansion (TT2PP-X)	38	32	Thermal
Kpone Thermal Power Plant (KTPP)	220	200	Thermal
VRA Navrongo Solar Plant	2.5	-	Solar
Total Capacity	2,340	2,107	

Table 3.3.2 Generation Capacity- IPPs and other Plants (May 2017)

Plant	Installed Capacity (MW)	Dependable Capacity (MW)	Type of Plant
Bui Hydro Plant	400	340	Hydro
Kar Power Barge 1	235	225	Thermal
Sunon Asogli Phase 1	200	180	Thermal
Sunon Asogli Phase 2 Stage 1	180	160	Thermal
Sunon Asogli Phase 2 Stage 2	180	160	Thermal
CENIT Power Plant	110	100	Thermal
Ameri Power Plant	250	230	Thermal
BXC Solar	20	-	Solar
AKSA	360	340	Thermal
Total Capacity	1,935	1,735	

Source: VRA

3.4 Housing and Estate infrastructure

Housing is a basic human need which improves the welfare of society and contributes to social and economic development. Ghana has been facing a very critical shortage of housing supply in many urban centers, but particularly in rapidly growing towns and districts.

Government estimate suggests a backlog of 1.5 million units across the country, and recommends an annual delivery rate of 150 000 units to meet demand in the next 10 years.

The housing sector is largely driven by individual and private sector initiatives, and has to a large extent influenced growth in the economy.

In order to address the current housing deficit, Government has created an enabling environment to provide affordable, quality and adequate housing to the majority of the citizens. Government is also encouraging Public-Private Partnerships (PPPs) in the housing development and construction of ancillary facilities.

3.5 ICT Infrastructure

The infrastructural base of this sub-sector comprises licensed gateway operators, undersea cable connectivity, Private Licensed VSAT Systems, Fixed Wired Line Networks, Wireless Mobile Operators, Public telephones systems, Telecentres, Dedicated Transmission Networks, Public Distribution Networks (cable, TV, DSL, etc), Internet Backbone Connectivity throughout the Country and Public Access Point and Broadcasting Systems.

Over the years, broadband connectivity has improved significantly and this is partly due to the arrival of undersea cable links. Presently, there exist five of them, namely, SAT-3, the West African Cable System (WACS), Main One Cable, Glo-1 and the African Coast to Europe (ACE) submarine cable.

SAT-3 is the first undersea cable to be brought into Ghana. It arrived in 2001 and presently has capacity of 340GB per second. The Main One undersea cable followed almost 10 years later (arrived in 2010) and has 5.12TB per second capacity. In 2011, Glo-1 arrived and has 2.5TB per second capacity. The WACS came on board in 2012 with capacity of 5.12TB per second. Early 2013, the ACE also came on board with 5.2TB.

To complement the efforts of the private sector in the extension of affordable and efficient connectivity solutions, the National Fibre Communications Backbone Infrastructure Network aimed at providing open access broadband connectivity is being developed. Following the successful completion of the southern loop, the 2nd phase of the National Communication Backbone from Tamale to the northern parts of the country and neighbouring countries is being pursued.

Table 3.5.1 Summary of Operators and Service Providers (Dec 2016)

Category	No. Operating
National fixed network operators	2
National Mobile cellular operators	6
Direct to Home (DTH) Satellite Services	15
Internet Service Data Providers	52
VSAT Data Providers	48
FM Stations	
• *Public*	31
• *Community*	58
• *Campus*	15
• *Commercial*	243
TV Operators:	
• Free on air TV Operators	
✓ Analogue Terrestrial Television	15
✓ Digital Terrestrial Free-to-Air TV Program Channel	0
✓ Satellite TV Broadcasting (Free-to-Air Direct-To-Home Bouquet)	1
✓ Satellite TV Broadcasting (Free-to-Air Direct-To-Home Single Channel)	11
• Pay per view TV Operators	
✓ Digital Terrestrial Pay Television (Service Only)	1
✓ Digital Terrestrial Pay Television (Service and Frequency)	4
✓ Satellite TV Broadcasting (Pay TV Direct-To-Home Bouquet)	3
✓ Digital Cable Television	0

Source: NCA

Further, Ghana currently has 6 registered mobile operators, all of which functional. These are MTN, Vodafone Mobile, Tigo, Expresso, Glo Mobile Ghana and Airtel Mobile. Vodafone and Airtel are the only two fixed-line operators.

3.6 Water and Sanitation

Ghana's water sector is segmented into two parts, identified as the Urban Water sector and Community Water sector. The Urban Water sector comprises about 87 cities and towns where the national water utility - the Ghana Water Company Limited (GWCL) -owns and manages water supply. The Community Water sector deals with over 16,000 rural communities and some 287 small towns.

Management of water supply is the responsibility of District Assemblies with facilitation and oversight role by the Community Water and Sanitation Agency (CWSA). Municipal and district assemblies are responsible for investment, operation and maintenance of water and sanitation infrastructure within the community water sector.

The Environmental Sanitation segment covers both the liquid and solid waste management and disposal. The sanitation sector is therefore varied, covering very different types of waste, such organic waste, inorganic and hazardous waste. Depending on the type of waste different methods as regards collection, treatment and disposal are used.

The institutional framework places the overall responsibility of environmental sanitation with the Ministry of Local Government, as it is the central government agency in charge of local government affairs and the environment. The responsibility for implementation of environmental sanitation projects and programmes lies with the Metropolitan/Municipal and District Assemblies.

In Ghana, part of the collection and disposal of waste water is done using conventional sewer systems. The sewer systems are at Tema and some parts of Accra, Kumasi and Sekondi-Takoradi. A greater part of consumers use underground tanks such as septic tanks. The waste is then transported by de-sludging tankers to treatment works or dumping sites. The transportation is done by the waste management department of the district assemblies and private tanker operators.

The main types of treatment facilities used in Ghana are oxidation or waste stabilization ponds, aerated lagoons, trickling filter and activated sludge process treatment facilities. The wastewater treatment facilities in the country are largely used for treating domestic wastewater.

Approximately 10.3 million people (51%) have access to improved water supplies in Ghana. For the 8.4 million residents in the country's urban areas this increases slightly to 61% with two thirds of these or 40% of the total urban population covered by GWCL's networks. With GWCL's unaccounted-for water (UFW) at about 50% of total output, the volume of water that is effectively sold (280,000 m3/ day) is less than half of the daily demand (763,300 m3).

The major consumptive uses of water in Ghana are water for domestic and industrial uses, irrigation and livestock watering. Domestic and industrial urban water supplies are based almost entirely on surface water, either impounded behind small dams or diverted by weirs in rivers.

At present irrigation development does not play an important role in the overall water resources balance considerations. However, the potential for irrigation has been shown to be considerably larger than the present land area under irrigation. The main non-consumptive uses of water are hydropower generation, inland fisheries and water transportation.

On the basis of surface water resources alone, the consumptive water demand for 2020 has been projected to be 5.13 billion m^3, which is 13 percent of the surface water resources.

4.0 GOVERNMENT'S POLICY DIRECTION

The policies of the Ghanaian Government essentially seek to encourage investments in domestic infrastructure from both local and foreign private capital.

The vision and policy direction of the new government is one of hope, jobs, wealth creation, and a robust economy that supports a thriving private sector. This vision is crystalized in a comprehensive set of initiatives and critical interventions outlined in the maiden budget statement and economic policy of government (2017) for the medium to long term toward achieving the industrial transformation of Ghana's economy.

Infrastructure development is one of the Government's priority areas and Government recognizes the need to mobilize private sector financing to support public infrastructure development through PPPs as alternative financing for infrastructure development. More specifically, key projects to be procured under the PPP arrangement will transcend across sectors and include roads, railways, boarder support infrastructure, energy, estate and housing, agriculture services, health and airports.

Therefore, to cover the infrastructure gap and to improve access to quality and affordable infrastructure service, Government is inviting the private sector to participate in the construction, rehabilitation and maintenance as well as financing of public infrastructure and services.

5.0 SECTORAL DEVELOPMENTS

The following touch on some of the developments ongoing in the sector.

Road Rehabilitation and Maintenance Programme

The Ministry of Roads & Highways is focusing on routine and periodic maintenance, and minor rehabilitation activities to protect the huge investments made by Government in the provision of road infrastructure. Thus, in 2016, routine maintenance was undertaken on 10,723.49km trunk, 16,183km feeder and 9,384km urban road networks. This compares with routine maintenance on 11,199km, 22,500km and 8,200km of trunk, feeder and urban road networks respectively in 2015.

In 2017, the Ministry of Roads & Highways will undertake 11,900km, 22,950km and 10,200km of routine maintenance activities on trunk, feeder and urban road networks, respectively. Additionally, periodic maintenance activities (Spot Improvement, Re-gravelling, Resealing,

Asphaltic Overlay, Partial Reconstruction, Maintenance of Bridges) will be undertaken. This will cover 350km of trunk, 300km of feeder and 350km of urban roads.

ICT Infrastructure Development Programme

The construction of the 780km Eastern Corridor fibre optic project linking Ho to Bawku and from Yendi to Tamale is on-going. Some of the areas so far covered include:

- Yendi to Tamale link (fully completed and ready for use)
- Bawku to Gushegu (65 percent complete)
- Gushegu to Yendi (95 percent complete)
- Yendi to Bimbila (90 percent complete)
- Bimbila to Nkwanta (70 percent complete)
- Nkwanta to Jasikan (40 percent complete)
- Jasikan to Kpando (30 percent complete)

The Ministry of Communication plans to pursue the construction of an offshore fibre optic network in the Western corridor in the medium term. When completed, the project will connect offshore platforms to parent companies on the mainland as well as provide telecommunication and oil and gas content to the oil industry.

Aviation Facility Management Programme

To improve infrastructure at the Kotoka International Airport (KIA), work on the expansion of the arrival hall, construction of the southern apron and completion of 3 new boarding gates (to bring the total to five) has been undertaken. This improved waiting time of passengers at immigration and with the new baggage handling (carousels), waiting time of passengers at the arrival hall has reduced. Other facelift works are also ongoing at the KIA.

Funding has been secured for the second phase of the Kumasi Airport to cover the construction of a new terminal building, extension of a new runway and other ancillary facilities. When completed, medium to large aircrafts can be accommodated.

The first phase of the Tamale Airport which included the runway extension from 2,480 meters to 3,940 meters to accommodate bigger aircrafts was completed whilst funding for the second phase (to cover the construction of an airport terminal building with approximately 5000m² Hajj Terminal, air traffic control tower and fire-fighting services) was approved for implementation in 2017.

To create an efficient transport system and open up the country for socio-economic activities, the first phase of Greenfield aerodrome in Ho involving the construction of a 1600m runway was completed and commissioned in December, 2016. The rehabilitation of the Wa aerodrome is nearing completion for commercial operations in 2017.

Rail Transport Programme

As part of measures to revamp the railway system, reconstruction of the railway line from Sekondi to Takoradi via Kojokrom consisting of 10.1km double track railway line from Takoradi to Kojokrom and a 4.5km single track line to Sekondi were partially completed.

A contract was also signed for the commencement of construction works for a railway line from Tema to Akosombo, stretching over a distance of 85km as part of a multi-modal transport system linking the Tema Port to the Buipe Port and neighbouring countries via Akosombo. This will facilitate the transfer of containerized cargo to and from rail.

Railway Investment Management Programme

In line with Government's vision to systematically revamp the rail sector to contribute to the development and the economic growth of the country, the Ministry of Railway Development will reorganize the institutional framework for the sector. The new Ministry will be structured under the traditional four-line-directorates with additional directorates namely: Railways Development and Services, and Railway Investment Management.

The Ghana Railway Development Authority will be separated into two institutions, one as the regulator and the other for managing the infrastructure of the sector.

Maritime Services Programme

The Ministry of Transport has procured 3 No. 50-Seater high speed passenger ferries, to improve passenger and cargo services along the Volta Lake. Furthermore, to improve transportation services on the Volta Lake, construction work on the Eastern Corridor Multi-Modal Transport project is on-going whilst landing sites, access roads, ship building, ports and floating docks have commenced.

To facilitate bulk cargo handling facility at the Tema Port, and provide additional berths to reduce waiting time of vessels, the construction of Bulk Cargo Handling Jetty with a length of 450m was completed and operational.

ICT Infrastructure Development Programme

The first and second phases of the Digital Terrestrial Television project, covering Greater Accra, Ashanti, Volta, Northern, Upper West and Upper East Regions was completed, with the third phase to be completed in 2017.

To bridge the technological gap between the served and underserved areas, 20 enhanced Community Information Centres (eCICs) were constructed in selected areas in the Northern part of the country. In addition, the Ministry completed and commissioned the refurbishment of

the Public Works Department (PWD) warehouses into a world class Business Process Out-Sourcing (BPO) facility.

The National Information Technology Agency (NITA) will begin the process of commercializing its infrastructure to raise enough revenue, maintain, expand and upgrade the infrastructure, sell off the excess capacity as well as expand and improve upon its business operations and modules for MDAs and MMDAs.

Airport Free Zone

Government has identified the establishment of sector-targeted Free Zones as a major driver for capital inflows and jobs for Ghanaians starting, this year, with the preparatory work for attracting private investment into an Airport Free Zone (AFZ).

The AFZ will be purely a private sector investment with government only facilitating the process. Government will explore several options with potential investors. It is expected that the preparatory work for the AFZ will be completed by the end of 2017.

6.0 INVESTMENT INCENTIVES/ GUARANTEES

Ghana is a safe investment destination. Guarantee against expropriation of private investments is provided under the investment law and buttressed by the Constitution of Ghana. Some of the guarantees are detailed below:

i. Free transferability of capital, profits, dividends and payment in respect of foreign loans contracted.
ii. Insurance against non-commercial risks – Ghana is a signatory to the World Bank's Multilateral Investment Guarantee Agency (MIGA) Convention.
iii. Double Taxation Agreements (DTAs) – to rationalize tax obligations of investors in order to prevent double taxation, DTAs have been signed and ratified with several countries

7.0 GHANA'S COMPETITIVE ADVANTAGE

1. Stable Political Environment

Ghana is a politically stable country. This has been recognized by the world's famous leaders including US President Barack Obama and his predecessors and former UK Prime Minister

Gordon Brown and his predecessors who have all commended Ghana for the political stability in the country over the years.

2. Macro-economic Policies
The Government of Ghana has initiated a number of sound macroeconomic policies designed to accelerate the process of growth and transformation of the economy under competitive conditions. In the face of high crude oil prices and global credit crunch, Ghana's economy is still relatively stable. Management and access to foreign exchange in Ghana continues to get better.

3. Foreign Ownership
In the on-going privatization program, hundred per cent (100%) foreign ownership is permitted.

4. Access to ECOWAS Market
Ghana is easily accessible to the markets of all the member states of the Economic Community of West Africa (ECOWAS) with its population of approximately 250 million people.

5. Good Physical Infrastructure
Ghana possesses well developed seaports, airports and road networks capable of meeting the needs of businesses in the 21st century. There is an effort to upgrade the rail network to make it easy to get to the ports from inland. Telecommunication facilities in Ghana are excellent with more private service providers offering telephone, internet and other telecommunication services. Basic utilities such as water and electricity are readily available at relatively affordable rates.

6. Excellent Labour Force
There is a large human resource base of both skilled and unskilled labour which can be sourced at relatively low rates. The minimum wage in Ghana is GH¢ 8.00.

7. Access to International Markets
Ghana has easy access to the USA and European Union Markets. The flight time to almost all European Union countries is about 6 hours and 9 hours to the USA.

8. Availability of Fund Sources
Ghana has a large number of fast developing financial institutions available to raise long-term capital at competitive rates. These institutions include banks, insurance and venture capital companies and a stock exchange market (Ghana Stock Exchange).

9. High Safety Standard
There are high standards of health and safety measures in the country.

10. Warm and Friendly People
Ghana is internationally acclaimed for her hospitality to her investors and foreigners as a whole.

11. High Quality of Life
The quality of life of Ghanaians is fairly high.

12. Availability of Land
Ghana has a wide expanse of land that can be acquired with little difficulty through appropriate agencies and owners.

All investors interested in Ghana's Infrastructure Sector are assured of a safe and secure investment environment which has the backing of a very encouraging legal and regulatory regime to protect their investments.

8.0 OPPORTUNITIES

There are considerable investment opportunities in the Infrastructure sector. Some of the opportunities in the various segments are highlighted below:

- Roads and Transport
  - ✓ Major investment opportunities for the roads and railways segments in the areas of construction, maintenance and services.
  - ✓ In mass transportation – scheduled bus system
  - ✓ Rail upgrades and passenger rail transport on chosen corridors
  - ✓ Lake transportation systems
  - ✓ Air transport operators for domestic and sub-regional services
  - ✓ Development of regional airports
  - ✓ Upgrading of existing trunk roads under BOT, BOO, BAT, BLT etc.

- Energy Sector:
  - ✓ Electricity generation and transmission
  - ✓ Refineries, storage facilities and pipelines for petroleum and gas
  - ✓ Renewable energy facilities
  - ✓ Investment is needed to provide electrical services in the construction of the physical facilities including street lighting, improved coverage/access and service efficiency.

- Water Supply and Sanitation:

- ✓ The water supply and sanitation infrastructure is insufficient, especially in rural areas. Major investments are needed to extend coverage, rehabilitate and maintain existing infrastructure and provide Point Sources (boreholes/hand-dug wells), Small Towns Pipe Schemes and Rain Harvest Plants.

- Ports
  - ✓ Improvement of Minor Ports
  - ✓ Port expansion projects
  - ✓ Construction of green field ports

- Hiring and selling heavy equipment for infrastructural construction works

9.0 GHANA'S UNIQUE ATTRACTION

Ghana offers many attractions to the foreign investor:

a) A stable political environment: Ghana has enjoyed a stable political climate with smooth transition of government over the years.
b) A sound macroeconomic policy: Government's macroeconomic policy is designed to accelerate the process of growth and transformation of the economy under competitive conditions. Monetary policy has been consistent and fiscal discipline is apparent from lower budget deficits. Inflation continues its downward course and access to foreign exchange is improving.
c) 100% foreign ownership permitted on-going privatization of programme.
d) A large Economic Community of West African States (ECOWAS) market (250 million people).
e) Good and ever improving physical infrastructure: Ghana has developed seaports, airports and roads network. Telecommunication facilities are available as are basic utilities like water and electricity.
f) Availability of skilled and trainable labour.
g) Competitive labour cost: Ghana also offers a large workforce of both skilled and unskilled labour at affordable and competitive rates. The current minimum wage rate is GH¢8.00.
h) Quota-Free access to USA & European Union markets.
i) Proximity to European Union (6 hrs flight time) and USA markets (9 hrs direct flight time).

j) Fast developing financial infrastructure: With over 30 banks, insurance, and brokerage firms, and a stock exchange that allows companies to raise long term capital at low cost, Ghana's finance sector is one of the most developed in Africa
k) High degree of personal safety.
l) Warm and friendly people: Ghana is internationally recognized for her hospitality and warm affection for her investors.

10.0 POTENTIAL SOURCES OF FUNDING

Viable companies and projects can easily attract financing both on the local and international financial markets. The main sources of funding are (as at January 2017):

- 34 Banks
- 70 non-bank financial institutions
- 140 rural banks
- The Ghana Stock Exchange – note that in the last four years, many issues of shares on the GSE have been oversubscribed by 100% - 300%, meaning that there is a lot of money for investment purposes
- Ghana Venture Capital Fund
- International development finance institutions based in Ghana, such as the International Finance Corporation (IFC) and the African Development Bank (AfDB)

A number of foreign financial institutions also provide off-shore financing directly to companies in Ghana.

GHANA INVESTMENT PROMOTION CENTRE

INVESTMENT OPPORTUNITIES IN GHANA

Ghana On the go!

INVESTMENT OPPORTUNITIES IN THE

TOURISM ARTS AND CULTURE sector

INTRODUCTION

Opportunities for investment in the tourism, arts and culture are immense, ranging from construction and management of hotels, leisure parks, golf courses, conference tourism, air/ground transport, wildlife, tour operation, to ecotourism facilities, cultural and historical sites. The specific investment opportunities are outlined:

MARINE DRIVE TOURISM INVESTMENT PROJECT

This is a project intended to plan and develop the 241 acres of land, stretching from the Osu Klottey Lagoon (behind the Christiansburg Castle) to the Accra Community Centre. Investors are invited to invest hotels, restaurants, casinos, amphitheatres, shopping malls, conference facilities, water sport, marine transport, fishing wharf etc.

NATIONAL HOTEL, CATERING AND TOURISM TRAINING INSTITUTE

This is a public-private partnership project to construct and manage a state-of-the arts professional hotel and tourism training institute in all the ten regions. Feasibility study had been conducted to demonstrate the financial and economic viability of this project.

HIGHWAY RESTSTOPS

As part of encouraging travelers on the highways to stop at tourist sites and rest, the Ministry is encouraging investment in Highway Rest Stops across the country. Currently, such facilities are limited, hence there is a growing demand for investment in one-stop facilities which provides shops, eating places, toilet facilities , parking areas, fuel filling stations and limited accommodation and scenic overlooks. Land is available for any investor willing to invest in Highway Rest stops.

MEETING FACILITIES

Although Ghana has become a major conference destination, there is a deficit of facilities to offer a variety of services to participants. Ghana has become the gateway to the West African Sub-region economic activity with over 350 million people. Private Sector is required in multi-purpose convention, conference and exhibition centres, not only in the capital city Accra but also in other parts of the country.

CATERING ESTABLISHMENTS

As a conscious strategy to offer a wide range of cuisines to business and leisure tourists, we are encouraging investment in large, medium and small scale restaurants with specialties in traditional, oriental and continental cuisines.

RECEPTIVE FACILITIES

The Ministry of Tourism, Arts and Culture has constructed Tourist Receptive Facilities at tourism sites across the country, as a policy and development strategy to further public and private sectors investment. We are seeking partnerships with the private sector to expand and manage these facilities at the tourist sites across the country

REGIONAL THEATRES

The Government is dedicated to completing all the Regional Theatres which are at various stages of completion. To achieve this objective, we are inviting investors to partner the National Commission on Culture, the Ghana Tourist Development Company and the Ghana Tourism Authority to establish state-of-the-art regional theatres, as part of our policy to harness the full potentials of the country's arts and culture.

DUTY FREE SHOPS

The Government is expanding facilities at the international and domestic airports which require investment in duty free shops. The Ghana Tourist Development Company limited is the investment agency of the Ministry and is involved in duty free operations. The policy direction is focusing on the company's partnership with the private sector to invest and manage duty free shops at the airports in Tamale, Kumasi, Sunyani and Takoradi.

TOURIST COACHES AND AIRLINES

Considering our aggressive promotion of international and domestic tourism, there is short fall in tourist coaches and domestic airlines. We are, therefore, inviting investor into the transport sector, preferably into luxury coaches, international and domestic flights.

ACCOMMODATION FACILITIES

There is a high demand for all types of accommodation facilities across the country to meet the need of business, conference and holiday tourists. We are encouraging investment in the following types of accommodation:

- *Five and four star Hotels*
- *Coastal and inland lake resorts with sporting and recreational facilities.*
- *Mountain resorts.*
- *Motels*
- *Business, leisure and conference hotels.*
- *Eco-lodges*
- *Hostels*
- *Camping sites for adventure tourists*
- *Wellness and Spas Facilities*

INVESTMENT OPPORTUNITIES IN

INFRA STRUCTURE

RAILWAY PROJECTS

PROJECT OBJECTIVE

To build a modern railway network from the South to the North of Ghana with associated infrastructure.

EXPECTED PROJECT OUTCOMES

- *Infrastructure development in the towns which will be traversed by the railway lines.*
- *Facilitate the efficient transportation of passengers and goods.*
- *Improvement in internal trade and also trade with neighbouring countries.*
- *Reduction in road maintenance costs and fewer road accidents.*
- *Lower transport cost for both freight and passengers due to lower cost of transportation by rail.*
- *Minimum traffic risks with the use of railway line for international carriers.*
- *Creation of new settlements, industrial parks and economic zones.*
- *Improvement in tourist activities.*
- *Job and wealth creation.*

INTRODUCTION

The Ministry of Railways Development was established by the President of the Republic of Ghana, H.E. Nana Addo Dankwa Akufo-Addo in February, 2017. The Ministry has been tasked with ensuring the rapid development of a modern rail network in Ghana.

Connecting the major cities of Accra, Kumasi, Sekondi-Takoradi and Tamale; the use of Ghana as the route for transporting goods from landlocked countries north of Ghana, such as Burkina Faso, to the ports of Tema and Takoradi and also from the ports to the landlocked countries; the presence of major mineral deposits of manganese, bauxite and iron ore along the route of the existing railways network; the potential to attract other bulk cargo such as cocoa, cement, mining equipment and petroleum products onto the rail network; the expansion of the ports of Tema and Takoradi; the proposed creation of inland rail terminals; the development of new industrial estates; the development of new settlements and the complete transformation of the economy, based on the backbone of a nationwide robust and modern railways network, all make a compelling case for the focus on the railways sector in Ghana.

The existing network consists of three lines: the Western Line, the Eastern Line and the Central Line (from Huni Valley to Kotuku). Built during the colonial period, what is still operational is barely 13% of the approximately 947 kilometers of rail that existed at independence in 1957. These lines are all narrow (Cape) gauge, single track lines. What is left of it, is used for both freight and passenger traffic. Over the years, the track and rolling stock have all deteriorated, due to lack of maintenance.

The Ghana Railway Master Plan, completed in 2013, is a guide for the fulfilment of the Ministry's mandate. The Master Plan proposes a new railway network of 4,007.6 km with an investment of approximately US$21,507,920,000.00. All the new rail network will be standard gauge. The Ghana Railway Master Plan envisages that the total rail network of 4,007.6 km is to be done in six phases.

The Government of Ghana, through the Ministry of Railways Development, having reviewed the Ghana Railways Master Plan, has identified specific phases of the Master Plan as Priority Projects for the next few years. The proposed time frame for the execution of these Priority Projects is from July 2016 to June 2020. These Priority Projects are the Phase 2 of the Master Plan and some railway lines in Phase 3 and Phase 5 of the Master Plan.

This is as of 2013 and the figure has not been reviewed

Phase 2 covers approximately a total of 1234 kilometers.
It involves the construction of the following:

- *Takoradi - Kumasi (Western) Line (339 km)*
  (with branch line from Dunkwa to Awaso)
- *Accra - Kumasi (Eastern) Line (300 km)*
- *Kumasi-Paga (Central Spine) Rail (595 km)*

The lines in Phase 3 that have been included in Priority Projects for the next four years are the following:

- *Kumasi - Nyinahin Line (58 km)*
- *Tamale - Yendi Line. (102 km)*

The total length of the rail network identified as Priority Projects is 1394 kilometres. Implementing these Priority Projects will create jobs and facilitate trade and industrial development. This will in turn stimulate economic growth. In the process, new towns and cities will be developed and older towns would be revitalized. The railway projects will take the burden off the road network and ensure longer lifespans of newly constructed roads. The development of the railways sector will completely transform the economy.

There are unlimited opportunities for the private sector in the development of the railway network, in the provision of related services and in the development of associated infrastructure. The Government of Ghana welcomes various forms of collaboration with the private sector in the development of the rail network, the provision of railway-related services and associated infrastructure in Ghana..

The railway lines to be completed in the period, 2016 to 2020 are set out below. All the lines will be for both passenger and freight.

THE WESTERN RAIL LINE

It runs from the Takoradi Port to Kumasi with a branch line from Dunkwa to Awaso. It is a total of 339 kilometers. Today it is arguably the line that lends itself most readily to a BOT or BOOT Model of financing. This is because of the existence of various off takers and potential off takers on the route.

Two mines are on this route. The Ghana Manganese Mine at Nsuta is 64 km from the port of Takoradi and relies on rail as well as road to transport manganese from Nsuta to the port of Takoradi. Its preferred mode of transportation is by rail and it is the inefficiency of the existing narrow gauge rail line, which compels it to use road, in addition to rail to transport manganese to the Takoradi Port. There is a bauxite mine at Awaso, 239 km from Takoradi. This mine has used the rail network in the past, but it currently transports all its bauxite by road to the port of Takoradi because the rail line between Awaso and Nsuta, near Tarkwa, cannot be used. Opon Manso, which is also along the Western Line, has iron ore reserves of 150 million tons. This is yet to be exploited.

Cocoa is also found along the corridor in commercial quantities and before the collapse of most of the Western Line, cocoa was transported in significant quantities by rail. The last time cocoa was transported by rail using the Western Line was 2006.

Transportation of other bulk cargo such as; cement, mining equipment and petroleum will also benefit from the construction of the rail line. Out of a total route length of 339 km, only 66 km from Takoradi to Nsuta is operational. The estimated investment required to construct a single standard gauge rail line along the Western Line is US$1, 898,400,000. Front End Engineering Designs have been completed and Government is ready to appoint a Transaction Advisor to advice on the EPC Contractor and the Funding Model. Significant proposals have been received including proposals for BOT and BOOT. The Western Line also connects to the Central Spine which terminates on the border with Burkina Faso at Paga.

THE EASTERN LINE

covers a distance of 300 km from Accra to Kumasi with a branch line from Accra to Terna. Apart from the 20 km Accra-Terna Line and the 40 km Accra-Nsawam Line, which are all used for passenger services, the rest of the line is in disrepair and inoperative. The town of Kibi is between Accra and Kumasi. Here, significant bauxite deposits of approximately 180 million metric tons may be found. Mt. Ejuanema also on the Eastern Line has 5 million metric

tons of bauxite. Both deposits are yet to be exploited. The Eastern Line also connects to the Central Spine which terminates on the border with Burkina Faso at Paga. It has potential for significant passenger as well as freight traffic. A proposed inland rail terminal (Boankra Inland Port) also lies on the Eastern Rail Line. Pricewaterhouse Coopers (PwC) are the Transaction Advisors. They have reached the stage where we are requesting them to issue a Request for Proposal to procure investors for the development of the line. The estimated cost of this line is US$1, 680,000,000.

THE CENTRAL SPINE

595 km. When developed it would facilitate the transportation of passengers and freight cargo from the South to the North of Ghana and onward to Burkina Faso and the Sahelian Region. At the Kumasi Junction, the Central Line splits into two lines, the Eastern Line and the Western Line. This will lead to a major transformation of the economy.

The Ministry of Railways Development is going through a procurement process to engage consultants to undertake financial, economic, social, and environmental studies as well as surveying and mapping out the right-of-way. The estimated cost of this line is US$3,332,000,000.

KUMASI - NYINAHIN

This line is 102 km. At Yendi (Sheni) lies 2. 7 billion metric tons of unexploited iron ore. The line is a branch of the Central Spine Line. The approximate cost of the line is US$571,200,000.

AVIATION PROJECTS

PROJECT OBJECTIVE

The establishment of a reliable home-based national airline to provide regional, sub-regional and inter-continaental air transport Services

DESCRIPTION

The Government of Ghana would appreciate an indication of interest from a Strategic Investor, with proven expertise and experience in the airline business, to participate in the process to partner Ghana to establish and run the new flag carrier. The project falls in line with the Government's plan of making Ghana an aviation hub within the West African sub-region.

A transaction advisory team led by the Price Wa erhouse Coopers (PWC) has been appointed by the Ministry of Transport to undertake a market analysis, prepare a business case and identify a strong private investor to partner Government in the establishment of a national airline.

Per the Terms of Reference, the Transaction Advisor is expected to:

- *Undertake market assessment of regional and international routes*
- *Undertake (technical, legal, financial, economic and environmental) due diligence to*
- *identify various options and shareholding structures*
- *Undertake pre-feasibility and feasibility studies*
- *Market the project to potential investors*
- *Develop a management and procurement plan*

- *Draft bidding documents and assist in the selection of winning bidder*
- *Assist in negotiation and signing of the contract*
- *Facilitate the financial closure process*

NEW AIRPORT CITY IN PRAMPRAM IN THE GREATER ACCRA REGION

The new airport will be modelled on the aerotropolis concept. This entails the broadening of airport activities to perform functions beyond the traditional transport terminal concept. Services like hospitality, entertainment, commercial, sports, industrial and other social and economic zones will be incorporated. Apart from serving as a hub for people and goods, it will also serve as a gateway to the country's industrial impetus and to overall economic development. The development of the new airport city will include the construction of convention centres and business hotels.
A land size of 60,000 acres located at Prampram, in the Greater Accra Region has been earmarked for the project. The site is off the Accra-Aflao TransWest African Highway.

EXPANSION OF THE KOTOKA INTERNATIONAL AIRPORT

In the bid to situate Ghana as the aviation hub in the sub-region, the Ghana Airports Company Limited, under a master plan which has been initiated to take account of the Kotoka International Airport's growth over a 20 year period, seeks to expand the airport from about 25,000 to 62,300 sq metres.

PROJECT SCOPE

Presently, designs are being considered for the remodelling of the entire terminal building to ease traffic. The scope of the project entails widening of taxiways to accommodate larger planes, procurement of baggage equipment, improvement in fuel infrastructure, etc. Ultimately, it is anticipated that thirteen aerobridges will be provided to facilitate boarding.

Contact

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INVESTMENT OPPORTUNITIES IN THE

ENERGY

sector

ENERGY PROJECTS

GHANA POWER GENERATION

Energy production and distribution across the country is grouped under a number of enclaves on the national transmission. The transmission grid comprises a matrix of substations and transmission lines which interconnect to Cote d'Ivoire. The government through the Ministry of Energy is adding on substantial capacities and seeks a partnership to generate more energy to close the demand deficit in the country and the sub-region.

THE LIQUIFIED NATURAL GAS (LNG) PROJECT - LNG RECEIVING TERMINAL

The LNG project will provide infrastructure that will enable secure gas supplies to the power generators in Tema Industrial Area. Base case delivery is for 250 mscf/d baseload supplies with the ability to expand to over 500mscf/d to service Tema and potentially other Regions of Ghana.

The project will include a floating, storage and regasification unit (FSRU) permanently moored offshore that will receive LNG under ship-to-ship transfer from regular cargoes delivered by major global LNG suppliers. The LNG will be regasified and exported to Tema landfall through specifically designed off-shore marine infrastructure.

An onshore metering and delivery pipeline system will provide the gas supplies required by each offtaker and its particular power plant.

INVESTMENT REQUIRED

$US 500,000,000.00

DOMUNLI THERMAL POWER PROJECTS (DTPP)

The Domunli Enclave is located in the Jomoro district of the Western Region near Assini, and close to the sea, on a site about 100 km West of Takoradi and 20 km from the border with Cote d'Ivoire. It is not ideal from the point of view of constructing power plant in that it is hilly and that the subsoil expected requires extensive civil works to give a stable platform for future long term infrastructure.

The Domunli project will be in the form of one of two structures, namely:
a) in the form of an IPP project using non-recourse funding ie off VRA's balance sheet, via a 'special purpose vehicle', or
b) on VRA's balance sheet

The difficult financial position of VRA makes the former option more attractive and this will be favored method for the project.

Possible options for funding: role of funding agencies The benefits of Domunli being in the form of an IPP are that it focuses on transferring operating risk to the equity provider. These are the

INVESTMENT OPPORTUNITIES IN

AGRICULTURE

sector

INTRODUCTION

The vision for Ghana's agriculture sector is modernised agriculture culminating in a structurally transformed economy and evident in food security, employment opportunities and reduced poverty.

Ghana's potential with respect to commercial agriculture and agro-processing are largely untapped. The Government of Ghana is, therefore, willing to partner with investors who are willing and ready to transform the agriculture sector, to yield significant returns on any investment spent on developing, in the medium to long term.

PRODUCTION OF FRESH PINEAPPLES FOR DOMESTIC AND INTERNATIONAL MARKETS

PROJECT DESCRIPTION

Pineapple as a crop thrives in almost all the agro ecological zones of Ghana with the major commercial production areas located in the Southern sectors of the country where close-ness to the ports enhances export trade. In the coastal areas, commercial production of pineapple are concentrated in the Accra Plains, Aburi-Nsawam axis and Awutu areas.

The most common varieties are the Smooth Cayenne, the Sugar Loaf, Queen and MD2. The MD2 variety which is a recent introduction has gained popularity and is becoming widely cultivated due to its high demand in the EU market. However production of pineapple is still very minimal in these production areas.

Investment opportunities therefore exist for the large-scale cultivation of fresh pineapples for domestic and international markets.

PROJECT SCOPE

Strategic options include the commercial scale production of fresh pineapples for export and domestic markets.

INITIAL CAPITAL OUTLAY REQUIRED

The capital outlay required is US$ 0.5 -2 million

PROJECT LOCATION

New pineapple farms can be established on the 50,000 hectares of land earmarked by the Bui Power Authority for agriculture and also in the Accra Plains, Aburi-Nsawam axis and Awutu areas.

PROCESSING OF FRESH PINEAPPLES INTO JUICE CONCENTRATE FOR EXPORT AND LOCAL MARKETS

PROJECT DESCRIPTION

As a result of low production of fresh pineapples, existing juice companies import pineapple juice concen-trate for further processing for the local market and the West African sub-region. Investment opportuni-ties therefore exist for the processing of the fresh pineapples into juice concentrate for export and local markets.

Establishment of processing facilities within 50,000 hectares of available lands in the Bui area have also been identifed and confirmed to be very viable. Pineapple juice processing plants can also be sited in the Accra Plains, Aburi-Nsawam axis and the Awutu areas where there are existing commercial pineapple farms.

Additionally, the pineapple bran obtained from processing can be used for the feeding of livestock.

PROJECT SCOPE

Setting up new processing factories or upgrading operations of existing small scale factories to process the fresh pineapples into juice concentrates.

The fresh pineapple export sub-sector is the most developed of all the non-traditional horticultural export crops in Ghana. It accounts for 20% of revenues from this sub-sector. The smooth cayenne is the main export variety but there is gradual introduction of MD2. The sugar loaf pineapple does not feature much in export due to poor post-harvest outcome on quality.

Ghana exported 41.21mt of pineapple in 2012 and 40.09mt in 2013.

INITIAL CAPITAL OUTLAY REQUIRED

The capital outlay required is US$ 1 -5 million

PROJECT LOCATION

The pineapple juice processing facilities can be sited in the Accra Plains, Aburi-Nsawam axis, Awutu areas and on the 50,000 hectares of available lands in the Bui area.

PRODUCTION OF DRIED PINEAPPLES FOR EXPORTS

PROJECT DESCRIPTION

Drying facilities are required for the production of dried pineapples for export to the European Union and the United States of America.

PROJECT SCOPE

Strategic options include setting up new factories or upgrading operations of existing small scale processors through the introduction of forced drying techniques and packaging equip-ment for the export market.

INITIAL CAPITAL OUTLAY REQUIRED

The initial capital requirement for a factory to produce dried fruits for export is estimated at US$ 0.5-2 million.

PROJECT LOCATION

The drying facilities or equipment can be installed in the Accra Plains, Aburi-Nsawam axis, Awutu areas and on the 50,000 hectares of available lands in the Bui area.

ESTABLISHMENT OF COMMERCIAL PACKHOUSES FOR HANDLING OF FRUITS AND VEGETABLES

PROJECT DESCRIPTION

Pack houses are crucial in the horticulture export value chain. Fruits and vegetables harvested need to be pre-cooled in pack houses to remove the field heat, cleaned and packaged to reduce perishability. This would minimise postharvest losses which is in the region of 30% to 60 % depending on the produce.

PROJECT SCOPE

Privately operated commercial packhouses are needed in farming areas as well as in marketing centers across the country. The scope for a packhouse should include both fruits and vegetables.

INITIAL CAPITAL OUTLAY REQUIRED

The estimated capital outlay for the packhoused range from US$ 1-5million depending on the scale and sophistication of the facility.

INITIAL CAPITAL OUTLAY REQUIRED

The pack house can be located in the Accra Plains, SADA Zone, the Aburi-Nsawam axis and the Awutu areas which are noted for fruits and vegetable production.

PRODUCTION AND PROCESSING OF SOYA BEAN ON COMMERCIAL SCALE UNDER IRRIGATION

PROJECT DESCRIPTION

Demand for soyabean and its derivatives (soyabean oil and soyabean cake) are very high. Soyabean is imported for extraction of oil for local and export markets. The resulting soyabean cake is processed into poultry and fish feeds.

The quantity of soybean grown locally is very low (1mt/ha). Improved technology of production is needed. Mechanised production of soyabean on commercial scale under irrigation, will improve yields to about 6 mt/ha thereby increasing yield, productivity and profitability.

PROJECT SCOPE

Strategic options include the large scale cultivation and processing of soya into soya milk, soya oil and poultry and fish feeds.t.

INITIAL CAPITAL OUTLAY

The capital outlay is estimated ranging from US$ 1- 3 million depending on the production scale.

PROJECT LOCATION

Proposed projects can be located in the Brong Ahafo or Northern part of Ghana where soyabean thrives.

PRODUCTION OF MAIZE FOR DOMESTIC MARKET

PROJECT DESCRIPTION

Maize is one of the most popular food crops on the domestic market and it is grown in all the ecological zones of the country. It is the basis of several local food preparations and the main feedstuff for poultry and other livestock.
However yields under rain fed cultivation are low.
Irrigating maize will result in higher yield, increased productivity and lower prices of maize.
Therefore investment opportunity exists in the large scale production of maize for the do-mestic markets.

PROJECT SCOPE

Strategic options include construction of new irrigation systems for maize production as well as cultivation of maize on existing irrigation schemes for human and animal consumption.

INITIAL CAPITAL OUTLAY REQUIRED

The capital outlay is estimated ranging from US$ 0.25- 2million depending on the production scale.

PROJECT LOCATION

Proposed projects can be located in all the ecological zones of the country.

ESTABLISHMENT OF HATCHERIES AND POULTRY FARMS

PROJECT DESCRIPTION

Eggs and poultry meat are important components of the Ghanaian diet as a source of animal protein. The poultry industry also provides employment for a significant number of people. Even though a lot of poultry farms exist in the country, the broiler industry, in particular, is in decline. Small, medium and large scale producers constitute about 60%, 30% and 10% respectively of poultry farmers in the country.

Whilst the large scale producers employ higher technologies in the form of hatcheries, veterinary services and better marketing arrangements, the small scale farmers employ little or no technologies

PROJECT SCOPE

Investment opportunities therefore exist in the establishment of modern hatcheries and poultry farms in order to increase the scale of production of poultry products and reduce the import of chicken parts from Europe, Brazil and the United States.
Poultry farms can be found in almost every part of the country with meat production estimated at 46,308 metric tonnes in 2012 and 50,985 metric tonnes in 2013. Small, medium and large scale producers constitute about 60%, 30% and 10% respectively. Rural poultry constitutes about 80% of Ghana's poultry population.

INITIAL CAPITAL OUTLAY

The estimated capital outlay for the establishment of hatcheries and poultry farms range from US$ 0.5-1.5 million depending on the scale and sophistication of the facility.

PROJECT SCOPE

Strategic options include construction of new irrigation systems for maize production as well as cultivation of maize on existing irrigation schemes for human and animal consumption.

INITIAL CAPITAL OUTLAY REQUIRED

The capital outlay is estimated ranging from US$ 0.25- 2million depending on the production scale.

PROJECT LOCATION

Proposed projects can be located in all the ecological zones of the country.

ESTABLISHMENT OF PROCESSING FACILITIES FOR PROCESSING POULTRY FOR THE LOCAL AND EXPORT MARKETS FARMS

PROJECT DESCRIPTION

The poultry industry in Ghana is characterised largely by imports of poultry meat. In 2013, imports of poultry products amounted to US$169.2 million.
Local processing of chicken is minimal. All the chicken parts are imported into the country in high volumes. There is also the demand for chicken and its' parts in the West-African sub-region.

PROJECT SCOPE

A strategic approach includes the processing of poultry products for domestic and export markets. Also importers and wholesalers of chicken and chicken parts could be brought on board to utilise their distribution networks.

INITIAL CAPITAL OUTLAY

The capital outlay estimated for this investment ranges from US$ 0.5- 3 million.

PROJECT LOCATION

The production and processing facilities for poultry and its related products can be located in Eastern, Volta, Western, Brong Ahafo, Central, Ashanti and Greater Accra Regions.

COCOA PRODUCTION AND PROCESSING

PROJECT DESCRIPTION

Cocoa plays an important role in the economy of Ghana. Cocoa employs approximately 800,000 farm families spread over six of the ten regions of Ghana. The crop generates about $2 billion in foreign exchange annually and is a major contributor to Government revenue and GDP.

Cocoa can be produced in all the forest areas of the country, particularly Eastern, Ashanti, Brong Ahafo, Volta, Central and Western Regions. Cocoa pods mature and ripe throughout the year.

Cocoa is harvested by cutting the ripe pods from the trees, breaking them open and extracting the beans. The beans are fermented for 6 days with three turnings before drying for another 7 days in the sun. The beans are then bagged, graded and sealed for local processors and export.

PROJECT SCOPE

Investment opportunities exist in the production and processing into products like chocolate, pebbles and cocoa powder. The Cocoa Research Institute of Ghana (CRIG) has also come out with other products that can be produced from the cocoa beans and the cocoa pod. These products include cocoa brandy, cocoa wine, cocoa jam, cocoa gin, cocoa butter soup, cocoa butter moisturizing soap, vinegar and cocoa biscuit. Ghana exports about 800,000 tonnes of cocoa annually. The major national goal is to achieve a 50% processed cocoa as a proportion of the exported.

INITIAL CAPITAL OUTLAY

Estimated capital outlay for the establishment of modern cocoa farms and processing plants range from US$ 0.5 -3 million depending on the choice of the scale of investment of the investor.

PROJECT LOCATION

The production and processing facilities for poultry and its related products can be located in Eastern, Volta, Western, Brong Ahafo, Central, Ashanti and Greater Accra Regions.

SOME CREDIBLE PRIVATE SECTOR PARTNERS

DADTCO

(Dutch Agriculture Development & Trading Company) is a unique private sector company established in 2002 which bases its approach on the combination of private entrepreneurship with a social vision. DADT-CO has a wide experience working with farmers in the developing world, supplying them with agriculture inputs and selling their produce in domestic and export market. DADTCO has its headquarters in the Neth-erlands with subsidiaries in Nigeria, Mozambique and Ghana. In Ghana, DADTCO is located in the Volta Region and it is into processing cassava into high quality cassava cakes. In 2012, SABMiller partnered DADTCO cassava processing to launch their second beer in Africa called Eagle Lager.

WIENCO GHANA LTD

Established in 1979, WIENCO is jointly owned by Dutch and Ghanaian shareholders. WIENCO specialises in the importation and distribution of high quality agro-inputs that meets international standards. WIENCO is committed to improving productivity of smallholder farmers in Ghana. The company has two major in-novations in Ghana's agriculture in recent times, namely Cocoa Abrabopa Association (for Cocoa farmers) and Masara N'arziki (for maize farmers). It is located in Accra at the airport residential area.

CALTECH VENTURES LTD

Processes cassava into ethanol. It is located at Hodzo, near Ho in the Volta Region. The company's total investment the venture is US$ 10 million. The company has put about 486 hectares of land into cassava cultivation. The company produces about 6 million litres of ethanol annually. Caltech is located in Accra.

JEI RIVER FARMS LTD

Jei River farms ltd is into cultivation of pineapple. The farm spans over 7,500 acres and produced over 3,500 metric tons of pineapple for export last year with a target of 5,500 metric tons this year. It produces varieties such as the MD2, smooth cayenne and the sugar loaf.

GLAHCO FARMS

Was established in 1982. The farm is on an 8,467 acre tract of land near Sogakope in the Volta Region. The farm undertakes integrated commercial farming. The objective of the farm is to cultivate agriculture products for both local consumption and for the export markers. Crops currently under cultivation include mangoes and lime. The farm has 190 ha of mangoes and 10 ha of lime under cultivation.

INVESTMENT OPPORTUNITIES IN

MINING

MINING PROJECTS

- *A refinery in close proximity to bauxite mine (for refining bauxite into alumina (US$1.5bn)*
- *A new smelter or investing in a joint partnership with VALCO (for smelting alumina into aluminium for export and local consumption (US$1.5bn)*
- *A processing plant in the Western Region to provide electricity for the proposed bauxite mine, refinery and smelter*
- *An aluminium products Fabrication Plant (US$350m)*
- *A rail system from the bauxite mine through the existing rail system in the Eastern and Western Corridors to the proposed refinery and smelter sites.*
- *The Government of Ghana developed an industrialization plan with the objective of transforming the Ghanaian economy into one with a diverse range of economic activities.*
- *The industrial road map seeks to support Ghana's industrial development to increase the country's electricity generation capacity to 5,000MW within the medium term, and to target the following planned investment opportunities:*
- *Petrochemical industry including methanol, ammonia and urea for fertilizers;*
- *Exploitation of natural resources such as sea salt, iron ore, bauxite, limestone for cement, silica sand; and manufacturing including production of glass bottles, steel mills operations, aluminium smelting and rolling mill operations*

AN INTEGRATED ALUMINIUM INDUSTRY

Ghana has the potential to build a vertically integrated aluminum industry which would take advantage of the full value chain of bauxite development; mining bauxite, refining bauxite into alumina and smelting alumina into aluminium for export and local consumption, fabrication of aluminium products among others.

BAUXITE MINING

Ghana's demonstrated Nsuta bauxite resources are between 526 million and 554 million tonnes with about 160 million tonnes of contained aluminium. The major locations of bauxite are:

- *Affo-Sefwi Bekwai deposits (Awaso deposit) in the Western Region;*
- *The Aya-Nyinahin deposits in the Ashanti Region;*
- *The Atewa Range deposits near Kibi, (the Kibi deposits); and*
- *The Mt. Ejuanema deposits in the Eastern Region.*

AFFO-SEFWI BEKWAI DEPOSITS (AWASO DEPOSIT) IN THE WESTERN REGION

The Affoh-Sefwi Bekwai (Awaso) District deposit has been in production since 1940. This deposit is held under concession by Ghana Bauxite Company Limited (GBCL), which is jointly owned by Bosai Minerals Groups and the Government of Ghana.

- *Location - Awaso*
- *Equipment - Various*
- *Manpower (Technical) : Engineers - mining, electrical, civil, geomatic*

AYA NYINAHIN DEPOSITS IN THE ASHANTI REGION

Some feasibility studies carried out on two of these deposits located at Nyinahin and Kibi in the Ashanti and Eastern regions respectively indicate that the ore can be viably converted to alumina.

THE ATEWA RANGE DEPOSIT (THE KIBI DEPOSITS) I N THE EASTERN REGION

Feasibility studies have indicated that it is economically possible to process Kibi bauxite into alumina using a low-pressure digestion process. Four capacity variants, 200,000; 400,000; 600,000 and 800,000 tonnes per year, two plant locations, at Kibi or Tema, and two financing variants; 80 and 75 percent credit, were evaluated. The option involving 80 percent credit financing of an 800,000 tpy capacity plant located at Kibi was considered to be the most favourable. The 800,000 and 600,000 tpy capacities with locations at Kibi were considered profitable at the time, whereas the 200,000 and 400,000 tpy capacities at the same location were uneconomic.

THE MOUNT EJUANEMA DEPOSIT

This deposit lies on the summit of Mt. Ejuanema, a remnant at the edge of the faulted and highly dissected Kwahu escarpment, about 3 km north of Nkawkaw. The deposit is at an altitude of between 700 and 755 metres.

BAUXITE TRANSPORTATION

The poor rail infrastructure is a major constraint which could potentially impact the longterm viability and sustainability of the Ghana Bauxite Company Limited which led to the company's decision to haul its ore by road instead of the more cost effective and appropriate rail transport in 2012. As a result, bauxite exports increased significantly by 88 per cent from 400,069 tonnes in 2011 to 752,771 tonnes in 2012, which contributed to a significant increase in the corresponding mineral revenue by about 113 per cent from $13,406,433 the year earlier to $28,495,592 in 2012.

Prospective companies can also partner Government in revamping the rail network on Public Private Part-nership basis.

ELECTRICITY GENERATION FOR ALUMINIUM INDUSTRY

The business of the bauxite - aluminum sector is intertwined with developments in the oil and power sectors.

The key success factor in the aluminum industry is low cost production which requires access to affordable electric power. Ghana has hydroelectric facilities at Akosombo and Kpong on the Volta River, the Bui hydro electric dam and a number of Thermal Generating Plants in Kpone and Takoradi. However, generating electrical energy from thermal plants is quite challenging because of the inadequate supply of gas from the West Africa Gas Pipeline from Nigeria. Fortunately Ghana has begun producing gas from her oil fields which will complement the gas from Nigeria. The current challenge with Ghana's energy sector is the inadequate rainfall which has led to persistent low water levels in the Volta Dam hence affecting generating levels.

ALUMINIUM FABRICATION

A promising aluminum fabricating industry spearheaded by an intermediary, Aluworks with a 20,000 ton per year (tpy) capacity represents another huge potential for the Ghanaian economy.

The increased off-take of aluminum from the smelter will facilitate the possibility of Ghana undertaking fabrication that will include casting, rolling, forging, drawing, or extruding—some of the ways in which aluminum can be used to make thousands of different finished products, from beverage cans to car engines and other automotive parts to jet aircraft. It will enable Aluworks to expand its product line and sales to markets in West Africa and the rest of the world. By expanding Aluworks' capacity, more jobs will be created in the formal and informal sectors in wayside or cottage enterprises and further downstream in the distributive trade. Such expansion will also facilitate the local human resource develop-ment of required skills and specialized knowledge and metallurgical research work in the country's educational system.

POTENTIAL OF ALUMINIUM & MANGANESE ALLOYS

Ghana envisages a local aluminum industry that will be linked with Ghana's manganese industry. Al-though ranking far behind steel, the second most important metal in which manganese plays an im-portant alloying role is aluminum. Aluminum-manganese alloys and aluminum-manganese-magnesium alloys, which have been sold under different trade names, have found applications in such diversified areas as kitchenware, roofing, car radiators and transportation. By far the most important use of aluminum-manganese alloys is for beverage cans, of which some 100 billion units are produced each year.

FEASIBILITY STUDIES BRIEF

The expected worldwide growth of primary aluminium demand for the years to come (estimated at around 4.0% on average per year for the next 10 years) will require significant additions to smelter grade alumina production capacities. Smelter grade alumina is derived from bauxite. Bauxite deposits in Nyinahin and Kibi areas, which have been explored in the past, contain sufficient reserves (at least 700 million MT) of good quality. This has the capacity to provide the refinery feedstock for at least 100 years. The average grade of these deposits is about 44% alumina, which compares favourably with deposits found in Brazil and Guinea. At 25 USD/ton, the total bauxite sales revenue is USD 17.5 billion and USD1, 050 billion when fully converted to fabricated products.

ALCAN, VALE, ALCOA and VALCO undertook various feasibility studies to establish the economic viability of the potential bauxite resources. The studies also investigated the logistics requirements and the potential sites of the refinery area as well as a preliminary estimate of costs and an analysis of social and environmental issues. These studies confirm that the bauxite resources could be developed with satisfactory rates of return, with alumina delivered to the smelter in Tema and the balance for export.

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